

Dr. Damodar Dharmananda Kosambi

Life and Work

By

Chintamani Deshmukh

Preface

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 Despite all this turmoil, Kosambi's views are not outdated. Hence an effort is made here to bring out a detailed biography of Dr. Damodar Dharmananda Kosambi.

The list of those who have co-operated and encouraged this effort is long. Mentioning every individual by name and the part he played is unfortunately not possible. To mention just a few; Shri R. P. Nene from Pune obliged me at the very start with all the literature on Kosambi that he possessed which made it easy for me to start the biography. Shri Kumar Ketkar, Dr. Hema Chandra Pradhan, Shri Shekhar Sathe and Dilip Mahajan guided me through their discussions. In the absence of Dilip Mahajan's help I would not have been able to put out whatever little I have in the shape of this book. Thanking all of them for their help, I accept the responsibility for all the mistakes and shortcomings that the reader may find in the book.

Chintamani Deshmukh

(pp1) Kosambi was born on 31st July 1907 in Goa while it was under Portuguese rule. His mother Balabai comes from the Lad family of Goa. Dharmananda Damodar Kosambi, his father was from Sankhaval. Theirs was a Saraswat Brahmin family. But Dharmananda Kosambi's achievement till the birth of Damodar and its continuation later has no relevance to his Saraswat Brahmin origin. Dharmanand's utter disregard towards Caste hierarchy and religious rituals and traditions was inherited by Damodar right from his birth.

The circumstance in which Damodar was born was to an extent some what similar to that of Sant Dyaneshwar and his siblings. Damodar's childhood and schooling was totally different from the normal one thanks to his father Dharmananda. Both the good and the bad effects of this were seen in Damodar's later life too. It is therefore necessary to take stock of the life led by Damodar's father Dharmananda.

Acharya Dharmanandaji, as he was respectfully addressed, was known to be a close associate of Mahatma Gandhi and had an honourable place in the freedom movement. Like many great men of that era he too was captivated by the freedom struggle and he outshined many of the great men of those days involved in that movement.

Dharmananda was born in 1876. He had a weak constitution but was extremely intelligent. Poverty and backwardness of the village hampered his high aspirations. He had to give up his education after the fifth standard and help his old father in order to make the two ends meet. He was married when he was just 15 years old. Around this time he found a new interest in reading books and started reading whatever he could lay his hands on and mulling it over. This made him all the more miserable about his own circumstances. Tending and guarding the coconut trees was the only occupation which made him feel that his life was worthless. By chance he happened to get the biography of Sant Tukaram and his *Gatha* (collection of his verses.) **(Pp2)** Along with this he also got Buddha's biography written for children. These books made a deep impression on the young mind of Dharmananda and he turned to spirituality and became somewhat detached from the mundane affairs of this world. How ever even as he was leaning towards spirituality, he was provided by a relative of his with some progressive literature, including Agarkar's reformist thoughts on religion. This prevented the uneasy Dharmananda from surrendering to God and immersing himself in His service. And on the contrary, his thirst for knowledge which was dormant so far suddenly surged forth. He now became eager to learn Sanskrit and Buddha's teachings in depth and wanted to go away from Goa which he attempted thrice. The first time he reached up to Kolhapur; and he reached Gokarna and Mangalore in the second and the third attempts respectively. Not being able to make up his mind he had to return home every time after a few days.

His father died in 1898. Dharmananda was now all the more eager to leave the house. Meanwhile his first child, a daughter was born in 1889. Within a moth of the birth of his daughter he left the house again. For seven years he lived away from his family partly because of the thirst for knowledge and partly out of fear of getting involved in the drudgery of mundane existence.

A jug for storing water, a rug to spread on the ground and a few coins was all that he had with him when he left the house. He reached Pune and approached Dr. R. G. Bhandarkar, the world renowned scholar and reformist founder-member of *Prarthana Samaj* (a reformist but not an atheist society holding regular prayer meetings) and requested him to help him to study the Sanskrit language. He was accommodated for a few days. How ever Bhandarkar wanted Dharmananda to work for *Prarthana Samaj* and propagate its principles. But Dharmananda made it clear to him that he intended to study the Buddhist religion first and then decide as to what he should do. Bhandarkar argued that the Buddhist religion is of no use to our country and in order to study that religion one has to go to Nepal or Sri Lanka. Dharmananda immediately left Pune and went to Kashi via Gwalior. There he lived on charity

under considerable stress and strain and had to bear insults and disgrace at times. Facing such adversity he studied Sanskrit for a year and a half in the Sanskrit *Pathashala*. The itinerant then left Kashi and wandering on to Nepal, Sri Lanka, Brahmadesh, he studied the Pali language. Pali being the language of the common man, Buddha used it for propagating his thoughts. Later on being patronized by monarchy the Bauddha Bhikshus discoursed in Sanskrit too. Bauddha religious literature thus became available in both Pali and Sanskrit. Yet some original religious works were available in Pali only. The Bauddha religion was virtually obliterated in India along with its literature in Pali. But it survived in Sri Lanka and Burma and its original literature in Pali was available in the Bauddha Hermitages. The Bhikkus there knew Pali well. Dharmananda learnt this ancient Indian language and studied the Bauddha literature in depth. Assimilating both the language and the religion, Dharmananda returned to Calcutta in January 1904.

While studying the religious literature Dharmananda formally became a Bhikshu (a Buddhist monk) and also developed faith in Buddhism. (pp3) From Calcutta he again started wandering; from Calcutta to Kushinara, to Buddhagaya, to Rajagriha, to Shravasti, to Kapilavastu, to Lumbijeevan- all places of Buddhist pilgrimage. He returned back to Calcutta in January 1906.

He had changed considerably since he left Goa as he had acquired an all round education during his wanderings. Not only did he study Sanskrit and Pali languages but he also had an inkling of English while he was in Sri Lanka. He developed a deep understanding of intricate and involved religious literature and gained vast experience of various ways of peoples in different countries. He had to give up the comfortable and easy going Goanese life style and bear all the hardships of a Bhikshu. He decided to utilize his vast knowledge and experience to revive the Buddhist religion and the Pali language in India once again. However he soon realized how difficult it would be to abide by all the restrictions a traditional Bauddha Bhikshu is expected to observe-such as not having any money on oneself or possess any other objects, begging for food only at particular time of the day and so on. Since it was not possible to go by these harsh restrictions in the modern world of the fast moving locomotives and automobiles, Dharmananda decided to formally give up his monk hood and free himself to achieve his goal of propagating Buddhism and Pali language.

He wanted to carry out his work in the vicinity of the Pune city. But he met with Harinath Dey who was very eager to learn Pali and therefore he had to extend his stay in Calcutta. He was now introduced to Manmohan Ghosh, a poet and professor of English. Manmohan Ghosh was the elder brother of Arvinda Ghosh-a revolutionary accused in the 'Vande Mataram' lawsuit who later became famous as Arvinda Rishi and Barindra Ghosh who was indicted in the Maniktol Bombing lawsuit and was hanged. During this period Manmohan Ghosh along with other respectable leaders of the national movement like Satyendranath Tagore and Rasbihari Ghosh, was immersed in the work of establishing the 'National College'. The National College was to start on the 15th of August 1906. Manmohan Gosh invited Dharmananda to initiate a course of Pali language in the college and also develop its curriculum. Although there was not enough time for this, Dharmananda accepted the invitation and completed the task before the opening of the college.

From the first day of the college Dharmananda started teaching Pali on a monthly salary of Rs.30/- Thus he opened the first centre of teaching Pali language in India just in eight months of his return to India. By now the boy who had passed only the fifth standard vernacular and was tending coconut trees in his village had metamorphosed into a sage like erudite scholar through six excruciating years that he spent in search of knowledge. This Babu from Goa, who had so far survived only on rice gruel, now taught at the National College standing shoulder to shoulder with the Oxford and Cambridge returned Bengali Babus. The perturbed mind with which he left his home, now cherished the hope of beginning a new life. He must have pined and yearned for returning home and nearly after seven years he returned to Goa in October 1906. He vividly describes this reunion thus: (q 1) 'He (Shri Vishnu Naik) and I hired a vehicle and went to Sankhvali. The news of my returning home had already reached them. On seeing me in the Bengali Costume my wife started crying. Shri Vishnu Naik finally succeeded in consoling every body. I couldn't possibly stay at home for long for I was required to return to Calcutta before the end of the Durga Pooja Vacation in October. I stayed for a couple of days at home and went to Madgaon. My wife got ready to accompany me to Calcutta but my daughter was so scared of my beard that she refused to join us. From Madgaon we arranged to send her to her grandma's place at Chikhali and I and my wife reached Calcutta.'

(pp4) Dharmananda had left home when his daughter was just a little over five weeks old. Then he led a life of

hardships wandering for a long period as a Buddhist mendicant and gained vast knowledge. Realizing that the life of a mendicant is not conducive to spreading the Buddhist thought he accepted a job and returned to the life of a family man. Balabai, his wife must have felt it like a dream come true expecting happy days ahead. But this was not to be, for, Dharmananda was a born itinerant with a disregard for domestic life. In his later life too neither did he settle any where nor did he spend any considerable period with his family. After a small interlude of family life he used to feel restless and would go away from home and hearth again on some pretext. His stay in Calcutta with his wife and child was not an exception to this. In less than two months of staying together with Dharmananda, Balabai fell ill. Finding it difficult to care for her Dhrmananda sent her back to Goa.

It was December 1906 when Balabai was sent back to Goa. There on 31st of July 1907 she gave birth to a baby boy. As per tradition since the grand father of the baby was not alive then, the baby boy was named after him, i.e., Damodar. Around this time Dharmananda became the lecturer of Pali language in the Calcutta University. It was a stroke of luck for him that within an year of his teaching Pali in the National College, an established university decided to introduce Pali language as a course. This must have been due to Dharmananda's presence in Calcutta. Before accepting the post Dharmananda made it clear to the Vice-Chancellor Ashutosh Mukherjee that he will not give up his work in the National College. The Vice-Chancellor accepted this condition. Dharmananda accepted only one salary, although he worked at two posts the monthly salary of Rs.100/- from the University and worked in the college on honorary basis. How ever he was not satisfied even with a well paid and interesting job. He had no intention of settling down in Calcutta and had made up his mind to return back to Pune for the propagation of Buddhist thought and spreading Pali language.

In the mean time Dharmananda met with the Maharaja of Baroda who was on his visit to Calcutta. On his invitation Dharmananda visited Baroda in July 1908. (p5) The Maharaja tried to persuade him to leave Calcutta and join him at Baroda. But Dharmananda suggested (q 2) that 'he was not at all interested in making money. He would be satisfied with a remuneration just enough to meet his house hold expenses if allowed to continue the work that he is fond of. The Maharaja therefore should allow him to work from a place like Pune or Mumbai for smaller remuneration.' Soon Dharmananda received an urgent telegram from the Maharaja of Baroda, informing him that (q 3) 'he could work from any city in Maharashtra and the Baroda state would pay him Rs. 50/- a month for three years. In return Dhamananda was required to write one book every year for the state of Baroda.' He quickly decided to accept the offer and informed the Maharaja that he would like to work from Pune and would require about a month and a half for winding up his unfinished jobs in Calcutta after which he would take up this new assignment. He once again visited Burma in the meanwhile. This time he collected all the books published in Pali that were available there. The University had granted him about Rs.400 for this purpose.

On his return to Calcutta Dharmananda found himself placed in a dilemma. His principles, his moral fibre were put to test. It so happened that Harinath Dey, a disciple of Dharmananda had convinced Ashutosh Mukherjee, the Vice Chancellor, that for creating the best centre of Pali in their University, it was utterly necessary that Dharmananda is retained in Calcutta at any cost. Accordingly the Syndicate passed a resolution raising Dharmananda's salary to Rs.250/- a month from Rs.100, provided he stays in Calcutta at least for the next three years. He had readily accepted the Maharaja of Baroda's offer of Rs.50 a month foregoing his current salary of Rs.100. But to decline the fat salary of Rs.250 a month was not easy even for this Buddhist sage. He was in two minds. But ultimately the urgency of his mission in life and the promise made to the Maharaja prevailed and Dharmananda could make up his mind. He expressed his reaction to this trying circumstance to a close acquaintance of his thus: (q 4) 'By the grace of the Buddha and the Bodhisatwa, I could finally overcome my greed. And I am extremely happy for that.'

There is yet another aspect to this some what abnormal decision that he took. The Calcutta University at that time was the foremost centre of the process of National Resurrection. Here a new dawn of the golden age of modern science was breaking in India under the leadership of the Vice Chancellor Ashutosh Mukherjee. The enviable opportunity of being a part of this awakening was given up by Dharmananda. His son Damodar too seems to have inherited this peculiar disdain for riches and fame. However it seems his decision was indispensable in view of what his destiny had in store for him. His and his son's lives were to get a totally unexpected turn which he would surely have missed were he to remain in Calcutta.

Dharmananda came to Bombay in October 1908 and stayed in a Bungalow in Borivali, that

belonged to his friend Madgaonkar. (Later he married his son to one of the daughters of this family.) His wife, daughter Manik and the toddler Damodar came to stay with him. (pp6)

Spending six months in Borivali, he shifted his house to Girgaon into a small accommodation in a *chawl* opposite *Prarthana Samaj*. He lived there with his family for just about six months and shifted to Pune dispatching his family to Goa once again. He stayed in Pune for a year.

In his short stay in Bombay he struck a friendship with the famous Sanskrit Scholar and advocate of the Prarthana Samaj group, Dr. Vasudev Anant Sukhtankar. Because of this friendship he got the opportunity to visit America and Russia. An American Sanskrit scholar, Dr. James Woods of the Harvard University had been in Bombay at that time in order to study the Sanskrit language in depth. On being introduced to Dharmananda by Sukhtankar he took Dharmananda's tuition to learn Pali for four months. Thus Dharmananda got introduced to Harvard. At this time in Harvard, Prof. Warren was compiling a critical edition of the Visuddimaggā, a book on Buddha philosophy. The task remained unfinished due to Warren's unfortunate demise. Prof. Lanman then took over the responsibility of completing the work but needed assistance. On his return to America, Dr. Woods proposed that Dharmananda be offered the job and Dharmananda was promptly invited by the Harvard University.

This happened in February 1910, when Dharmananda was about to complete a year of his stay in Pune. Since his stay in Pune was sponsored by the Maharaja of Baroda he asked for the Maharaja's permission to accept the new assignment which was unhesitatingly granted. In the month of April he embarked on his journey to USA via England by ship. He returned after spending two years at Harvard.

For some reason however the work on Visuddimaggā could not be completed. But his voyage to England and America proved as useful as was his earlier peripatetic wandering starting from Goa to Kashi, Nepal, Sri Lanka, Burma and back. While in England, a Dutch trader introduced him to Marxist/Socialist philosophy. He read extensively a number of books on sociology and returned to India with many more books in sociology along with the Biography of Karl Marx. This reading gave a broad comprehensive base of modern thought to his study of religion.

On his return to India, his friend Maharshi Vitthal Ramji Shinde advised him to accept a job in the Ferguson College at Pune. Earlier R. G. Bhandarkar along with Dharmananda had been successful in introducing Pali language in the University curriculum. This provided an opportunity of opening a Pali centre in Pune. Maharshi Shinde personally wrote to the college administration to appoint Dharmananda. Wrangler R. P. Paranjape the then Principal of Ferguson College informed Dharmananda rather curtly, (q 5) 'We (the management of the Ferguson college) are ready to employ him. Although the monthly salary of our Life Members is Rs.100/-, you will be offered Rs.75/- and you will have to teach in the college for at least five years.'

(pp7) Dharmananda did understand that since he was not a graduate or postgraduate or even a matriculate he cannot be chosen a life member of the Deccan Education Society. But that he was asked to work on a salary of Rs.75/- only when all others were paid Rs.100/- a month for the same kind of work certainly did not stand to reason. Every life member had a fixed salary of Rs.100/- irrespective of his age or experience, for this amount was considered necessary to meet the needs of a family. The members were extremely proud of accepting such a low salary on principle. But asking Dharmananda to accept a salary even lower than what was considered absolutely necessary to make two ends meet, only shows how conceited the members were.

Dharmananda had saved some money from his remuneration from Harvard by way of salary and travel expenses. After repaying all the debt incurred by his father he still had one and half thousand rupees with him. He calculated that the shortage of Rs. 25 could be made up from this savings. Spending Rs.25 every month it would last him for five years. Accepting the Deccan Education Society's offer, he thought, he would be able to manage his travel and other expenses and also be able to popularize Pali language in Pune. Dr. Bhandarkar and Maharaja Sayajirao did

not approve of this decision at all. The Maharaja asked him, (q 6) ‘After having served at the Harvard University in America, do you think it is wise enough to accept a meagre salary of Rs. 75/- and underrate your own worth?’ This episode in the life of Dharmananda is of special importance because Damodar too would later on be associated with Ferguson College.

Dharmananda taught in the Ferguson College for six years. Quite a few of his students like Mr. C. V. Joshi (of the Chimanrao fame) and Dr. P. V. Bapat (a Pali scholar known world over for his research in Pali) got their Master’s degree under him.

During this period only, it seems, (i.e., from 1912 to 1918) Dharmananda lived with his family in Pune without any break. Initially he had hired an accommodation in Moti Chowk, Ravivar Peth and lived there with his wife Balabai, the 13 year old eldest daughter Manik and the 5-year old son Damodar. Two more daughters, Manorama and Kamala were born to him during this period. Later on he built a small house of his own near Dr. Bhandarkar’s in Erandavane.

We will have an occasion to refer to this period of Damodar’s life later. At the end of this period, in 1918, Dr. Woods persuaded Dharmananda to join him at Harvard once again. By now he had completed more than 5 years of service in the Ferguson College. Such a long stay in one place must have rendered the mendicant uneasy. In addition this was a welcome opportunity for completion of the unfinished job of Visuddimagga that he had undertaken earlier. So he resigned from the College and got ready to go. Now however the Ferguson College administration tried to retain him and Wrangler Paranjape even offered to raise his salary to Rs.100. Finally he was granted two years leave without accepting his resignation.

(pp 8) Dharmanand travelled this time with Manik and Damodar to America for further education there. He spent nearly four years there. Yet the work of compilation of a fresh edition of Visuddimagga could not be completed due to certain controversy. He, however, revised and brought out improved versions of a lot of ancient Pali literature and taught Pali to many during this period. He struck a close friendship with Weiner (spl), a Jewish professor from Poland teaching there. Dharmananda learned the Russian language from him. Then in August 1922 he returned to India with his daughter leaving Damodar to continue his studies in America.

Now he decided to go to Ahmedabad, where Mahatma Gandhi had founded the Gujarat Vidyapeeth to introduce national education as against the prevailing British education. This institution had a special department of Archaeology called *Puratatwa Mandir* for research in ancient literature. The salary of the post of the professor in charge of this department was fixed at Rs.250/- a month. Gandhiji knew that Dharmananda needed more money to send to his son in America and therefore offered him a salary of Rs.350/- a month. What a contrast with his experience at the Ferguson College, where he had to accept a salary that was less than what his other colleagues were paid which was insulting. Here he was offered more than the usual salary. Accepting a higher salary was a dilemma for this saintly intellectual. He spent three years in this department, teaching, writing and doing research work. Along with this he studied the principles of Jain Religion. He went to Harvard again, for the third time for a year in 1926.

The horizon of Dharmananda’s vision, by now had greatly expanded. Jawaharlal Nehru and his father Motilal Nehru had just returned from Russia. They had gone there to attend the celebration of the tenth anniversary of the Soviet Revolution. In an article on this trip, Nehru wrote about an institution in Leningrad where Buddhist Religion was being studied. Dharmananda was interested in visiting this institution. He asked Jawaharlal Nehru for his advice. Not only did Nehru encourage him to go there as he thought Dharmananda would get much valuable experience there, he also gave him addresses of people whom he could contact. As a result Dharmananda received an invitation from the Soviet Academy of Sciences to visit Russia. During his stay in Russia in 1929 Dharmananda taught Pali in the Buddhist Institution and Leningrad University. He visited Moscow and many other cities and studied the post-revolution social environment there.

In the early 1930 he returned to India. This was the year when Gandhiji set out on his *Dandi Yatra* initiating the Salt Satyagraha (resisting injustice peacefully) and the non-cooperation movement. The movement caught on and spread all over the country. Dharmananda had become one of the closest associates of Mahatma Gandhi while he worked in the Gujarat University and he inexorably was drawn into the movement, joining the salt movement at

Shiroda. Later the Congress Committee of the Bombay province gave him the responsibility of popularizing the Satyagraha movement among the working class. All these activities led to his arrest and indictment. He was sentenced to hard labour in the Thane Prison for a year but soon he was exonerated in the High Court and set free.

(Pp9)Dharmananda again visited America for the forth and the last time in the year 1932-33. On his return he visited Russia for a couple of weeks. Back in India he kept travelling from place to place- Pune, Banaras Hindu Vidyapeeth, Kashi Vidyapeeth, etc. In 1939 he founded 'Bahujana Vihar' at Parel in Bombay and worked there till 1940. Before long his wander lust overtook him and he started moving from place to place-Pune, Bombay, Bangalore, Ahmedabad, Sarnath, Kashi, etc. By now he was a tired man of 70 years. His old diabetes had become severe and troublesome. He felt he was no more capable of any useful productive work. So he decided to end his life by 'Maranatic Sallekhan' a method approved in the Jain Religion meaning a voluntary fast unto death.

For fifty long years Dharmananda remained a conscientious Buddhist. Riches and material comfort meant little to him. In whatever work he undertook he never cultivated any vested interest. In this sense he was a religious man but unlike other religious men neither was he entrapped into religious rituals, nor did he remain engrossed with spiritual pursuits and aloof from social affairs. His biographer, J. S. Sukhtankar calls him, quite aptly, a 'Devout Atheist'. He was to a large extent a rational thinker with a strong socialist base. So the outlook of this devout atheist was modern and realistic.

In 1912, he delivered a lecture on 'Carl Marx: his Biography and Thoughts' under the chairmanship of N. C. Kelkar. The occasion was 'Vasant Vyakhyan Mala' (a series of public lectures held in spring.) Dharmananda thought that acquaintance with the modern socialist thoughts of Karl Marx would prove very useful to those involved in the Indian freedom movement. So he gave all the books on socialism that he possessed to N. C. Kelkar who shouldered the responsibility of editorship of 'Kesari' when Lokamanya Tilak was in Prison. However as Dharmananda himself has written, to his disappointment Kelkar did not make any use of them.

Dharmananda was very happy when Nehru, as the President of the National Congress in the 1929 conference at Lahore declared that he was a Socialist. He was very close to Gandhiji and had a genuine respect for him. Yet he did not agree with Gandhiji's proposition that big land and capital holders should act as trustees of the society and expressed his dissatisfaction regarding it.

Of course Dharmananda's proclivity to socialism was solely because of its principles that are complementary and parallel to the Buddha philosophy. He was particularly attracted by Humanism and the principle of equality in it. He, however, totally disagreed with the violence that was implied in the Marxist revolution. This was, he felt, due to the effect of European Parochialism from which even the great philosopher could not escape. Despite his inclination towards Socialism, he says, he could not understand Marx's '*The Capital*'.

(pp10) Dharmananda's cerebral pursuits described so far are important for understanding Damodar's distinctive personality. The relationship between a father and a son is quite commonly manifested by its love-hate, acceptance-denial and emulation-confrontation phases. But that between an extraordinary father and his remarkable son is obviously much important in order to understand the son.

We now turn to the protagonist of this biography Damodar Dharmananda Kosambi.

Damodar was born on the 31st of July 1907. His father was at that time in Calcutta. Thereafter he went on an American tour and established a household in Pune with his family only in 1912, having accepted a post in the Ferguson College. Dharmananda did stay with his family in Bombay for a short period of six months during this interval. But the rest of the 5 years from his birth he had to spend in Goa with his maternal grand father. Here he became as versatile in the Konkani language as in his mother tongue Marathi.

Dharmananda spent six uninterrupted years-from 1912 to 1918- in Pune with his family. By this time his elder daughter Manik had almost finished her schooling, while Damodar and the younger daughter Manorama had started theirs. The youngest Kamala was just a toddler. This was the only time when the whole family lived together and Damodar lived happily in the company of his father, mother and the three sisters, which he was not destined to enjoy ever again.

Damodar entered the New English School. Here he became famous as an outstanding student of sharp intellect. Right from the beginning he was on the fast track and completed his vernacular schooling when he had not even completed 8 years. He entered the first standard of English school (equivalent to today's 5th standard) in the year 1915. All the teachers admired this talented little boy. His younger sister Manorama remembers how the teachers used to turn to Damodar when the rest of the students were unable to answer a question and say, 'All the powerful warriors are exhausted. Now let us see what our young Abhimanyu can do' and sure enough Damodar used to come out of the catacomb without fail. (Abhimanyu was the son of Arjun and had to enter the confusing military array of the Kauravas because he alone knew how to achieve this feat. He was very young.)

Being too young for his class also caused some hilarious incidents in the beginning. In one of his progress report, it is seen that the would be famous mathematician and historian Damodar obtained 28/135 marks in mathematics and 19/75 in history-geography. His teacher, Mr. Oak had remarked, **(pp11)** 'This boy is very week in mathematics.' However Damodar overcame this initial teething trouble very fast and became the teachers' pet in a couple of years before he was 11years old.

There was one more reason why Damodar's teachers called him Abhimanyu. Not only was he too young for his class but he also had a very weak constitution. He often suffered from cough and cold and fever. He was short and very thin. After school he used to complain that his legs pained. He and his sister Manorama, stood the same height although she was two years younger than him. She could easily twist his hand while he could not do so to her even with both of his hands. But all this was in stark contrast with the tall and muscular personality that he was known to have built up in his later life.

His youngest sister Kamalabai has mentioned about one more aspect of Damodar's character in his school days. **(q 7)** 'He was a thoroughly pampered boy. He would rudely talk to anyone, with little regard to the elders without any hesitation. Mother was much too indulgent towards him. Father was somewhat strict and used to scold him. In addition he was quite short-tempered and stubborn. He would get angry if anyone dared touch any of his things.'

Damodar was short tempered as described by his sister. But his temper was equally matched by his affectionate and generous nature. Once Manorama was down with conjunctivitis her eyes had to be banded and she was not able to see and therefore unable to move around. Damodar used to lead her to the swing and rock her as soon as he returned home from school. Damodar cultivated both these contrasting characteristics-short temper and bluntness balanced by affection and generosity meticulously in his later life.

Dharmanand planned his second trip to USA in 1918. His eldest daughter Manik who was 19 years old had passed her college examination of the previous year. Since Dharmananda was to join Harvard University, he decided to take Manik with him to US for the rest of her education. Earlier it was decided that Balabai and children would stay in Pune to continue children's education. But Balabai was laid up again and Dharmananda had to send her to Goa with the girls. Damodar was to stay in a hostel in Pune. But considering his indifferent health and precocity in school, it was not wise to leave him in Pune. In those days one had to complete 17 years before appearing for Matriculation and Damodar would be ready for that examination at the age of just 14 years, thus loosing 3 years. **(pp12)** This finally decided the issue and Damodar too accompanied Dharmanand to America.

Finally Dharmanand sailed to America with his two elder children in June 1918. The proper route would have been via Suez Canal to Boston on the east coast of America. But because of the First World War, their steamer reached San Francisco on the west coast of America via Singapore and Japan. It took them full 4 months to reach the west coast and had to travel to Boston by train. Damodar caught Influenza during his journey by train. With high temperature and breathlessness he became very edgy. The fever subsided after a short while. But the weakness persisted for a long time. After reaching Boston on October 14th, Dharmananda settled down in the Cambridge city in the state of Massachusetts. This is where the Harvard University is situated. Here the first thing that he did was to admit his children into college and school and begin their studies again. Damodar's unusual education now started.

Education in a foreign country was of much importance even in those days of British rule. All the same it was not as easy as it is today. Only rich men, big land holders and the princely rulers could send their children to foreign countries for education. Rarely would any middle class students get such an opportunity on their merit. Cambridge,

Oxford and London were the most important centres of education and all of them were in England. Germany was known for Science and Oriental Studies. However the significance of the British Oxford and Cambridge Universities was unique. An Oxford graduate and a London Barrister or Cambridge Wrangler was esteemed no less than an ICS officer or an officer from the Sandhurst Military Academy. The opportunities open to them and their social status were not offered to students from any other universities. Even the Indian leadership right from the Congress led Freedom Movement to the Communist Party was dominated by the Oxford Cambridge graduates.

Going to America was not quite fashionable or conventional in those days. America was a rising nation but certainly not the centre of the world then. A few like Ketkar who compiled the Marathi Encyclopaedia, Babasaheb Ambedkar and Jay Prakash Narayan did receive their education in America. But they were exceptions. Similarly a few Indian students were studying at the Massachusetts Institute of Technology near Harvard. But these institutions were no match for the Cambridge of England.

All this education in the foreign countries happened to be at the graduate or postgraduate level. As said earlier, schooling in a foreign country was possible for the children of princes and industrialists like Dorabji Tata or for someone like Jawaharlal Nehru.

(pp13) Damodar studied in school and later in the university for 10 years in America. These 10 years of Damodar's adolescence corresponded with the decade of sensational growth of the American Nation. The youngster's character was built in this stimulating atmosphere. No wonder the Indian gentry established in British tradition found it impossible to accept him.

Dharmananda admitted Damodar in the Rinz Technical High School to begin with, because (q 8) 'Damodar himself thought that academic education would be of no use in India.' But Damodar's indifferent health that had further deteriorated due to flue had rendered him incapable of any hard work like using sledgehammer that is required in a technical school. The principal of the school, however, soon noticed Damodar's extraordinary intellectual potential. He called Dharmananda to the school and explained to him that the technical schools are not meant for talented boys like Damodar. It trains carpenters, blacksmiths and other artisans. So he would advice that Damodar should first finish his high school education and then think of joining a renowned technological institution to become a good engineer. Dharmananda decided to go by the principal's advice and despite Damodar's reluctance admitted him in to the nearby Harvard Grammar School.

There a student was required to complete his primary education in a grammar school, then after 4 years of high school he was eligible to enter the University for Graduation. Municipal Corporation bore all the expenses of primary education that included not only tuition fees but also books, etc. Even medical examination was free. So Dharmananda was spared of the expenses he would have to spend on Damodar's schooling at least initially.

His medical examination in the school revealed that Damodar suffered from tonsillitis and he was operated soon. With the removal of the tonsils he was cured practically of all his recurring ailments. He started exercising regularly in the gymnasium. Both his height and weight increased. The American climate proved very favourable to him. Damodar spent only one year in the Grammar school and joined the Cambridge High and Latin School in 1920.

Thirst for knowledge and willingness to go to any length to acquire it were two most valuable virtues inherited by Damodar from his father. This was accompanied by a sharp intellect too. Damodar's all-round progress started with a bang. Dharmananda would not tolerate any dilly-dallying and insisted that Damodar excel in every subject that he opted for. One can not accuse him of being unreasonable, for, coming from a backward region like Goa, he himself had successfully overcome the ordeal of six years of drudging and toiling. Being able to educate his only son in a country like America, prosperous in every sense of the term, was the fruit of his arduous struggle. **(few lines seem to be missing)**

(pp 14) Damodar was not a person who would be easily satisfied. He read extensively and studied the literature of many languages and acquired a good command over them. (acquiring command over many languages that proved very useful to him in his later research work began while he was studying in this school.)

The climate in Cambridge was charged with science and technology. Damodar could discern how the progress in these two fields enabled America to advance in leaps and bounds. Plenty of literature in science and technology was available. Excellent books were stacked in best of libraries, waiting to be read. What more could Damodar expect? Endowed with a fond interest and an incredible speed in reading coupled with a photographic memory he read voraciously covering as many fields of knowledge as possible. The libraries were replete with books, simple and interesting, introducing laymen to all kinds of subjects. Diagrams, charts, illustrations of latest development in science were rendered in simple form, easy to understand. In Damodar's own words, (q 9) 'Innumerable outlines made it easy to learn something about every branch of science.' Damodar made the best possible use of them all. His impetuous, scientific, materialist outlook was the result of this surcharged atmosphere. Since his adolescence he preferred the nature based philosophy of science to spirituality based on speculation regarding the world.

His pursuit of knowledge pervaded all the fields of life. His progress in sports and body building was as remarkable as that in intellectual achievements. He visited the gymnasium regularly and did a lot of weight lifting and other exercises. Swimming, jogging, trekking and ice skating during winters were his additional pursuits. He was a member of the Cambridge Branch of American Boy Scouts. His enthusiastic participation won him a number of medals, especially the 'Eagle'-a coveted award in Scouts. As his younger sister Manorama relates, he had all these medals stitched on the sleeve of his Scout Coat. His sleeve was overflowing with them when he returned to India.

Damodar spent the first four years of his schooling in America in the company of his father and elder sister Maniktai which gave him comfort and happiness of some family life. Maniktai was 8 years older than him and made up to some extent for being away from his mother. Equally important was the company of his father who helped him develop a proper outlook on research and pursuit of knowledge. Another advantage was the opportunity he had of meeting many erudite professors who were his father's colleagues in Harvard. The most important of these acquaintances was his intimate relationship with the Wiener family. Professor Wiener taught Slavic languages in the University and Dharmananda had learned (pp15) Russian language from him. Leo Wiener's son Norbert Wiener had done very important research in Mathematics in MIT. He became well-known as the Father of Cybernetics all over the world. Norbert Wiener, in fact, was more than twelve years older than Damodar and his wife and Maniktai were classmates. The relationship, commenced as a school boy, later developed into an intense friendship.

A lot of similarity can be noticed in the characters and development of both these eminent men. This could be one of the reasons why they became such fast friends. Damodar's life was quite extra ordinary. But Norbert Weiner's was more so. He is considered one of the child prodigies of the century. In the third year of his life Norbert started reading. His father noticed his keen intelligence and decided to personally supervise the child's development and bring out the genius in him. He was very severe, almost merciless in the upbringing of his son. The father started feeding his son with huge dozes of knowledge on various subjects including mathematics. The son too was more than a match for the father. He came out shining like gold through the fiery ordeal of his father's relentless routine and discipline more severe than that in the military. He entered college when he was just 11 years old and obtained the Ph.D. degree from the Harvard University as he entered the 19th year. Weiner knew many languages. Damodar was a multi-linguist too. Born a Jew, Weiner was an atheist and could never get on with the well established elite. He deeply sympathized with the poor and the Asian, Mexican and other minorities of America. He admired and respected Oriental Culture and most important he was a committed Humanist and never hesitated to take a stand. Though an acknowledged top mathematician of America, he refused to participate in the Manhattan project of Nuclear Explosives. All the same he did work in the project of improving the accuracy of the anti-aircraft guns, because that was related to defence and not belligerence. In 1947 he declared that from then onwards he will not participate in any defence related research work. He devoted the rest of his life in research in mathematics and automation, the technology that would acquire increasing importance in the future. Along with the research work he never stopped warning and alerting Humanity about the problems the new technology was likely to pose.

A common friend of both Weiner and Damodar from America has said that there was a great similarity between the two except that Weiner was short and plumb while Damodar was tall, hefty and brawny. Both were blessed with sharp minds and enviable abilities, diverse interests, a flair for learning languages and the fearless mentality of criticizing wars and social injustice. Both were able to speak authoritatively on scientific and cultural developments that were totally unrelated to their field of investigation, viz., mathematics. With all these

exceptional attributes Weiner and Damodar were of a class by themselves.

(pp16) Weiner was about 13 years older than Kosambi. When they were introduced to each other, Kosambi was a school boy of 13/14 years while Weiner was a youthful shining star in the field of education in Cambridge. Weiner obviously must have influenced the shaping of Kosambi's character and personality.

Maniktai graduated from Radcliff College in the year 1922. By this time Dhrmananda too had almost completed his assignment. So he returned to India with his daughter, leaving Damodar behind to complete his education. Damodar shifted to a hostel. Dharmananda made a provision of \$25 (Rupees 75 in those days) a month for him. Damodar had to spend the last two years of schooling by himself, alone in a foreign country. This was the period when he got virtually integrated with the American society.

In those days Cambridge city was divided into two parts: one was known as 'town' while the other was called 'gown'. The town was mainly populated by industrial workers and white collar office workers. In the Gown part lived the intellectual elite of the Harvard University. Damodar's friends circle mostly lived in the town. The building of the YMCA was situated in the Cambridge Central Square. Damodar frequented this place regularly using the YMCA Gymnasium and Cafeteria extensively. Later, on entering the Harvard University, he became a member of the Gown society. However his bond with the 'Town' remained intact as related by one of his fellow students. He enjoyed the cheap hotels and cinema houses in the town and preferred to stroll in the Cambridge Central Square of the town to the Harvard Square frequented by the elite of the Gown.

By now, it seems, Damodar had adapted himself to the American Way of life. During the holidays he used to work in some cow-pen or an orchard. Here he learnt three important American virtues-dignity of labour by dirtying his own hands, independently finding one's way or opportunity and not bothering about any established social or authoritative hierarchy; the virtues scarcely found in India even today.

Damodar passed his final school examination with flying colours. In those days successfully passing an entrance examination was essential to enter into Harvard University. Only a few candidates were exempted from this on their merit. Damodar was one such student admitted without appearing for the entrance examination.

There was a tradition in the Cambridge and Latin School, to publish each student's photo and a couple of sentences to appreciate his merit in the final examination in the school's annual Bulletin. The bulletin of 1923 contains Damodar's photo with the following lines: **(pp17)**

Kosambi, Damodar D. "Baba"

380 Harvard Street

Harvard Grammar School

New English School, Poona, India

July 31, 1907

"The Rest to Some Faint Meaning Make Pretence

But Baba Never Deviates To Sense"

Swimming, 1923

Track, 1923

Winner Review Literary Contest, 1923

Harvard.

This small piece of record throws enough light on Damodar's achievement during his school years. Besides Damodar's name his nickname, Baba is written in inverted commas. Baba was Damodar's pet name. (Dharmananda himself was called Bapu in his family). Damodar was popular as Baba among his schoolmates and friends circle from the town. (Later his few close friends used to call Damodar Baba on his own insistence.)

Direct entrance to Harvard was just one of his achievements. The other achievements were his excellence in swimming and running. He had won a prize in essay competition. The above mentioned two lines, (q 10) "The rest to some faint meaning make pretence but Baba never deviates to sense" subtly describe his nature. The insinuation in these lines seems to point out to Damodar's impetuous and mischievous behaviour refusing to go by the socially established demeanour while he was only a schoolboy. In his later life too he persistently took people by surprise, at times, for no reason what so ever.

Along with the direct admission to Harvard, Damodar was successful in securing a scholarship too. He excelled in a number of subjects but mathematics was dearer to his heart than any one of them. About this lure of mathematics he writes, (q 11) 'However I chose mathematics because I could not resist its fascination'. His wish for technical education, expressed when he was merely 11 years old had obviously vanished by now. (pp 18) So entering MIT, an institution of excellence in Technology that existed in Cambridge itself was out of question. Instead he availed the opportunity of higher education in Harvard University that could vie with any European University of those days. Unfortunately, however, Damodar was not destined to exploit this opportunity to the full.

In 1924 when he successfully passed the final examination of his school, Damodar was running his 17th year. He was brought to Cambridge from Poona when he was just 11 years old. It must have been quite traumatic to be torn away from the sheltered and secure atmosphere of a small, close knit family and be put into an unfamiliar milieu, of a fast growing and overly competitive society, culturally and socially poles apart. It was like a child used to taking a plunge into the water of a cistern, being thrown into an open sea to swim. In the first four years of his stay in this atmosphere, Damodar was secure and assured of support in the company of his father and his elder sister. His sharp intellect helped him not only adjust to the new environment but also shine in it. His physical development was equally enviable. He excelled in both intellectual as well as physical fields. Yet it is quite likely and natural that a kind of psychological and emotional vacuum prevailed in Damodar's mind creating a sense of insecurity while he was in America. In the Indian families boys are much pampered and given attention even today. Damodar's case was quite extraordinary. He was the only son among three daughters, born after his father had returned home after seven long years and 9 years after the first girl child was born. He must have been a darling of his mother. His younger sister has written that their mother pampered him a lot. Severing these close emotional ties in his childhood must have caused anxiety and tension in his juvenile mind. At the end of his schooling Damodar must have become home sick and restless to be back with the home and hearth. Longing to return home, Damodar found it difficult to concentrate on his studies. Sensing this Dharmananda called him back to India.

Damodar postponed his studies in Harvard and came home.

At the time of Damodar's return in the latter part of 1924 Dharmananda was employed in the Archaeology Department of the Gujarat University situated near Sabarmati Ashram. Maniktai was Superintendent of the Ahilyashrama girls' school in Indore. Their mother and (pp19) the two younger sisters lived with Maniktai. Damodar spent his time between Ahmedabad and Indore. In Gandhiji's close circle of great leaders of those days, Dharmananda was a much respected member. Damodar was very fortunate to know them all and develop acquaintance with them. Most notable of them were the then vice-chancellor of Gujarat University, Acharya Kripalani and the head of the *Puratatwa Mandir* (department of archaeology), Acharya Muni Jinviyayji. Damodar must have seen Gandhiji quite often at close quarters. As some of his close friends stated that Gandhiji's influence on him was long lasting and for some time he made it a point to use Khadi. But his scholarly and academic development in the later life shows that he did not care much about Gandhian Philosophy. Muni Jainviyayji, being a Jain scholar was nevertheless his fast friend. Damodar never made any use of his contacts with these eminent people. The only exception was when Jinviyayji's support and encouragement proved useful for getting some of his Sanskrit books published twenty years later.

Principal R. B. Joshi of Indore has related at length one episode from Damodar's life during this period in India.

This episode well illustrates his personality in those days. (q 12) Principal R.B. Joshi had said, ‘the students of the Holkar College of Indore had organized an excursion. They had planned to stay in Dr. Sukhtankar’s Bungalow at night and spend the next day climbing up and down the mountain seeing the waterfalls of Patalpani, Brahmakund, Mendikund, etc. Vishnupant Barpute, the chief of the Scout Movement in Indore was our leader. Damodar Dharmananda, i.e., Baba Kosambi had joined us.

‘We all appreciated Baba’s company. All of us were curious about the way the son of a world renowned Maharashtrian, educated in America would talk and behave with us. In the beginning we would watch him from a distance because there was such a lot of disparity between him and us. We could talk in English falteringly while he would talk mostly in English fluently and that too in American English. He talked in Marathi too but only a little and it sounded quite unnatural. For an age of 16 or 17, he had a brawny and hefty body. His solid shoulder muscles peeping through the open collar of his Khaki shirt looked like the sloping sides of a pyramid. The portions of his arms below the half sleeves of his shirt, from the elbow downward were shaped like a sculpture. Attired in khaki shirt and khaki Knickers with a haversack flung on his back and a solid stick in his hand stirring around, his attractive figure arrested our attention. Despite these heroic qualities he talked so freely and with such ease that in short while he was one of us. His English became intelligible to us and we sensed the difference between spoken English and bookish English. He gave toffees that he had brought with him to all of us. He occasionally would take a toffee back from someone telling him, ‘Hi, you have one too many!’ and give it someone else. I heard this idiom for the first time and remember it ever since. At times he did not spare even Barpute from his banter.

‘When he took off his clothes for bathing in the Mendikunda, his form in perfect proportion like a Greek statue astonished us. He then started talking about exercise and showed us how to exercise and build the muscles of the back and the shoulders into perfect shape without using dumbbells, chest expanders and such other equipment. He told us that Bernard McFadden who is so popular here was not appreciated in America.

‘He was always first to offer his hand to help those who faltered while crossing a rapid brook or climbing up and down a mountain. Baba surely was no snob.’

(pp20) During this time, Damodar visited Goa to meet his maternal uncle, cousins and friends. His was a big circle of relatives and friends in Goa. Quite a few of them have taken the trouble to write anecdotes about him during his travel in Goa. Damodar himself must have told many of these anecdotes to his friends. Most of his time in Goa, he spent in gathering information about mineral wealth and water resources there. He investigated into the use of these natural resources and discovered that they were not properly utilized. It seems that he also did a lot of investigation as to how to remedy this shortcoming. He fulfilled his life long pursuit of wandering in the jungles to his heart’s content. His uncle has written about his strange interest in hunting which took him into the jungles of the Sahyadri Mountains with a rifle. This surely is a strange interest for the son of Dharmananda who had devoted his life to propagating religious teachings of Buddha and who had been an active, whole hearted supporter of non-violent movement of Gandhiji.

Memories written about his later life by many tell us that his passion for hunting persisted for a number of years later. But there is no hint in any of the memories to show how expert a hunter he was. Yet there is one clue. The legend says, "He was never satisfied with just tracking and shooting his prey but was rather more interested in tracking the path of the bullet, which is a problem of ballistics. Every school boy knows that the path of a bullet is parabolic. But finding the bullet’s actual path is quite complicated as it is affected by many variables like atmospheric friction, direction of the wind, size of the bullet, etc. Damodar, it is said, made a lot of progress in solving this problem at practical level all by him self and developed equations to determine the path. He fired several rounds of bullets and verified the accuracy of his equations. Later in the first year of the college, when a teacher started teaching them about the parabolic path at an elementary level, Damodar contemptuously shrugged his shoulders saying, (pp 21) ‘what a waste of time explaining trivial things!’, and left the class." Thus ends the legend. It does not throw any light on how Damodar grappled with this problem but it does bring out his virtue that is rarely found in others. Once he traced the basic principles involved in any problem he would proceed to put them into practice to solve problems of real life. This attitude of independent investigation could be frequently visible in his later life too. Normally Indian students do not try to relate the knowledge they acquire from books to real life situations. (Thanks to Macaulay’s educational system.) Damodar received his early education in America and picked up this virtue there when quite young.

While Damodar wandered in India the problem about his higher education remained unresolved. He must have made some efforts to get admission into some Indian Institution, in vain, for, the final school leaving examination that he passed with flying colours in America was not recognized in India at that time. His father, Dharmananda was working in the field of education. Yet he did not put in any effort to secure admission in an Indian University for his son; so writes his biographer J. S. Sukhtankar. Probably because both the father and the son thought that the traditional, inferior education available here was of no use.

In the year 1925, Damodar did not do any thing in particular. Dharmananda was negotiating his third visit to Harvard. Finally he gave up his post in the Gujarat University and left for America in January 1926. Damodar too sailed to America with him to join Harvard College.

The home sick lad having stayed in the company of his mother and sisters for a while was comforted and relieved of his mental and emotional strain. On reaching Harvard he began his education afresh with the same enthusiasm and vigour.

This one year's vacation was useful in one more sense. His roots in India became strong and firmly settled. He got acquainted with the problems of India and the atmosphere here. He could now compare his experience in America with that he had in India. He had been to America as a child of 11 years. And it was necessary for him to reinstate his bond with his mother land before he embarked on another long journey in higher education. This is what he gained in one year's vacation.

But in practical sense he lost quite a lot. Four years later when Damodar graduated from Harvard University the Great Depression was threatening America and the rest of the world, rendering any further research impossible. Damodar was obliged to return to India without a Ph.D. degree. It would have been possible if he had graduated a year earlier. **(pp 22)** In that case his later research work would have taken a different turn. Destiny had a different plan for him.

Damodar entered Harvard University in January 1926. Dharmananda stayed with him for a year and a half. Both father and son lived on the first floor of an airy rooming house at 10 Trau Bridge Street in Cambridge. Damodar by now had grown enough not only to take care of his own studies but also to help his father in his research work. In this process he was introduced to Pali language and also research and revision of ancient literature.

Dharmananda returned to India after his tenure was over. Damodar now shifted to a room on the top floor of the same house. At \$4 a month this room was the cheapest available in Cambridge at that time. It was situated at the end of the stairway with a sloping roof and only one window. There was no provision for warming the room. But these inadequacies did not count at all for Damodar. He was not inclined to rest and enjoyment. Nor did he have any time to indulge in such luxuries. He put his mind and soul in the pursuit of knowledge; knowledge not in just one field but in as many fields as it was possible to acquire.

The remaining three rooms of the top floor were occupied by American students. One of them has described the interiors of Damodar's room. According to what he remembers just a single picture was hung on one of the walls. That was Gandhiji's photograph. All other walls had shelves full of books on astonishingly varied subjects. There were plenty of books on scientific subjects mostly in German (Germany being the most important centre of sciences in that period prior to the Second World War.) Plenty of philological books and editions of Bible in Latin, Greek, German, French and other languages decorated his shelves. He used the Bible in several languages for comparative study of those languages. He had paperback editions of plenty of books in French, Italian and German literature. He was a voracious reader covering a vast span of reading material. He could read with a tremendous speed and a photographic memory. He acquired this high calibre talent in his twenties, which was so manifest that any one who came in contact with him did not fail to notice it.

Reading something light was useful to reduce the strain produced by serious books and Damodar devoured a lot of Mystery books which craze continued in his later life too. A couple of persons had told the author of this biography that he finished three mystery books in one trip between Pune and Mumbai by the Deccan Queen. **(pp23)** Another remedy to reduce the strain of serious reading was to see a cinema. He used to see two or three pictures every week. This was a new medium of entertainment and Damodar fully exploited it. He used to attend

all programs of western classical music and symphonies. But he used to buy lowest tickets of 25 cents and listen to the music from the high balcony. The top floor of the rooming house was quite noisy at times as Damodar and his friends played card games dominated by clamour and leg pulling. Damodar led these boisterous gangs. He could not grow out of this habit of leg pulling and continued with it teasing his fellow travellers on the journey between Pune and Mumbai.

Another hobby of his was to wander all over in the surroundings where he lived. The banks of the river Charles that flows through Cambridge were thick with woods. He loved to wander through these woods with his friends on holidays which he continued throughout his later life. As he settled down in Pune he regularly walked up the Hanuman Hill and went on long tours of the surrounding areas on holidays. During these tours he carried out important research of prehistoric period. His colleagues in this research work describe how they enjoyed Kosambi's company on these tours.

He liked to eat at the cheap hotels in the towns on his visits and savour the flavours of all the tasty dishes. While in Harvard he developed a taste for Chinese food with his Chinese friends. In his food habits he did not observe any restraints or restrictions. His father, however, was a staunch vegetarian. Later on during his stay in Aligarh he visited a number of Muslim Hotels in the market area and discovered one hotel that offered the best Biryani in the town. He frequented this hotel and recommended it to all his friends. While working in the Tata Institute of Fundamental Research (TIFR) in Bombay, he used to visit the Nankin Hotel near Gateway of India and another Chinese Hotel opposite to it and have his lunch there. A few selected friends and students were fortunate enough to accompany him at those restaurants. Today no one bothers about what other people eat. But in those days of 1930-35, for a Brahmin to go to a Muslim Hotel and eat meat there was something unimaginable and almost forbidden and so was for a Maharashtrian to savour Chinese food in a Chinese Hotel. But Damodar cared little for these prohibitions and continued with his habits acquired while in Harvard.

Eating chocolates was another habit he acquired in America. Professor Joshi has described this habit of his. He continued to eat Cadbury and other quite expensive imported chocolates to the astonishment of his companions. Many of them have related how Kosambi when pleased with their work used to show his appreciation by offering them big bars of Cadbury or a tin of toffees. **(pp 24)**

Like all other American students he worked in some orchards or a dairy to earn some pocket money. Later on he used to trace his rheumatic pain to his hard toil of lifting heavy milk cans during his student days, with a little grouse but at the same time with pride too.

All the above trivialities depict Kosambi's personality that took shape during his stay in America. But his main purpose there was to get good education at Harvard. This he accomplished with great success.

His education in Harvard up to his graduation was quite unique. He was not interested in further education. Instead he began teaching mathematics and pursued his own independent research. He did not confine himself to the study of only a few subjects with an eye on any specific subjects for post-graduate degree. This gave him freedom to work on as many subjects of he wished. In the educational system of America, unlike in our system, there are no water tight compartments like Sciences, Arts, etc. One can offer any subjects from science to sociology to history to languages for graduation. He offered 18 courses in one year and completed them all quite successfully.

Mathematics of course had always been his first love, and therefore, the main subject of study. He was fortunate to have the best teacher in mathematics at Harvard, Prof. George David Birkhoff. Garret Birkhoff, his son too became an eminent mathematician and became more famous afterwards. But his father George David Birkhoff remained unparalleled. He was the first internationally acknowledged American mathematician. All other well known mathematicians of that time were educated in Europe and even Americans thought that being trained exclusively in America could not achieve much. One can find a parallel to him in Dr. Raman of India who without going abroad conducted original research on his own that earned him the most coveted Nobel Prize in Physics. Birkhoff in addition founded his own school of mathematics that produced eminent mathematicians on the American soil and put America on the world map in mathematics. Damodar had the opportunity to learn at the feet of such a self made Guru of mathematics. Birkhoff admired Damodar and admitted him into his intimate circle of students. Birkhoff used to conduct a special course to individually guide his favourite students. Kosambi was admitted to his

special course on the Multi-Body Problem.

Birkhoff expected Kosambi to do some important research in Mathematics and considering the number of courses that Kosambi had chosen, advised him to concentrate on mathematics. Kosambi was now in two minds. His interest in mathematics was beyond doubt and so was his desire to do original research in it. But his craving for knowledge in as many subjects as possible kept pulling him away. He could not decide whether to discontinue other courses or at least reduce them and then concentrate on mathematics. It was equally difficult not to pay heed to Birkhoff's advice. Damodar wrote to his father about his dilemma and asked for his opinion. Dharmananda supported Damodar and wrote back, that he was delighted by Damodar's yearning for vast and varied knowledge, covering as many fields as possible. With his father's support Damodar was now able to make up his mind. He mustered enough courage to disregard the advice of the Guru of Mathematics. Dharmananda's support was not unconditional. He expected Damodar to not just study every thing possible but wanted him to excel in every subject he undertook for his study. He had expressed this wish explicitly and told Damodar quite tersely about it. Here is an interesting episode revealing Dharmananda's mind.

In an examination at the end of one session Damodar had A Grade in three subjects out of four and a B Grade in the fourth subject. Getting three As in Harvard University was certainly laudable. But Dharmananda felt otherwise. One B was a disgrace for him. He wrote a very strong letter to Damodar, that if he is not able to get A grade in every subject, it amounts to wasting his time in America. And in that case he better return back to India. Damodar became very uneasy and decided that he had to regain his father's appreciation of him at any cost. By this time the second session had already begun. So he decided to take an extra course in the summer vacation and shine in it so much that his father will have no choice but be pleased with him.

Damodar had interest as well as flair for languages. He already knew Greek, Latin, German and French. He had not learned Italian so far. His father, too, was an accomplished student of Pali. This might be the reason why he chose to learn Italian language in order to prove himself in the eyes of his father. He started with the elementary course in Italian language in the next summer. For this course there were four standard books in simple Italian for the beginners. Every student was expected to study two of them. Determined to face up to his father, Damodar obtained original editions of all four books and studied them meticulously. At the end of this course (pp26) his professor sent him a message, 'I have been a teacher of Italian for many long years. But this is the first time that I am required to grant the A + grade to any one.' Damodar was very happy and sent the chit that his professor wrote to him to his father without adding a single word.

Later on Damodar's neighbour, a fellow student, Lawrence Arguimbau heard him animatedly talking with another person for quite some time. When that fellow left, Lawrence asked Damodar about this heated discussion out of curiosity. He casually replied, 'Oh, that one; he is writing a Ph.D. Thesis on Dante. So I was guiding him.'

It is hard to believe, for any one, that a student who has completed only a primary course in Italian, despite his A+ grade, can be so proficient as to be able to guide a Ph.D. student. But not for Arguimbau. For him Damodar's behaviour was not abnormal. Neither was he exaggerating nor was there even a trace of arrogance, for Arguimbau had experienced Damodar's command on various subjects at first hand.

Arguimbau was an undergraduate student of nuclear science. Kosambi's main subject was mathematics and he had not even completed the sophomore course in physics by that time. (Remember his research on the path of a bullet?) Once Arguimbau casually mentioned about an article written by Einstein regarding Bohr's Atom. It was published in a German Research Magazine and was not widely read. The discussion that ensued there after revealed that Kosambi had read and thoroughly studied that article! In addition he gave Arguimbau a number of other articles written by Einstein on that subject which he had not read despite being a student of nuclear physics.

These episodes disclose the depth, width and strength of the foundation of all-round knowledge that Kosambi had built for his own education. But the credit is not solely due to his rare intellect and his capacity for unbelievably hard work and perseverance. Part of the credit is also due to other factors like the environment that nurtured the qualities he was born with, and the American atmosphere that provided matching challenge to his ambitious intellect and enough and timely opportunity for his all-round growth. The American society at that time was blossoming and on the rise. The education there placed equal emphasis on the classical European culture and

modern scientific and technological ethos. Vast knowledge in every field was easily available there for any one for asking. The Widener Library in Harvard is very well equipped and considered one of the best libraries in the world. The vast knowledge from ancient to modern literature, innumerable books on science and technology and plenty of research papers available there provided momentum and exercise to Damodar's high-speed reading and photographic memory.

(pp27) The quick development of trade and industry in America had made that society competitive. Harvard's educational atmosphere too had become competitive as a result. Harvard being a first grade university had attracted a number of bright and gifted young students from the rising society. Naturally there was much peer pressure and every student had to struggle hard. It is like running a race. More the competition more is the speed of all the competitors. If there is no one to match the ability of the best runner, he too slows down and takes longer time than his own record. This applies to educational and intellectual fields too. In such atmosphere the gem of Damodar's multifaceted intelligence was shaped by the Guru Birkhoff, the ideal researcher Norbert Wiener and the contending fellow students. Nothing of this sort was possible in India.

Finally after 3 years of study Damodar became Bachelor of Arts in 1929 with spectacular success. He was also awarded the title of '*Summa cum Laude*' (equivalent to distinction in Indian University) and the membership of '*Phi Beta Kappa*.'

However circumstances now took a strange turn and Damodar could not continue his research work in America any longer and could not get his Doctorate degree.

The first 10 years of Kosambi's stay in America was the most prosperous period after World War I, when American Free Economy grew by leaps and bounds. By 1929 the growth started declining and the World Economy was increasingly being caught into the whirlpool of stagnation. The total collapse came by the end of 1929. The rich speculators were rendered penniless overnight. One after another industries closed rendering thousands of workers jobless. Unemployment was so rampant that even highly educated men had to accept any low paid job that was available. Universities had curtailed research assistants' posts and many aspiring science students were disappointed. The great depression was expected to continue for a long period. Later it was slightly ameliorated when President Franklin Roosevelt tried to bring the situation under control by government intervention.

The storm had been gathering since the beginning of 1929. Economic stagnation hindered growth. **(pp28)** Normally temporary jobs were easily available to student during their vacations. Even these became scarce. Universities had to curtail the number of scholarships and fellowships due to lack of funds. This situation was bound to affect and did affect Damodar earlier than others.

Damodar despite being awarded the '*Summa cum Laude*' at the Arts Bachelor degree was not given Mathematics Fellowship for post-graduation for a few reasons, some of them being related to Kosambi's nature. At Harvard, normally a student after spending 4-5 years was expected to leave that University and seek admission in another university with a different atmosphere. This custom prevails even today. Of course there were exceptions and a few selected students were offered Research opportunities in Harvard University. Kosambi was not selected due to fewer fellowships and probably also due to the reluctance of the Department of Mathematics to admit him because of his diverse interests and consequent lack of focus solely on mathematics. Birkhoff did acknowledge excellence but he could not have forgotten that Kosambi had not heeded his advice to concentrate on mathematics and give up his multifarious interests. To add to all this, Professor Graustein, the guide for Differential Geometry, the subject of Kosambi's interest was on one year's leave and away from Harvard.

As a result Kosambi failed to get the fellowship. Later on in his letter to an American friend from Harvard, Kosambi explains why he was not given fellowship there. **(q13)** He wrote, 'Incidentally I had no fellowship either, being interested in too many things, not to speak of my uncouth appearance, rude manners and the rest.'

For a couple of months he stayed in America looking for opportunity of higher education there. Finally he gave up the idea and set sail for India in the month of May. He stayed for a while in France and Italy. Two authorities Eli Carton and Levy Chivita in Differential Geometry were doing research in Paris and Rome respectively. Kosambi tried to contact them but was not successful in doing so. Finally he returned to India with the Arts Bachelor

Degree.

His ten years stay in America for school and college education had positive effect on Kosambi. (pp 29) He learned to value Individual Freedom and Dignity of labour.

The American society was an open society with more scope for upward social movement and much less enamoured of social hierarchy. There was much more individual freedom here than even in England, leave alone India. Fearless plain speaking regardless of status or repute, being self dependent, parity in behaviour with people of all classes, regard for objectivity in research work are the valuable attitudes that he cultivated in America and which are rare in India. He also picked up a few bad attitudes too. Being heedlessly frank and truthful was a distinguished characteristic of Dharmananda. Never did he hesitate to tell the truth to any one on his face, even Gandhiji himself. But in his otherwise normal behaviour he was a very gentle and humble person. Damodar's plain speaking, however, smacked of arrogance. He spoke bitterly with his equals and treated them with contempt. This could have been a mask or a reaction to the way he was treated. But it also reveals extreme self confidence and egoism that he might have developed in America. He retained his American manners and American accent till the end. He proudly called himself, of course partly in jest, 'a wise guy from Cambridge.'

Kosambi's achievement was one aspect of his circumstances. The other aspect was the effect on his development. These were not exactly ill effects; they were beneficial in a way. They were, however responsible for some of the prickly edges of Kosambi's personality. To understand this, one has to consider Kosambi's social status in America. All the available meagre references to Kosambi's life in America help us develop a hazy sketch of his status there.

During his school days his friends were from the town. Even in his later life in Harvard University he frequented the town more than the campus. Wittingly or unwittingly he identified himself with the common people and not the elite of America. Financially he was not quite well off. On top of this being an Asian he was an outsider. A mention made by Norbert Weiner in his autobiography is relevant here. He casually writes about his acquaintance with Kosambi while Kosambi was studying in Cambridge, 'Damodar's father fled from India and was teaching at Harvard.' Dharmananda, in fact had gone to Harvard (pp 30) at the invitation of the Harvard Oriental School. He had no reason to seek political asylum there and he was very well acquainted with Norbert Wiener's father. Despite all this and his friendship and sympathy for Kosambi, the derogatory remark Norbert made speaks a lot about what Americans thought about Indians who went there.

It was after the First World War when Kosambi went there. American prosperity was growing by the day. But this prosperity replaced the American liberalism of the earlier decade by the capitalist rat race. Hatred of the Jews and racism were openly advocated. Christians behaved with the Jewish people and those with black or yellow skins with disdain. Other minorities – Mexicans, Latin Americans and those Europeans that did not belong to the middle class suffered the same treatment too. They were considered second class citizens and given step-motherly treatment. To an extent Kosambi too must have experienced this disdainful attitude of the Americans.

He himself has expressed grief over this treatment. According to his friends, he said, (Q14) 'he had two counts against himself, a brown skin and a "Jewish" nose.' One of his friends has written that he was reluctant to allow any one to take his photograph because of his long nose. For a boy born as a high caste Indian, being treated like an outsider of poor origin Kosambi must have felt hurt.

In normal circumstances it would not have affected him much. With all the awards and prizes that he won, he had proved his excellence in both the academic and the extra-curricular fields. However in the beginning of 1929 the situation started worsening and it became necessary to take into account many aspects while making a choice of the best candidate for the fewer available places. Kosambi, it seems, lost to the American candidates because of the above extraneous factors.

This was the emotional background that gave a leftist, socialist turn to Kosambi's thought. A heart felt sympathy for the neglected downtrodden classes, coupled with a passionate anger towards the selfish, exploiting policies of the gentry had become his nature. Even in his writings one could see a strong under current of broad Humanist outlook along with his erudite logic and sublime imagination. These trends to some extent must have taken roots in

his experiences of the American milieu.

That he had to return to India just after his graduation without any chance for post graduate degree affected **(pp 31)** his future career as a creative researcher in mathematics. It was the most important period of his student life when he had to return to India. He was deprived of that rich experience of working on an intense research thesis that is essential for maturing into a good researcher. But Kosambi did not lose courage. He was a born fighter and had a strong will. He struggled hard all by himself to achieve what was considered impossible. Single mindedly, like the mythical Eklavya, he struggled very hard to initiate world class research work in India despite all the shortcomings and adversities that one has to face in the atmosphere here. To an extent he was successful too. However the fact remains that he was deprived of the research experience in the advanced centres of learning during the most important period of his life. And it did hurt.

In those days there were very few openings for good jobs. The employment fields were not as varied as they are today. All that Kosambi could aspire for was to get a lecturer's job in a university and in India the vacancies were limited in the field of education too.

On his return from America he stayed for some time with his elder sister in Bangalore. Maniktai's husband, Dr. Ram Prasad was a highly qualified engineer of the Massachusetts Institute of Technology in America. Kosambi knew him since his Cambridge days. Ram Prasad advised him to apply for a job in the Calcutta University or the Banaras Hindu University. He supposed Damodar would be working in a very conducive atmosphere in these Universities where a number of Dharmananda's friends worked.

The post of Professor of Mathematics was vacant in the Banaras Hindu University at that time and Kosambi was appointed there with a monthly salary of Rs.300 and accommodation. The Vice Chancellor, Pandit Madan Mohan Malveeya had a great respect for Dharmananda and he showed affection towards Damodar as Dharmananda's bright son, educated in America.

From whatever little information that is available of that period, it seems Damodar started well. He mixed with his students and played hockey with them and participated in all outdoor games. His research work also began here. His first research paper, "Precessions of an Elliptic Orbit' was published in 1930 in the Indian Journal of Physics. This paper on a topic from Nuclear Physics, in a way, initiated his research work. Along with teaching mathematics he started teaching German language in his spare time. **(pp 32)** In those days most important research papers were published in German. To learn German was essential for the study of modern science.

Kosambi however was not happy at the Banaras University. It was not possible for a young man with forward-looking modernist thoughts to adjust himself with the conformist traditional atmosphere of the Banaras Hindu University. Nor were his colleagues who being senior expected to be treated with some respect. One episode of his German classes tells of his rude stinging tongue. Those who attended his German classes were told, right at the beginning that they have to be scrupulously in time. One of his students was a senior colleague of his. Once he entered Kosambi's class five minutes late. He was unceremoniously told to leave the class. This behaviour would not have been approved of even in Harvard. It was sacrilege in a society that holds hierarchy of seniority in highest regard. And this treatment was meted out to a senior professor who in all probability might have attended Kosambi's class just to encourage the young man educated in America. It is not hard to imagine how offending this behaviour would have been to his colleagues. The Vice Chancellor, Malveeya too did not much approve of him.

Neither was there any scope for the teaching of mathematics or research in it. Neither were any of his colleagues interested in mathematics nor any students whose sole purpose was to obtain a degree. Discipline was lacking. The Universities of those days were no different than those of today. It was no use complaining about it since the situation was the same everywhere. As a result Kosambi started searching for another job and an opportunity turned up shortly of moving from Banaras to Aligarh Muslim University.

Andre Wile, a very intelligent young Jew from France, was appointed the head of the Mathematics Department here. Later he was acknowledged as an authority in mathematics and the father of modern mathematics. His appointment was one of the frequent attempts that the University made to lay the foundation for higher studies and

create encouraging atmosphere for research in the Indian Universities. Andre Wile was in search of colleagues to help him develop Mathematics Department. He met with Kosambi and another young mathematician, Vijay Raghavan in a conference in Calcutta. Professor Hardy, the God-father of the famous Indian mathematician Ramanujam was Vijay Raghavan's Guru. Vijay Raghavan was known as a minor incarnation of Ramanujam. (pp 33) So when Wile invited both Kosambi and Vijay Raghavan to Aligarh, Kosambi who was about to leave Banaras must have been over the moon.

Meantime Damodar was engaged to a beautiful young graduate girl, Nalini, the daughter of Shri Balwantrao Madgaonkar. Balwantrao came from a rich family and was the brother of Justice Madgaonkar. He was Dharmananda's friend and co-worker. He had helped Dharmananda financially when he went to America in 1910. Earlier in 1908 the whole family of Dharmananda had stayed in Madgaonkar's Bungalow in Borivali for a couple of months after he resigned from the Calcutta University. Damodar was a toddler of one year then. The two families were united again after 23 years. Damodar married Nalini and was now related to a rich and distinguished family.

He already had the offer of working with Andre Wile at Aligarh. Such opportunities of getting acquainted with many famous and eminent people and institutions of those days came time and again in his life. But he lacked the ability to utilize them fully developing the contacts that were necessary to improve his own prospects. He was, it seems, destined like his father, to remain aloof and standoffish or more likely he preferred to be so. But more about this later.

He resumed duty in the AMU in 1931. Working with eminent mathematicians like Wile and Vijay Raghavan was professionally the most opportune time for him. They all were still amateurs engrossed with the baffling problems of mathematics. But their temperaments were opposite of each other. Wile and Vijay Raghavan were cool, steady and patient. Kosambi on the contrary was quite brawny, hefty and quick of action. He had an impressive personality coupled with a fantastic memory, voracious reading and the eagerness to let everybody partake of his vast knowledge. With a some what aggressive demeanour, he spoke very fast with American accent omitting words. It was not possible for any one including Wile and Vijay Raghavan to stop his cascading speech and put forth their own views.

(pp 34) One of their pupils has described what usually happened in the Mathematics room. 'Wile and Vijay Raghavan used to ponder over the mathematical problems written on the blackboard hung on the wall in front of them. As soon as Kosambi entered, the room would suddenly become alive. He would take one look at the board, brusquely reach it and picking up a chalk stick, hastily start writing. The writing would be accompanied by references to latest German and French Research papers. Wile and Vijay Raghavan would then read the writing on the board in the light of these references.' Kosambi's own Research Work too was progressing well. In two years time he wrote eight research papers on Differential Geometry and Path Spaces. Three of them were published in foreign Research Journals-one in an Italian journal and two in a German journal. He also participated in the work of Indian Mathematics Society. He regularly kept in touch with Researchers in Mathematics from Paris and Rome.

He carried on his job of teaching with utmost attention and sincerity. Starting with the basic concepts, he used to expand the topic to include the latest research work done on it and give his students all the information pertaining to the topic at hand in his inimitable fluent style. He always advised them to learn French and German languages in order to keep their knowledge up to date. Students relished the jokes he cracked frequently. They admired his stunning personality and astounding intellect. But beyond this the students did not show any promise; as, our country was so backward at that time that interest in Mathematics was limited only to obtaining a degree. The education system fostered by the British was totally examination oriented. Passing the final examination was considered the greatest accomplishment. What understanding has one acquired was immaterial. In this situation, students failed to understand Kosambi's teaching that was research oriented. They were enamoured of his erudition. But that did not serve any purpose and both, they and Kosambi, remained unfulfilled and disappointed at the end.

Kosambi, it appears, was in addition to mathematical research, thinking about research in other fields too. Setu

Madhavrao Pagdi was studying at that time at Allahabad. Kosambi invited him to Aligarh during his vacation. He had planned to translate into Marathi Machiavelli's classic- 'Prince'- on political science. Setu Madhavrao spent his vacation in the month of May in Kosambi's Bungalow at Aligarh. During this stay Kosambi discussed with him the possibility of working on the 1.25 lakhs 'Ovis' (stanzas of a particular measure) written by Dasopant. (Dasopant was a Marathi Poet-Saint of the 16th century. He was a devotee of Datta-the three faced deity incorporating Brahma, Vishnu and Mahesh.) Kosambi came to know that the manuscripts of this great poet were available at a small town Ambejogai under the rule of the Nizam of Hyderabad. Nothing came out of Pagadi's visit and the discussions with him. **(pp35)** However it does reveal that Kosambi was interested in various fields other than mathematics right from this time. According to Setu Madhavrao Pagadi, Kosambi had three to four thousand books on varied subjects even at that time.

During his stay at Aligarh Kosambi used to go to the Tarai jungles for hunting. But it was not just hunting. While roving in the jungles he observed the prehistoric and historic remnants in that area and made extensive notes of his observations. The time spent in the jungle also gave him an opportunity to initiate sharing of thoughts on history and materialist-Marxist economics with the group of selected students and professors who joined him on those expeditions. Pagadi tells us that he did not like Pagadi's criticism of Marxist economics and was displeased with him.

Kosambi's habits too were equally peculiar for that period of time and were noticed. For a young professor who had just embarked on his career, his light-hearted and relaxed life style and behaviour was not liked by others. His attire was simple. He used to teach in the class wearing a plain shirt and pant with Peshawari slippers on his feet. Many times he was found in half pants in the town market. Despite being born a Hindu Brahmin he ate meat freely without any compunction. One of his Muslim students had approvingly remarked, 'Kosambi was a lot more progressive than his coreligionists.' Both orthodox Hindus and Muslims of Aligarh were exasperated at his behaviour; the former because of his 'couldn't care less' attitude towards their sensitivities and the latter because of his Marxist heretic thoughts.

Aligarh Muslim University was in a sense the mirror image of Banaras Hindu University. The students, the politics of the governing bodies, etc., were not at all encouraging. It was the lure of the company of the two great mathematicians as his colleagues that had brought Kosambi to AMU. That too came to an end soon. Andre Wile was devoted to research; but before long he realized that the atmosphere of the AMU and its administration were least conducive to his work. He was exasperated and left AMU in 1932. Soon after, Vijay Raghavan too resigned from AMU to join the Dhaka University. Kosambi now had no point in continuing his stay at AMU and he too planned to leave it.

Kosambi wrote to Wrangler R. P. Paranjape, in Pune in December 1932. This letter indicates the state of his mind at that time. **(q 15)** He started with the sentence, 'I am writing this letter to request for a favour.' He further says, 'I had acquainted you with the atmosphere prevailing here when we met in the summer. The former head of the Mathematics Department, Prof. Wile must have already told you why it was not possible for him to continue here. Staying here any longer has become impossible for me too. I am certainly going to leave this place as the University is not ready to grant me even my simplest demands. **(p 36)** I would like to talk with you on this matter when we meet at the Indian Mathematical Society's Conference during the Christmas vacation. I am aware that it is impossible to secure any job in the mid-session. Despite this, considering my circumstances, I request you to inform me if there is a possibility of getting a job some where. I plead to you not to be annoyed with me, for I am attaching herewith a few letters of recommendations and testimonials. If you put in a word for me anywhere I request you to do so, on the basis of my abilities and not on the consideration of your affection for me or my father. Hence the letters of recommendations and testimonials.'

His father, Dharmananda, it appears, was somewhat anxious at this development, for, he wrote to his friend at the Gujarat Vidyapeeth, Jinvijayji, **(q16)** 'Damodar is not yet steady in his job. He still feels insecure. I request you to write to him and give him your precious advice.'

Finally Kosambi left AMU in just two years time and came to Pune.

He joined the Deccan Education Society's Ferguson College to teach mathematics. He arrived in Pune in 1933 and

remained there for 33 years till the end of his life. Coming to Pune was a big financial loss for him. The salary he got in Ferguson was just Rs.130/- a month that was fixed for every one with no annual increment in the salary. His pay in AMU was nearly Rs.300/-. Moreover he had come from a University to join a college which in itself was lowering his status one step in the institutional hierarchy. The only consolation was the reputation and renown the Ferguson College had acquired, although not for any conducive atmosphere for research in mathematics. Eminent mathematicians like Paranjape and Mahajani who were Wranglers from Cambridge University taught in this college. But none of them stepped beyond the routine mathematics teaching into the field of inspired original research.

Yet Pune did attract Kosambi; may be because of nostalgia since he had spent most of his childhood in Pune till the age of 11 years. Coming to Pune was for him returning to his roots. He must have planned to stay permanently there, as he proceeded to find long term accommodation for his family. He purchased land on the Bhandarkar Institute Road in the Deccan Gymkhana area for building his own house.

(pp 37) Dharmananda helped him actively in this effort. For two years he stayed in Pune and supervised the building work. We can find this fact mentioned by Dharmananda himself, 'Building a bungalow for Damodar was undertaken. I went to Banaras only after its completion in October 1934.'

Pune was convenient to Kosambi's wife also because her parents lived in Bombay. So Kosambi's in-laws gladly encouraged him to build the bungalow in Pune. This might have been one of the reasons why he decided in favour of a permanent residence in Pune.

Having come to Pune, he immersed himself into serious research- his inherent calling. He had a number of acquaintances who knew the value of his work and respected him, spread all over India. But Kosambi did not leave Pune after settling down there. Professor Siddiqui a renowned mathematician of pre-independence period headed the Department of Research in the Osmania University. He offered Kosambi the post of Research Professor. Siddiqui writes that Kosambi did not accept despite the fat salary and other facilities. Later Homi Bhaba invited him to join the newly built 'Tata Institute of Fundamental Research.' He accepted the post but did not disturb his family residence in Pune. Suitable accommodation was easily available in Bombay at that time. Yet Kosambi chose to travel up and down between Bombay and Pune spending a lot of time and energy every day.

Kosambi was not able to adjust to the educational-social atmosphere of Pune or the administration of Ferguson College. But his individual multifaceted research had much scope in Pune and Pune provided him many opportunities and facilities that he needed.

He taught mathematics in the Ferguson College for 12 full years. He used to describe this period as 'twelve years of dwelling in woods (away from civilization)', half in jest and half out of frustration. 'Living in woods or *Wanawas*' has many shades of meaning. It means being away from people in power or from those who are well established. In this sense Kosambi had been in *Wanawas* for life not just while he was in Ferguson College. It also means life of an ascetic and penance; forfeiting power and prestige, reputation and riches and engaging in the pursuit of knowledge with heart and soul. In this sense this 12 years period was certainly a *Wanawas*.

He pursued his calling like Eklavya. (Eklavya was a tribal boy of Ancient India who learned archery all by himself, practicing in front of an idol of Dronacharya who had refused to admit him as his pupil.) Kosambi did excellent work in many areas of knowledge. Later he acquired fame as a revolutionary thinker and Vanguard of modern India and a researcher with an original and holistic outlook. **(pp 38)** The foundation of this protracted penance was laid down during his 12 years of stay in the Ferguson College.

Students of the next couple of generations revered Kosambi as their Guru. Many of them have produced excellent work in various fields, some being engaged even now. But Kosambi was not their official guide. All of them while engaged in their own work came in contact with him for some reason or other and were inspired by him. They learnt a lot from him but none all of them were from various fields other than mathematics.

Kosambi also taught allied subjects like applied mathematics, dynamics, differential geometry, tensors, etc., to the pre and post graduate students. His method of teaching was in fact ideal. He would start from the basic principles

of each topic and expand it by explaining every related premise. He would then conclude it by updating the students' knowledge with the latest developments in the matter. He was particularly keen on acquainting them with the scope of the subject, its relation to other branches of mathematics and its use in other fields of science. Unfortunately this type of resourceful and innovative teaching has no scope in our examination oriented educational system. Kosambi on his part never showed any consideration for this systemic flaw. He did not make any attempt to understand students' inadequate grounding and to treat them with sympathy adjusting to their level. A student who had attended his lectures in mathematics in the Inter Science class had said, he often used to tell them that they would not understand what he was talking about but they ought to listen to it as it will be of some use to them in the future. He had such an imposing personality and awe inspiring manner that a common student would not dare talk with him, leave alone interrupting him in order to clear a doubt.

His yard stick for the graduate and post graduate students of mathematics seems to have been even tougher. He never accepted spoon feeding the students. He wanted his students to work hard, not be slack or careless and never be satisfied with half baked knowledge. In his later life too he had the same expectations from those who wished to work with him or other research workers in various fields. Those who did not come up to his expectations had to suffer the wrath of his barbed tongue and vicious pen that produced a number of enemies for him.

So he taught only theoretical part of the subject. He never used the black board for writing answers, solving problems, etc. At the most he would give a hint as to how to go about the problem. According to one of the best students who had studied under him, (pp 39) students once insisted that he solve a difficult problem on the board, suspecting that he was not really able to do so. Kosambi too had an inkling of their suspicion. So he selected a couple of very difficult problems and solved them methodically on the black board, step by step, explaining every step as he proceeded further. Having convinced the students he promptly reverted to his old practice. He explained his stand thus; (q 17) 'To understand a theorem or a proposition is the most important thing. To explain it is my duty. I am prepared to explain it ten times if need be. But once you understand the theorem you should make use of it and solve problems! If you understand the theorem and yet can't solve problems, it means either you have not understood it thoroughly or you are lazy and don't want to go through all the steps patiently. In that case you are not competent enough to get a degree.'

Theoretically this is a perfect and faultless way of teaching but at the practical level it proved to be ineffective. Many students cut his classes as his teaching was beyond their understanding. Some even complained against him to the authorities.

His rigid stand and students' feeling of resentment along with his hauteur held against him. Eventually he had to resign from the Ferguson College. This is the tragedy of our examination oriented educational system, said Professor V. V. Gokhale, his close friend and colleague. This, of course happened much later but it is important. For, when Kosambi's already strained relations with the administration were stretched to a breaking point, these complaints must have come handy to the authorities to get rid of him.

Kosambi must have been well aware of all these happenings but he would never compromise. He had told one of his pet students that he supposed he was a good teacher for intelligent students; and that most of the ordinary students do not understand him is not his fault. In addition he was a loner and loved to work alone. He was not at all eager to gather a number of students round him; and get some of his own work done through them. Unlike many other professors he did not help them so as to build a coterie of students that would help him become a celebrity. He taught the few good students he had with all sincerity even utilizing his own spare time. Till the end he remained their Guru and they never tired of relating that had they not met with Kosambi, their lives would have taken a different direction. But to be his student, it was necessary for them to take the initiative and stand up to Kosambi's expectations. It was no use waiting for Kosambi to take the initiative.

Here is an episode that illustrates Kosambi's attitude. (pp 40) Once a smart intelligent girl approached him and said that she wanted to do research work in mathematics. Kosambi asked her, 'which branch of mathematics do you want to do research?' On this she replied, 'any branch would do.' Without trying to elucidate further Kosambi said, 'You seem to be extremely intelligent. But my limited knowledge covers only a few branches of it. Any way take these ten volumes, read them and try to understand them. After that you can come and we will talk it over. OK?' The poor girl did not dare see him again!

In Ferguson College Kosambi did not prove a successful teacher but he progressed a lot in his research in mathematics. Before arriving here he had begun his research in Path Spaces and Differential Geometry and published as many as eight research papers. By now he was being recognized as a young rising mathematician. Soon after coming to Poona he won the Ramanujan Award in 1934. In the same year Raman established the Indian Academy of Science in Bangalore. A number of young promising scientists were selected as Founder Members of the Academy. Kosambi was one of them as his potential was recognized.

In the initial period of Ferguson College Kosambi immersed himself in Mathematics Research. He had been participating in the work of the Indian Mathematical Society founded under the leadership of Wrangler Paranjape. Kosambi now decided to fully exploit the facility of the library of this institution, as it was situated in the amphitheatre building of the college. This library, his own huge stock of valuable books and his correspondence with the leading mathematicians doing research in his chosen field helped Kosambi to keep his knowledge and research up-to-date. He published 14 research papers during the period 1933 to 1939. 7 of these papers were published in foreign journals (1 German, 1 Japanese, 2 French and 2 English.) The rest of them appeared in the Indian journals of Bombay University, Indian Academy of Science and Indian Institution of Mathematics.

Andre Wile and Wrangler Narlikar have said that Kosambi's work was equal to and almost on parallel line to that done by the foremost mathematicians of those days.

Kosambi's friend, Professor Siddiqui writes in his memoirs that a student from another university was sent to do research under him. B. A. Olkar, Kosambi's student and friend for a long time afterwards (**pp 41**) writes that Kosambi coached a Muslim student for a Doctorate degree in just two years, in record time. This seems to be an exception because as far as research was concerned Kosambi and the students kept away from each other. Even his colleagues in the mathematics department did not make use of Kosambi's capability or his presence amongst them. So the students might not be the ones to be blamed.

Kosambi had good contacts with eminent mathematicians all over the country although His colleagues and students were not available to him for exchanging ideas regarding his own research work. In the course of meetings and conferences organized by Indian Mathematical Society he had developed close relations with Wrangler Narlikar and Professor Siddiqui and his colleague from AMU, Dr. Vijay Raghavan often met with him. A lot of discussion took place during these meetings but no co-operation in research occurred between them.

All the research papers that Kosambi wrote during the period 1930-38 were in the field of mathematics. He had a life long interest in mathematics and remained creative till the end. He produced around 40 more articles in this field in his later life. Every year one or two of his articles appeared in mathematical research magazines. His last article that he wrote before his demise and that has remained unpublished was on Number Theory in Pure Mathematics.

The field of his research seems to have started expanding since 1939 and his articles covered research in various fields along with mathematics. This was the beginning of his path finding, fundamental research work that spread his name and fame all over the world as an eminent Indian Scientist and Scholar. The various fields of research work were Sanskrit Literature, compiling critical editions of ancient Sanskrit Volumes, applying statistics in the study of ancient coins and fundamental research in Ancient Indian History and Historical Science, Archaeology, etc. This was not all. During this period he began writing critical articles on ancient and current events through a Marxist outlook of Historical Materialism, articles on crucial linkage between science and society and such other article aimed at social enlightenment.

Thus the year 1939 seems to be a turning point in his career. In this year his family was complete with the birth of his younger daughter Meera on 24th April 1939. His elder daughter was born on 10th November 1935.

In this period of five years from 1939 to 1944 he published 32 articles, (**pp 42**) 12 in the field of mathematics and the rest in various other fields.

He wrote five articles on numismatics in which he used his knowledge of mathematics with the historical study. Numismatics generally involves the study of the stamp on the seal or coin, reading and deciphering pictures and

letters stamped on them, determining their weight, size and shape and the metals they are made of. A small number of coins collected from different places is not much of importance from the view point of historical research. But in places like Takshashila a huge treasure of coins is discovered. Here mathematical principles can be applied in the research work.

Coins being means of financial transaction are true indicators of the kind of regime the kings of those specific periods ruled with. Kosambi tried to glean historically important information by studying them and was successful to a large extent.

He collected hundreds of ancient coins cleaned them very carefully and weighed each of them accurately on the sensitive balance in the chemical laboratory of the Ferguson College. He then noted the minute differences in their weights due to usage and drew their graphs. Applying statistical tests to this data he successfully drew conclusions regarding the exchange rate, the period when the coins were cast, etc., that could stand up to scientific tests. These graphs and the punch-marks of the mint and the traders' guilds impressed on the coins helped him draw inferences about the state of affairs of that land, in that specific period.

The ancient coins hoarded and buried for many centuries do not provide any information as to who minted the coins, when and where were they made, who used them and several such important factors. Kosambi had no criteria to compare with and assess his inferences. He decided to develop such criteria himself. He collected hundreds of coins presently in use and measured their weights, sizes, shapes, etc. With this data he drew graphs collating all this information. For collecting coins he approached many branches of different banks and asked for all sorts of coins that they had in their stock. With all these efforts he successfully provided a firm mathematical foundation to numismatics.

His first article on coins was published in 1940 in *Current Science*, the journal published by Dr. Raman's Indian Science Academy. Next year another very important and long article of 63 pages, 'On the Study and Metrology of Silver Punch-Marked Coins' was published in the *New Indian Antiquary*. After his demise the collection of all his articles in numismatics were published in a book form that tells of the solid contribution he made to this science.

Handling of the ancient coins provoked many questions regarding the history of India in his mind. Who were the kings and emperors who made these coins? **(PP 43)** How big was the region under their rule? What was the occupation of the people? What were the commodities and volume of trade and the standard of living of the common people at that time? The study of coins was of no use to answer any of these demanding questions.

The deep study of the coins had revealed that they did not provide any definite information about even the kings of those days, leave alone that of their subjects. All the available text was full of literature, stories, poetry and *Puranas* (Mythical stories of gods and goddesses) but very little of historical information. Unlike other civilized societies Indian culture has sustained for millennia in this country. Other ancient cultures like the Roman, the Egyptian and the Mesopotamian cultures in comparison with ours were extinct long since but they have left behind a lot of reliable historical information. It is a paradox that very little reliable history of the Indian culture which is sustained till today can be gleaned from the plentiful ancient literature. This paradox posed a challenge to Kosambi.

Accepting this challenge, Kosambi stepped into yet another field of research, viz., Indology. In the year 1940 itself he published a paper in the journal of the Bhandarkar Institute of Oriental Research, Pune, **(q 18)** 'The Emergence of National Characteristics among Three Indo European Peoples: ABORI 20, 1940, 195-206.' Kosambi called this article of his **(Q19)** 'Trial Speculation on Indology.'

To be able to study Ancient Indian History Kosambi felt the need for good knowledge of Sanskrit. In this he was rather lucky. Sanskrit was being studied in the family since the days of father Dharmananda. And in the Ferguson College he had a close friend Professor Gokhale who was a Sanskrit Scholar. The Bhandarkar Oriental Institute was close to his house where all facilities of Sanskrit study were available. Kosambi was well acquainted with Dr. V. C. Sukhtankar who was at that time involved with the preparation of a great project of compiling a critical edition of Mahabharat. Kosambi was much impressed with this work. Sukhtankar encouraged Kosambi to master Sanskrit. He suggested that Kosambi should begin with Bhartruhari's 'Subhashitas' (elegant sayings) and Kosambi

now turned his attention to Bhartruhari. In 1941 he wrote an article 'Level of Detachment in Bhartruhari's Poetry' in the annual magazine of the Ferguson College. His point of view was rather frank and much different than the established, traditional scholars' way of looking at the history, literature and culture of India. This was the first glimpse of Kosambi's fresh and original outlook.

In this lengthy article Kosambi admired Bhartruhari as a poet but at the same time tried to expose the sham and shallowness of his 'detachment'. (pp 44) This is what Kosambi tried to say; 'Bhartruhari was not a people's poet but a poet of the court belonging to the intelligentsia. His experiences were not genuine. Unlike Kabir, Tukaram or Tulsidas, he failed to make a place for himself in the minds of common people. He represented the class of people comparable to that of the present middle class intellectuals. This class acted as the most useful weapon in the hands of the foreign rulers to keep the Indian society in a stupor accepting servitude without protest. And it continues doing so even today.'

This criticism of the great poet's poetry which has lasted for generations was not palatable to most people especially to those belonging to his own middle class intelligentsia. They found it shocking. Later he wrote another such article, 'The Social and Economic Aspects of Bhagvad Gita' in the year 1959. The conclusions that he drew in this article also annoyed the established intellectuals and Kosambi incurred their wrath. But Kosambi would not be deterred. He undertook a deep and arduous study of Bhartruhari's Shataktrayee. Finally he completed the work of collecting and making editions of all available versions of Shataktrayee from different places.

He compiled critical editions of Shataktrayee based on the versions available in the north as well as those available in the south with the help of Pandit Krishnamoorti Sharma. They were published in 1945 and 1946. This was followed by publication of acritical edition of Bhartruhari's Subhashitas along with his Shataktrayee in 1948, then a fourth book Subhashita Trishati edited with the help of Ram Acharya in 1947. In 1946 he had published an article pursuing the composer of Shataktrayee.

Kosambi jolted the middle class intellectuals by his sensational, plain speaking. But all the same he did enormous important work on Bhartruhari.

While still busy working in Numismatics, studying Sanskrit language and Bhartruhari's poetry, he had a go at the science of heredity and wrote a small article of 4 pages titled 'The Estimation of Map Distance from Recombination Values'. This was published in the journal Annals of Eugenics in the year 1944. Heredity is determined by the chromosomes in a cell. He derived a formula for determining the distances between genes or gene groups. Till then Haldane's formula proposed in 1919 was being used. Kosambi's new formula being more effective and accurate provided the geneticists with a much more powerful tool. This formula known as 'Kosambi Formula' is in use till date. Thus Kosambi's name is engraved in yet another altogether different field.

Simultaneously during this same period he started writing articles of common interest like book reviews, and articles on science and the social aspects of science which were published in the mouthpiece of the communist party. Some of the articles were titled 'The Function of Leadership in the People's Movement', 'Linguistics', 'Production and Sale of Textiles in India' and others.

Starting from pure mathematics Kosambi thus meandered into several fields of research like Statistics, Numismatics, Sanskrit and Ancient Indology. (pp 45) This was not a one track journey. His main research branched into many streams to cover a huge range of topics and subtopics constantly widening its scope. In the end the stream of Historical research became dominant pushing pure mathematics to the back ground. None of the lesser streams (of his investigation) however became stagnant. The trickle kept flowing persistently.

In his article, 'The Function of Leadership in Mass Movement' published in 1940 Kosambi compared the function of leadership with the process of crystallization. A saturated solution of common salt in water remains in the same state for a long time if left undisturbed. But the moment it gets disturbed even a wee bit or if a minute particle is dropped in it, the process of crystallization instantly commences and soon the solution gets transformed into crystals. Similarly when any society becomes saturated with various strains and stress, internal problems and difficulties and a capable leader arrives on the scene, the process of crystallization commences and revolutionary changes take place. Thus the function of leadership is like that of a seed, initiating revolutionary changes.

The same simile applies to Kosambi himself. Kosambi (i.e. his brain), so to say, was saturated with vast information and knowledge of innumerable subjects and fields, because of his intense reading, minute observation, a holistic outlook and an alert perceptive mind to detect correlation between things from diverse fields. He had the ability and the willpower to comprehend the crux of the matter at a glance. So even a little breeze of fresh perception commenced the process of throwing out crystals of Statistics, Numismatics, Sanskrit Literature, Indian History and what not from the super saturated mind.

Kosambi is generally considered to be an intuitive scholar researcher. Most of his research work including mathematics seems to be intuitive. His short research paper in genetics is a good illustration. It was so momentous that the formula he suggested and named after him displaced Haldane's formula which was in use till then. Kosambi formula published in 1944 is still in use. This inspired article came to his mind like a poem. Genetics, in fact, was not a subject of his research. But he must have been well informed regarding the latest developments in this field and also deep understanding of it, which spawned the Kosambi Formula.

Despite his deep and lasting interest in mathematics, Kosambi failed to make many solid contributions in that field. (pp 46) It is said that he was not conversant with the branches of mathematical research that developed later. He must have sensed, it seems, that it was not possible to make any substantial contribution to research in his own field. Many scholars in the field of pure theoretical research experience such a state. Kosambi in addition had to return to India without the benefit of any experience of research work in America. This thought lingering in his unconscious mind must have led him away from mathematics towards other fields of research.

Along with research, there was another stream of his writing namely journalism, social awakening and commentaries. This kind of writing more than his research papers on numismatics or ancient Indology, created a place of honour for him as an anti-established progressive thinker in the leftist movement. The established elite enraged by his writings had to take notice of him.

The prevailing unsound and insecure political state of affairs must have roused Kosambi into this second stream of writing, viz., social awakening, journalism and commentaries. The Second World War had started and it shook the colonial world. There was confusion regarding the freedom movement too. The Indian National Congress initially supported the war efforts; but later on declared the 'Quit India' agitation against the British Rule. On the contrary the communists were opposed to it, calling it an imperialist war. But as soon as the Soviet Union was drawn into the turmoil, it became, in their eyes 'a peoples' war.' The uncertainty in the Congress caused many intellectuals, writers, artists and performers to flock to the Communist Party. That Party then became strong because of the gentle and all-embracing leadership of Comrade Puran Chand Joshi. Kosambi too was drawn towards it and started writing in the party organ. His articles, otherwise, would not have been published in that journal.

Kosambi's 12 years penance as he called his stay from 1933 to 45 in Ferguson College, in the pursuit of knowledge, thus made him a multifaceted, researcher touching all aspects of life. He became an outspoken Marxist thinker with a mind of his own.

Yet socially however, he was an exile not only in Maharashtra but also in Pune itself where he had produced such voluminous work. The intellectuals of Pune, a retreat for scholars and known for its educational institutions failed to honour or reward this great thinker. On the contrary he had created a number of enemies for himself amongst these intellectuals and finally had to resign from Ferguson College. Kosambi had himself to thank for all the bitterness that was caused. He was not an amicable person and had many disagreeable facets to his personality. He was short tempered. He would not stand any nonsense (pp 47) and would not hesitate to cut any one to his size irrespective of his age, seniority or prestige. Many times he would lose his temper for small negligible mistakes and offend others. He took great pride in his intelligence. His intellect was not matched with humility because of which he tended to underestimate others. In addition he had a childlike impishness and indulged in teasing people. He was also given to using shock treatment to stir people out of their habitual thinking by taking an extreme stand. He would never attempt to interact or mingle with others and in case anyone dared to communicate with him he seemed to disappoint him as far as possible.

Here are a few episodes illustrating this queer behaviour. Many youngsters eagerly sought his guidance in history, Marxism, etc., and requested him to hold tutorial classes for them. However when they ventured to ask him about

it, he used to forewarn them, (q 20) His reply used to be, 'Yes, I will. But only on one condition, i.e., those who attend the class on the first day must attend all the subsequent classes on time. Bring the others only if you can guarantee their attendance.' Who can guarantee such regular attendance and strict punctuality on the part of all students and that too in India? So the frightened pupil would withdraw never to turn up again. He would ask even casual visitors such awkward questions so that confused and discomfited, they would soon leave him. This treatment was not restricted to ordinary or unfamiliar visitors. He was notorious for treating even the distinguished and well-known people in the same manner. Once P.G. Sahasrabuddhe visited him with the intension of discussing Marxism. At the outset Kosambi asked him if he had read certain books. When the answer was negative, he bluntly dismissed Sahasrabuddhe asking him to read those books first and then approach him. He would not waste even a few minutes in any informal talk.

Wrangler Paranjape was not spared of this humiliating treatment. Kosambi loathed Paranjape and other wranglers like him who despite being in the field of education did not do any research work and took more interest in administration and other matters. Once Wrangler Paranjape while passing by Kosambi's house wanted to meet Dharmananda's son and inquire how he was doing. On entering his house, Kosambi seated him on bench out in the veranda and asked the purpose of his visit. Paranjape told him that it was a casual visit to find out whether he was doing well. Kosambi told him that all was well with him and excused himself. Paranjape, the dignified person that he was, had visited Kosambi without prior appointment and without any purpose. So he got his just deserts. It is not hard to imagine how badly must have Kosambi's haughtiness (pp 48) offended people around him.

The managing body of the Ferguson College used to approach Rulers of the states for donations. Kosambi often told them, (q 21) 'Why go to the state rulers for donations? Their days are over since long. Now is the age of Capitalists. Approach them, they will donate generously.' His suggestion was, in fact, quite right but he put it across in such an insinuating way that it unnecessarily offended the listener.

Kosambi knew Greek well. On his arrival in Ferguson he read Greek Philosophy from original sources and admonished a senior professor of philosophy, (q 22), 'Aren't you a Professor of Philosophy? Why did you not learn Greek? You could then study the original sources.'

The limitations and weaknesses of others were often quite pronounced and Kosambi need not be blamed for pointing it out every time he did so. Once a French guest had arrived in Ferguson College. His lecture was translated into English by the French Professor in advance. But when the guest began his speech this Professor had somehow got his papers mixed up and was totally at a loss to translate the speech. Kosambi then got up and started translating the guest's speech directly into English. The Professor of French had to withdraw sheepishly.

Kosambi's friends and relatives were well aware of this temperament of his. His father Dharmananda had once said, 'Baba's ego is larger than himself.'

Later on coming in contact with the Communist Party Kosambi struck a deep friendship with Comrade Adhikari, may be because he was a scientist and had returned from Germany with a Ph.D. degree. Once Dharmananda met with Dr. Adhikari and asked him, 'how come, Baba has not yet quarrelled with you?' Adhikari laughed, 'we don't quarrel for, he alone does all the talking and all that I do is to listen!'

Professor Wadekar, a Linguist from Pune relates another such interesting episode. Kosambi had revisited America in 1949-50 and was determined to meet with Einstein. So Wadekar told another mutual acquaintance, 'Kosambi is in America at present in order to teach Einstein his theory of Relativity.' But such people who were understanding and empathetic towards him were too few. It is quite natural. His impetuous behaviour drove people away. Most people chose to avoid him leaving him with too few friends and too many foes.

It was difficult for him to gather people to help him even in a good cause. Here is an anecdote as related by Wrangler V. V. Narlikar. Kosambi once arranged a lecture by Dr. Vijay Raghavan when he was on a visit to Pune at the premise of the Mathematics Society of India. There were just a couple of people in (pp 49) the audience.

He can be very aptly compared with a jack-fruit, sweet within and rough and thorny without; an honest friend, selfless and loving, like honey at heart, but with a barbed prickly tongue that made him distasteful to others. Love

of truth and an insatiable thirst for knowledge were ingrained in him and his blood boiled at crass injustice. Those undeterred by his outward thorny crust dared approach him would invariably experience his kind and generous spirit. His obvious rude behaviour was a shield built to protect and filter out the unwanted intruders and letting in only the genuine ones. He was least interested in mundane affairs like fame and power, prestige and position. Addressing large gatherings, being visible on public platforms or presiding over prestigious committees had never been his cup of tea. It was utterly necessary for him to avoid all these things. That exactly was what his behaviour achieved.

His passion for honesty and truthfulness caused the apparent bitterness in his behaviour. He disdained from the bottom of his heart untidy, unclear thinking, discrepancy in speech and action, hypocrisy and abject flattery- all the characteristics markedly noticed in the upper and middle class Indians. He never missed an opportunity of attacking the snobbery of such people and enjoyed tearing off their masks and exposing them. With regard to Indian Culture he reiterates time and again that our society has stagnated and is incapable of progress because of our attitude of accommodating mutually conflicting thoughts and ideas.

In this regard a few lines from Professor Haldane's reply to one of Kosambi's letters are quite apt and are quoted here. Professor Haldane too, like Kosambi was a whimsical man ever ready to pick up cudgels with or at times without reason. An Englishman by birth, he gave up his British citizenship, became an Indian Citizen and spent the last few years of his life in Calcutta. He did not hesitate to deflate many swollen heads here in India. Later he suffered from cancer and it was clear that death would soon overtake him. Kosambi during this period wrote to him in connection with some work. He closed his letter wishing Haldane a quick recovery. Haldane promptly replied with the last couple of lines being, 'I don't need any sympathy just as you don't'!

While in Ferguson College, he participated in the surrounding events to some extent. It was in the thick of the 'Quit India' movement of 1942. Achutrao Patwardhan, an under ground leader of the movement had stayed with Kosambi for a couple of days. As a result a secret service policeman was posted to keep a watch on his house. Kosambi helped the freedom fighters with money and medical aid. (pp 50) In the preface of one of his books he writes that he also dissuaded some students destroying the college building by exploding bombs. Kosambi agreed that the 1942 movement would not bear any fruit, the way it was conducted. However he did not agree with the anti 'Quit India' movement stand of the communists. This might be the reason why he showed some sympathy towards the fighters in the movement. Whatever little he did was not very significant considering the enchanted time and Kosambi's aggressive leftist views. He busied himself in this period with collecting and finding exact weights of different coins for his research on ancient coins as well as with the comparative study of different versions of Bhartruhari's Shataktrayee.

All these trivial things were used by the management to build up a case against Kosambi. Soon a small incident occurred that proved the last straw on the camel's back.

Kosambi was Librarian of the Indian Mathematical Society during the period 1944-46. This Library was situated in the Amphitheatre of the Ferguson College. Now when Professor S. V. Kogekar was newly appointed as Ferguson's Vice Principal, a separate cabin was carved out of this library for him as his office. Professor Kogekar was under the impression that this was done with Kosambi's approval while Kosambi had no intimation of this development. The quick tempered Kosambi was wild with resentment. Angry exchanges ensued. Kosambi maintained that this was an insult flung at the National level Institution. Finally the library itself was shifted from Ferguson to an institution at Madras where Vijay Raghavan was working. Another fall out of this squabble, according to Prof. Kogekar, was Kosambi's removal from Ferguson. Gokhale, one of Kosambi's fast friends and life member of the Deccan Education Society, writes: a junior colleague of Kosambi from the Department of Mathematics proposed that since students are unable to understand what Kosambi teaches, the society need not bear the unnecessary expenses of paying him. Only two life members opposed the proposal and it was passed with a large majority.

Thus came to an end Kosambi's tenure in the Ferguson College and his association with the Deccan Education Society disgracefully on the part of both, the society and Kosambi himself.

However this parting proved beneficial to both. The exasperated elders of the Ferguson College were relieved of

the Kosambi prickles and Kosambi could step out of the constricting localized atmosphere of Pune and into the fresh national and international environment of the Tata Institute of Fundamental Research.

(pp 51) Kosambi had been introduced to Dr. Homi Bhabha during the last leg of his tenure in Ferguson. Bhabha was working as the Professor of Physics in the Indian Institute of Science, Bangalore. Kosambi had an old time bond with Bangalore. His elder sister Maniktai's husband Dr. Ramprasad lived in Bangalore where Kosambi often visited. He was also a well known figure in the field of research there. In 1934 he was made the Foundation Fellow of Dr. Raman's Indian Academy of Science. His papers on Numismatics and other topics were published in the Society's journal, Current Science, in 1940. The society had arranged his lecture of numismatics in the same period. Thus he and Bhabha must have been in direct or indirect contact with each other during this juncture. Bhabha was busy with founding a Research Institute of his own in Bombay. He had planned for fundamental research in both, Physics and Mathematics.

After being relieved from Ferguson College, he went to Bombay and met with Bhabha. He and Bhabha went to the esplanade and had an extensive talk covering many subjects. Bhabha was impressed by Kosambi's views and research work. They seem to have been on the same wave length at that time, since Bhabha was also influenced by Bernal's viewpoint in the 1930s when he was studying at Cambridge in England.

Bhabha invited Kosambi to join him at the Tata Institute of Fundamental Research as Professor of Mathematics. Kosambi resumed this new post on the 1st of June 1945. The Institute in those days had occupied half of the 'Kenilworth' bungalow on Peddar Road in Bombay. Thus started a new era in Kosambi's life.

This appointment proved very beneficial financially. His salary rose to Rs.800 from Rs. 140 a month which meant a real fat packet in those days. But more important than this was the fact that he stepped out of the suffocating atmosphere of Ferguson into the open, exhilarating air of an institute of research in science with a very bright future, although it was only a modest beginning of it at that time. Here Bhabha was the Director and Professor of Physics while Kosambi was the professor of Mathematics. There were a couple of technologists and a few administrative colleagues. So Kosambi was second only to Bhabha and last amongst senior scientists at once. However even at that time it was not difficult to reckon that it was soon going to be the foremost research institute in the country. Backed by the Tata Trust and helped by the then Bombay government, Bhabha had launched the institute while two senior scientists; Dr. Raman and Dr. Meghnath Shah were queuing for funds for founding similar institutions in Bangalore and Calcutta. Tata favoured Bhabha, the youngest amongst the major scientists in India. He was only 36 years old at that time but his scientific attainment was at peak, (pp 52) that too in the field of Advance Physics.

Bhabha was enormously ambitious and also fortunate enough to be in an atmosphere that was conducive to nourishing and fulfilling it and Kosambi started a new career in his institution. This appointment should be considered more important than a full time professorship in any university or research institute. Bhabha's institute was not beset with any hassles like internal politics, vested interests and a web of good and bad traditions as other institutions are. On the traditional Indian soil Bhabha was creating a modern international isle- a purely research oriented institution, without any obligation to teach examination oriented students or any red tape. It was like starting on a clean slate.

A loner yearning to carrying out research in several fields, like Kosambi had ample scope for work in this atmosphere. Here the opportunity of being internationally recognized was certainly much more than any where else.

In the beginning Kosambi used to travel daily between Pune and Bombay but later he stayed with his sister in Bombay for five years, leaving his wife and two daughters in Pune. He used to go to Pune on Friday evening and return to Bombay on the morning of Monday, spending the weekend with his family. His association with the Deccan Queen thus started continued for ten long years.

This new appointment brought him recognition very soon. The Royal Institute of Science, in Bombay celebrated its Silver Jubilee in November 1945. The program contained four lectures by prominent scientists. Along with Homi Bhabha and Sir Shanti Swaroop Bhatnagar, the head of C.S.I.R. (?), Kosambi had the opportunity to speak

as an honourable lecturer.

Later in 1947, the 34th session of the Indian Science Conference was held in the month of January. Pandit Nehru presided over the conference. After the opening ceremony further discussions were held subject wise. Kosambi was chosen to head the discussions on mathematics. Kosambi was thus honoured because of his relation with Bhabha.

Pandit Nehru, at that time was the Vice President in the interim government headed by the Vice Roy. That he would be the most important political leader of the country after independence was a fore gone conclusion. That is why this session of the Indian Science Conference was of much importance to the scientists. Kosambi had the opportunity to correspond with Nehru (**pp 53**) on this occasion. In one of his letters to Nehru in the year 1946 he advanced a few ideas for the smooth and efficient running of the conference and suggested that Nehru take the lead in its execution. (The point to be noted here is that in his review of Nehru's book, 'Discovery of India' that was published in the same year, Kosambi had severely criticized some defects in Nehru's historical and political viewpoints. Acknowledging unequivocally that Nehru was the future leader of the country, Kosambi's intention clearly was to caution and advise Nehru. With this background Kosambi took the opportunity of the forthcoming science conference to place the above suggestions before him.)

Soon after independence Kosambi got another chance to go abroad. It was because Bhabha was bent on keeping his institution up to date in all manners. The computers and the computer science were in the elementary stage at that time. But Bhabha planned to commence research in computer science and its use in India as early as possible. With this purpose Kosambi was sent to England and America as a UNESCO Fellow.

Thus Kosambi went on a long tour in 1948-49. He studied all theoretical and technical aspects of the computer i.e., an electronic calculating machine that it then was. Along with it he did many other things. The Chicago University had extended an invitation to him as a guest professor. Accordingly as a guest professor of geometry, Kosambi worked out a complete course of 36 lectures on the subject of Tensor Analysis for the students there during the winter session of 1949.

He also spent some time in Princeton at the Institute of Advanced Studies. The biggest attraction of this institute was the presence of Albert Einstein who was the senior most professor there. To be able to see Einstein, the scientist of the 20th century, was considered fortunate enough. Kosambi's fortune was greater than this. He had the opportunity of a long discussion with the great scientist. Before this meeting Kosambi had published a few research papers on mathematical problems in connection with relativity. So Kosambi could discuss these problems along with the Theory of Integrated Field on which Einstein was working at that time. Kosambi also met with many young Indian mathematicians working at the Princeton University at that time. Some of them were would be colleagues of Kosambi as Bhabha had invited them to join TIFR. He met with many of his old friends and renewed the warm friendship that had developed during his stay at Harvard, including those in YMCA in the Cambridge Town and Professor Norbert Weiner at MIT. Meeting with these American friends helped him comprehend the mood in America after the 2nd world war.

(pp 54) During his short stay in London on his way back he was acquainted with one more important person, Professor Basham, a historian, busy in research at the London University. (Professor Basham has produced a lot of important work on Ancient Indian History.) Kosambi was meeting him for the first time but it developed later in a long lasting friendship.

Kosambi thus seems to have become yet more active in related fields since he resumed as a mathematics professor in TIFR. At the same time his multifarious work in other fields of knowledge continued without interruption. TIFR seems to have encouraged him to carry on this work in addition to that in mathematics.

Acharya Muni Shri Jinvijayjee, a close friend of Dharmananda was the Honorary Director of The Bharateeya Vidyabhavan. Dharmananda had informed him about Damodar's work on Bhartruhari. Munijee also was editor of publication of series. He encouraged Damodar and helped to publish two of his books. He admired Damodar for his meticulous and perfect editing of critical versions of Sanskrit tomes. He used to say, 'The full time Professors of Sanskrit should obtain inspiration from Damodar, the young mathematician.'

Meanwhile his numismatic research work of acquiring big collections of ancient coins found in excavations, weighing and statistically analyzing them continued without break. The fame of his prowess in numismatics spread far and wide and brought him invitations from many officers from the Department of Archaeology requesting him to investigate their collections of ancient coins. The TIFR had provided him with a fine foreign made balance especially for this work.

Dharmananda passed away in June 1947 a little before independence. The end was agonizing for Damodar. Dharmananda had prohibited even his own family from visiting him. So not only Damodar but his mother too was not near him when the end came. Damodar was much too disturbed during this period of his father's fast unto death. He often expressed his anxiety to his near ones, 'I feel quite helpless; I often dream of Bapu (his father).' The relation between the father and the son must have been quite complicated. Dharmananda must have had great influence on Damodar's growth. However their minds had progressed in two different directions. In addition the hardships his mother had to suffer because of Dharmananda's wanderlust must have hurt him and he might have held a grudge against his father on that account which however never found expression.

Dharmananda's demise caused a little confusion and Damodar's reaction to it is worth noting. His father's full name was Dharmananda Damodar Kosambi. The news of his passing away soon reached Harvard. The initials of both the father and the son being same, viz., 'D.D.' Harvardians were confused. (pp 55) Assuming that the student of mathematics that is Damodar passed away the Past Students Organization held condolence meeting to express their grief and sent a message accordingly to his address in Pune. Many years later Damodar used to jest, (q 23) 'My demise was announced on 4th June 1947. The date and the month might be correct but the year was certainly wrong. The papers recovered from the flood waters of Panshet in 1961, quite definitely prove that I was alive till 1958 at least.' However he did not explain the cause of the confusion which was his and his father's common initials, viz., D.D.

One is tempted to assume that Kosambi's first five years in TIFR were full of happiness. He was quite close to Bhabha and was often seen conversing with him. Bhabha had conducted some experiments on cosmic rays while he was in Bangalore. Based on the observations made in these experiments, he along with his colleagues published two research papers soon after founding TIFR. In these papers Kosambi has been thanked for mathematical and statistical help. In the initial stage, for the development of the Institution, Bhabha used to be out of Bombay for long spells. Twice he had been abroad. During this time Kosambi had to look after the routine administrative work. He participated in many activities like interviewing new recruits, signing their appointment letters, taking the guests round the institution, etc. He also looked after the few students that Bhabha had, not just with help in mathematics and statistics but also in electronics as some of Bhabha's students remember. Another young researcher, Alladi Ramakrishnan (who later founded the Institute of Mathematical Sciences in Madras) has written, a bit grudgingly, that Kosambi had a enormous influence on Bhabha in those days. When Kosambi was to proceed on his foreign tour to America in the year 1948, Bhabha gave him a farewell party in his own bungalow at Malabar Hill. All research students of the Institution were invited to the party. Kosambi had very good relations with many individuals in important positions in the Tata Industries who were connected to the institution.

Soon after its foundation the TIFR's scope widened. Bhabha was successful in obtaining many projects for it. The Atomic Research Commission came into existence in the year 1947. Bhabha became its president. His powers and influence in the government increased considerably. His efforts to find capable people bore fruit and many senior as well as young researchers joined his institution. The space in the half portion of the Kenilworth Bungalow at Pedder road was now insufficient. So Bhabha took over (pp 56) the huge building of the old Yacht Club near Gate Way of India and the institution was shifted there in 1949.

On his return from Britain and America, Kosambi resumed his duty in this new office. This was the beginning of his strained relations with Bhabha which finally culminated in Kosambi's alienation in the TIFR. There were a couple of reasons; firstly Kosambi and Bhabha were now embarking on their separate ways. Kosambi continued with his old habit of working in several fields- numismatics, critique of Sanskrit literature and now, ancient Indian history added to it. His reading, thinking, research and writing in connection with these fields were in full force. Research in mathematics too continued simultaneously. But it was, as earlier, marginal and on individual level. He did not seem to work in a unique direction or field and in depth in that field, building a committed group of students in it.

Bhabha had a different story. His research in physics had practically come to an end. He got increasingly involved with the administration of TIFR, its all round growth, work of the atomic energy commission and building institutions in that connection. In this regard Kosambi's views were akin to those of Raman's. Both did not approve of the fact that a first rate scientist like Bhabha involved himself with institution building and put a stop to his research work and did not hesitate to express it openly. Both Kosambi and Bhabha being equally wilful the outcome was obvious.

The second reason was the increase in the numbers of senior and competent researchers in both physics and mathematics joining the Institute. Professor Fernando Levy, a senior mathematician joined the institute soon after his retirement from Calcutta University. Three young scientists, Masani, Ramanathan and Chandrashekharan with the best track record in research returned from America. Levy shortly returned to Europe and so did Masani not being able to get on well in the institute. He spent a couple of years in the Institute of Science in Bombay and left for America. Ramanathan continued till retirement and did excellent work there. As regards Mathematics Department, Dr. Kumarvelu Chndrashekharan's appointment proved most important.

Chandrashekharan was a student of Herman Wile, a renowned mathematician from Princeton. On his trip to America in 1946-47, Bhabha met with him and succeeded in wining him over to join him in Bombay. He took two years for winding up his work at Princeton and finally joined as a reader in the Department of Mathematics in 1949. Chandrashekharan's future as a mathematician at Princeton was bright and full of promise. Giving up Princeton for coming to Bombay, a virtual village in the field of mathematics was considerably risky for him. While venturing into this new milieu (**pp 57**) he made Bhabha give him enough freedom and boldly exploited it to the full. Starting from selecting his own students and determining their research topics he became a close confidant of Bhabha and was successful in building a group of best young mathematicians around him. He was responsible not to a small degree for making the Mathematics Department of the TIFR internationally acknowledged world famous centre of mathematics. Eventually he became Deputy Director (mathematics) in the Institution. Kosambi was now sidetracked. In his career of seventeen long years only two-three students worked under him and that too in Statistics and not in any advanced field of mathematics. Even as individuals he and Chandrashekharan could not get along.

There is a third factor responsible for Kosambi's alienation that was related to the post World War global circumstances, viz., the cold war and rivalry between the big two over nuclear armaments. To stop this nuclear rivalry pushing the world into total annihilation, a World Peace Movement was organized. Many thinkers and scientists were drawn into it. In fact while the project of building atomic weapons was in full force, the Scientist Neil's Bohr had an inkling of the future disaster and he did try to warn other scientists and politicians in power about it. But most of the scientists were not in a mood to think about developments outside their own scientific fields and their effects on mankind in future. On the other hand political rulers like Roosevelt and Churchill suspected Bohr's integrity and Churchill ordered a vigilance of his activities. But the actual use of atom bombs brought many of the unconcerned scientists to their senses. And many of them including those who worked on the atom bomb project joined the peace movement. Kosambi was naturally drawn into it. In 1950 he began participating in the World Peace Conference organized under Leftists' influence. The Indian Government too in the beginning advocated world peace and opposed nuclear weapons programmes. So Bhabha had no reason to be put off by Kosambi's Marxist views. But by now things had changed. The government suspected and harassed those involved with the Peace Conference because the communists adopted a policy of confrontation against the Nehru Government. Kosambi too suffered government's wrath and fell out with Bhabha as its consequence.

In the stressful atmosphere that prevailed all over the world then, it was hardly possible to distinguish atomic research for generating power from the research for producing nuclear weapons. All most all nations that had entered into the nuclear rivalry had earlier claimed that their sole intention was to use nuclear energy for power generation and other peaceful purposes. So Kosambi's attention naturally turned from nuclear weapons to other nuclear energy projects. And as far as India was concerned, (**pp 58**) he proposed that instead of emphasizing solely on atomic energy, attention should be given to other sources like solar power.

The Indian Atomic Energy Project and the Atomic Research Project were both experiencing teething trouble in their initial stage at that time. But Bhabha was wholly committed to Atomic Energy and concentrated all his attention on executing all possible ambitious plans. When Kosambi chose to denounce the Atomic Energy Policy

at this very juncture, Bhabha felt that it was a direct confrontation to him.

As a result the disaffection grew to such an extent that not only did they stop speaking with each other but they also avoided looking at each other whenever they happened to come face to face with each other. Kosambi's future in the TIFR, now was bleak. No government honours or homage came his way; not even one promotion till he left the institute in 1962. Other colleagues filled with awe by the imposing personality of Bhabha dared not converse or have anything to do with him.

In 1952-53 he moved from his sister's residence to Pune and travelled daily between Pune and Bombay. Obviously he attended his duty in the institution from 11 am to 4 or 4:30 pm only. Later he stopped attending regularly and went to office just three times a week. His alienation from the institute provided him with a lot of spare time which he spent in his other fields of interests.

He had undertaken an important project related to Sanskrit Literature and was immersed in it since 1951. This Project of Harvard Oriental Series was launched by the Harvard University. Kosambi was invited to produce a critical edition of the Analogy of Sanskrit Poetry "Subhashit Ratnakosh" compiled by Vidyakar.

Earlier in 1948 Kosambi had published a critical edition of Bhartruhari. It was very well reckoned with in the coterie of Sanskrit Pundits. Professor Daniel Ingalls, a Sanskrit scholar and researcher in the Harvard University, had reviewed it. He and Kosambi corresponded with each other in this connection. Kosambi first wrote to him in 1951 and since then started another long lasting friendship after that with Basham. Much pleased with Kosambi's work on Shataktrayee, Ingles solicited his help in the Harvard Oriental Series Project with regard to critical edition of Subhashita Ratnakosh. This was the oldest ancient Sanskrit manuscript available. The great Pundit, Rahul Sankrityayan had noticed this manuscript, during his stay in Tibet and brought its photo copies to India.

(pp 59) Kosambi accepted Ingalls' invitation on the condition that Kosambi's friend Professor Gokhale from Ferguson College be appointed co-editor with him. Professor Ingalls accepted the condition and Kosambi and Gokhale started working on the Subhashita Ratnakosh during week ends.

On his visit to India, Ingalls spent four months in Pune and was staying in the Bhandarkar Institute of Oriental Research. Along with his own research he had another objective in his mind—observing at close quarters the work of Kosambi and Gokhale. (Ingalls was the general editor of the Harvard Oriental Series.) He also had discussions and long chats on many other subjects with Kosambi when they went on hikes, at times as long as a full day.

The critical edition of 'Subhashita Ratnakosh' was published as Harvard Oriental Series No.42 in 1957 in America. The interval between 1951 and 1957 was not without any bickering as was expected in Kosambi's case. Kosambi took upon himself the work of writing the preface to this edition; Professor Gokhale did not have anything to do with it. With his Marxist, Materialistic view point, Kosambi made many critical observations in the preface. Ingalls raised a number of strong objections to his viewpoint on literature, as well as his criticism of the classical and modern western literature other than Sanskrit. Much heated correspondence took place between the two. Fortunately the controversy was restricted to a couple of points in the preface and it was published without big changes, in the name of Kosambi alone. The disagreement, luckily enough, did not produce any adverse effect on their friendship and their mutual respect and admiration remained intact.

From 1940-42 onwards Kosambi wrote many articles on Indian History that were regularly published in various research journals. He studied not only the available written history but also studied anthropology and linguistics along with making direct field observations related to it, thus immersing himself deeper and deeper into Indian History. The long investigation stretching over 15 years culminated into the publication of 'Introduction to the Study of Indian History'. The Popular Publication of Bombay published this tome of over 400 pages with 60 odd photographs in the year 1956 and was instantly recognized as an important work in Indian history. With this publication Kosambi developed a lasting interest in research in the field of Indian History. This volume seems to link together all his multifarious research work in Indian History into a common strand.

(pp 60) In its preface Kosambi writes, **(q 24)** 'This book does not pretend to be a history of India. It is merely a modern approach to the study of Indian History, written in the hope that readers may be impelled to study that

history themselves, or at least be enabled to look at the country with greater sympathy and understanding.'

The volume is full of important details; and the details make an extremely interesting reading because of Kosambi's aggressive and sparkling wit and subtle imagination. Kosambi's outlook, quite different than that of the established historians, was capable of illuminating the already known facts in a different glow but the sheer details as such had many limitations. His field observations were restricted in general to Maharashtra and to the Deccan Plateau in particular. His study in the other branches too remained unaided and single-handed and was outside the pale of the established institutions or the research world. Many historians have pointed out short comings in the details he gives. Others have found his analysis much too skewed and exaggerated. The details he gives and the analysis he offers seem inadequate in the light of later fresh research. But Kosambi had reached much beyond this common level and made a solid contribution by giving a novel, modern outlook and a holistic method to the study of history. He established a new trend of research in Indian history and was honoured as the historian of historians. From now on Indian historical research took a different path under Kosambi's direct or indirect influence. This is predominantly revealed in this book.

While elaborating on the theoretical lay out of his method of research in history Kosambi begins with the Marxist materialist principle defining history, **(Q24a)** as 'For the purpose of this work, history is defined as the presentation in chronological order of successive developments in the means and relations of production.'

After this introductory comment, he turns to the main characteristics of the study of Indian History. The most important feature of Indian Culture according to Kosambi is its persistence in this country coupled with its ability to influence other cultures as far and wide as China and Japan in the north and many countries in South East Asia without any armed aggression. But its paradox is that the culture that survived for millennia and influenced countries spread far and wide since ancient times is so dimly aware of its own history.

It seems almost impossible to construct a coherent chronological history of India from the available literature. Even in the case of renowned prominent dynasties **(pp 61)** one can not arrive at any indubitable conclusion regarding the period of their rule, how long it lasted, how wide their empires extended, their lineage, their achievements or their triumphs and defeats. A good illustration of this is the recent controversy regarding the date of birth of Shivaji Maharaj who was born just three and half centuries ago. One can imagine how difficult it would be when it comes to gathering information about ancient times. In comparison with many other prominent cultures existing or extinct, this deficiency in our culture becomes all the more conspicuous.

It is said in jest that India has a great past but no history. Many historians believe that the Indian History begins with the Muslim **(should it rather be Mogul?)** and later the British invasions and to trace any earlier events in the name of history is not at all easy. Even Marx, the revolutionary thinker concluded on the basis of available information that the Indian Society has existed for a long time without any change. He even classified proceedings and dealings in India as "Asian Production Process" because it was irreconcilable with the ever changing historical process.

This classification by Marx was not acceptable to Kosambi. He maintained that like all other societies, Indian Society too had undergone many significant changes. Unlike other countries where accounts of national and cultural history were written, in India, it was not possible to keep such written historical records due to the peculiar circumstances prevailing here. It does not mean that India has no history. He insisted that what it does mean is that Indian History requires a special method of studying it. Accordingly he developed a special method of studying history and illustrated its utility in his own research work. This was the most important contribution that Kosambi made to the study of Indian history. This is what Professor Romila Thapar meant when she said that Kosambi made a new paradigm for studying Indian History. Kosambi's stand in this regard was **(q 25)** 'This note suggests that the linguistic study of problems of ancient Indian culture would be more fruitful if supplemented by intelligent use of archaeology, anthropology, sociology and a suitable historical perspective. Available Indian data in each of the fields listed need to be augmented by a great deal of honest and competent field work. None of the various techniques can, by itself, lead to any valid conclusion about, ancient India; combined operations are indispensable.'

Kosambi's outlook undoubtedly was that of Marxist Dialectical Materialism. But in his own view Marxism had

much wider scope than that thought by the established Marxists. His rejection of Marx's idea of classifying production here into a separate category, 'Asian Production Process' shows that he did not circumscribe himself by Marx' exact words. (pp 62) In his review of Comrade Dange's book "India from Primitive Communism to Slavery" he says, (q26) 'Marxism is not a substitute for thinking, but a tool of analysis which must be used, with a certain minimum of skill and understanding, upon the proper material.'

In his comprehensive method of studying history Kosambi stressed field survey to a great extent. He explains it as, (q27) 'In the light of our definition of history, Indian history can be seen written every where in the villages in minute details. One must, however, have an appropriate outlook and awareness.' According to him the growth of the Indian society was much more due to a succession of religious changes that took place here than due to any aggressive measures by the dominating group. The process of assimilating a large number of various tribal groups into the general stream of society progressed in ancient India under the auspices of religion and religious reformation. The conquerors assimilated the conquered; the advanced societies assimilated the primitive ones without destroying or humiliating them. A lot of give and take occurred giving rise to a mixed society. As the nomadic tribes living by hunting and food gathering, the tribes of shepherds and the cowherds and the stable farmers' tribes were assimilated in one society, the individual tribes' deities and totems too found a respectable place in the amalgam of culture. The tribal female deities became the consorts of lord Shiva. As the cultivation of land progressed and spread, the tribal groups on the outskirts, assimilated into the main stream of culture with the bag and baggage of their deities and rituals.

Diversity and absence of violence in the evolution of the Indian society have resulted in retaining layers of remnants of the various merging tribes and clans that were on the outskirts of the main stream, even after thousands of years. The British brought capitalism with them into India and the process of destroying India's societal structure ensued. With advance in modernization, the layers of our society that had so far preserved the ancient tribal stamps began to dissolve. Yet as one goes away from the towns, into the interior, the increasingly backward castes and tribal countryside, these layers become more manifest. In the second chapter of his book Kosambi deciphers these marks of ancient history, preserved in the present customs. It is worth reading his observations of the habitats of nomadic tribes and dwellings in villages surrounding Pune, from the original source.

Here we turn to another significant work of Kosambi, that is, his important exploits of the prehistoric period. He brought into light the existence of the primeval tribes, the original inhabitants of India before the arrival of the Aryans into India. (pp 63) Earlier the Indian history commenced with the coming of the Aryans into India as if these bands from the west entered this vast subcontinent which was devoid of any human civilization in that period and proliferated all over. Kosambi on the other hand took cognizance of the pre-Aryan tribal groups dwelling on this soil since long and argued that the spread of Aryan culture is the part of the process of incorporating the various tribes and clans scattered over the land into one social order. He adopted this same view point while considering the later developments like founding of Buddhism, the ascent of the Mauryan Empire, the subsequent feudal society, the caste system and the caste discrimination.

Indian History now begins from the primeval tribes. The local deities and their history have acquired much importance. And appraising ancient greasy manuscripts for writing the history of the common people is considered worthy of research. The credit for all this change must be given to Kosambi.

This book received mixed reaction but no one could avoid taking cognizance of it. Bernal in his book 'Science in History' has written that this book of Kosambi has introduced coherence in the history of India for the first time. Most of the critics did make a mention that after all Kosambi reveals his Marxist outlook although his writing is not orthodox or conventional; but at the same time they all greeted the novelty and the integrated and rational approach in his presentation unreservedly. Every page of this book illuminates with ingenuity and significance, poses new problems and suggests new topics for further research. Critics agree that it is essential to ponder over all the issues raised by Kosambi in this book. Ingalls did him justice by writing a lengthy review of 7/8 pages on this book in the American Oriental Research Journal. Hitting hard at the Marxists he chastised them as follows; (q 28) 'This is the first book written on Indian History, in an European language, that despite the Marxist outlook of the writer can and does make sense to those who are not Marxists' He criticized Kosambi on many accounts. In his opinion Kosambi let loose his imagination while constructing the historical narrative; all the same he clarifies that this neglect can hardly be noticed in case of facts and details; moreover he maintains that Kosambi's exposition on

the rise of Magadh Power and Village Centred Economy makes this tome a classic. He raises a very important question to conclude his review: **(q29)** 'How come the writer devotes 25 pages to the 'coins of Magadh period' and winds up the Bhagvadgeeta in one page and Indian mathematics in just three lines? The Indian philosophy is not even mentioned. How can this be explained?'

This is a common strain in all the criticism of Kosambi's work in historical research. Ingals an erudite scholar as he was, could look at this draw back as a limitation or **(pp64)** inadequacy of the Marxist ideology. But the orthodox acknowledged scholars here in our country considered him an antagonist.

Kosambi's stand, however, was quite clear. In the preface to his collection of articles published later, he states at the outset, **(Q 30)**, 'Indian critics are sure to express annoyance or derision at the misplaced emphasis. Why should anyone ignore the beautiful lily of Indian Philosophy in order to concentrate upon the dismal swamp of popular superstition? That is precisely the point. Any one with aesthetic sense can enjoy the beauty of the lily; it takes a considerable scientific effort to discover the physiological process whereby the lily grew out of the mud and filth.' Many historians had helped admire the beauty of the 'Lotus' and while doing so disregarded the mud and the mire, the barbs and weeds in the surroundings. Kosambi focused his attention on these not just ignored but the most significant conditions.

In the Indian History there are two streams of cultures running parallel to each other since ancient times. One is the folk culture and the other the highly recognized imperial culture (that can be called the Brahmanic culture). Kosambi's critics from the latter, chastised him for setting store by the popular culture and thereby ignoring the lofty philosophy of India. Many young enthusiastic researchers, on the other hand, took inspiration by his path breaking work and discarded the conventional ways.

Around 1950 Kosambi got increasingly involved in the work of World Peace Convention. The main participants in this organization were intellectuals and scientists oriented towards the leftist and socialist ideologies. The two legendary scientists Bernal and Julio Curie were key leading figures of the convention. Both were active members of British and French Communist parties respectively. Naturally the Soviet Union and the group of Eastern European Nations supported it whole heartedly. Communist Parties of other nations too actively participated.

The Indian Peace Conference too was founded as a front organization of the Communist Party. It has a special Indian context.

During the World War a number of intellectuals, writers and artists became sympathizers of the Communist Party under the leadership of Comrade Puran Chand Joshi and actively participated in the Party's front organization. But as the war ended the whole scenario got distorted. The alliance launched during the war between the Soviet Union and Western group led by America came to an end. The winds of cold war started blowing between the two groups. The Communist Party of India took a very aggressive stand. In Dec. 1947 Joshi was expelled and Randive became the secretary of the party. In March 1948 the Communist Party gave a call for a nationwide uprising. **(pp 65)** The party anticipated the circumstances wrongly and the uprising was ineffective. In Telangana, however, there was an outbreak of armed uprising that was withdrawn only in 1951. This adventurous policy of the Communist Party proved quite contentious. Many sympathizers deserted the party. Internal feuds developed. It was necessary to pull the party out of this unenviable situation. The opportunity of building a front organization for the peace movement came handy for this purpose.

In the Indian Peace Convention, generally the important positions were occupied by active members of the party and other honourable posts like president, vice president, etc., were given to forward thinkers, artists, writers and sympathizers. Dr. Saifuddin Kitchlu was the President of the All India Peace Conference; Kosambi was appointed one of the Vice Presidents. The Senior Scientist Dr. Meghnad Shah also had joined this movement.

Kosambi so far was not drawn into any movement as such. His participation in the freedom movement or any movement of the Communist party was marginal. He did not support the Communist Party and its objectives and policies unreservedly; he was on the contrary a harsh critic of it. He criticized them as bluntly as he expressed his Marxist standpoint in his writing. He scornfully called the Indian Communists 'Official Marxists.' And yet he energetically participated in the Peace Movement because he believed that it is a moral imperative that every one

must take a definite stand on the issues of Peace and nuclear weapons, and express it forcefully; for, in his opinion, world peace and opposition to nuclear weapons were of vital importance for the future of humanity and to promote them one has to leave aside petty differences and immediate benefits.

In those days Kosambi used to spend the week in Bombay. Dr. Kumud Mehta was the secretary of the Bombay Peace Committee and she and Kosambi got along very well with each other. N. R. Phatak was the president. Other active participants were Dr. Sahib Singh Sokhe, director of the Hafkin Institute, the distinguished Dr. Baliga, and the Journalist-Editor Russi Karanjia. Many a Film stars and other earlier alienated workers rallied round the party once again. **(Some words seem to be missing here.)**

The peace movement was quite popular and had established good contact with the masses during the period 1950-55. Public meetings were held at many places. Union leaders used to address the mill-workers at Kamgar Maidan in Parel while in the Madanpura area of Central Bombay 'Mushairas' attracted large crowds in the public gardens. Popular artists like Sahir Ludhyanawi, Kaifi Azmi, Shailendra, Abbas, Ismat Chughtai, Prem Aziz, Balraj Sahni, etc., regularly performed there to enlighten the common man. In the Girgaon mass meetings were held for the middle classes at Brahman Sabha under the chairmanship of N. R. Phatak, while in Sundrabai Hall of South Bombay workers of Insurance Companies, Banks, etc., **(pp 66)** were addressed by the leaders of Peace Movement.

Kosambi used to attend meetings in the Sundrabai Hall. He used to address the educated white collared people in English. However in Pune he is said to have lectured in Marathi in one meeting. He participated in public meetings at various places in the country. In one such meeting as told by one of his acquaintances, he and M. G. Ramachandran sat on the same dais.

Kosambi it seems was not a very effective speaker. The audience found him difficult to understand because of his American accent, fluent unflinching English, and the habit of speaking too fast. But his concern and yearning for peace was genuine and he used to prepare his lectures meticulously with much emphasis on accurate information and consistency. He could not tolerate passionate speeches of political leaders full of loose and inaccurate talk. In addition he was not given to observe conventions or norms of polite behaviour in public meetings. Many a time, therefore it so happened that some speaker in the middle of his fervent and overpowering speech would be interrupted by Kosambi from the dais and be reprimanded, 'your speech is irrelevant and inaccurate.' All the same, these meetings gave him the opportunity of extensive acquaintance with a large number of people.

Another opportunity that the peace movement gave him was the prospect of visiting many foreign countries. Such an opportunity was rare in those days and almost impossible for Kosambi as he was alienated from the Tata Institution of Fundamental Research.

While he was vice president of the All India Peace Conference, he was also chosen a member of the Working Committee of the World Peace Conference. Kosambi could make many foreign trips to attend the Working Committee meetings and as a member of the Indian Delegation. In ten years he visited Eastern and Western Europe, Soviet Union, China and Japan many times. Although these trips were meant for the work of the Peace Conference, they also proved useful to enrich and widen his experience and work in the multifarious fields of interest.

The session of the Indian Peace Conference took place in May 1951 in Bombay. It was scheduled to be held in Delhi but the venue had to be changed to Bombay because of Government Opposition. The government enforced many restrictions on the foreign delegations too, refusing visas to many delegates. In the same year Kosambi was invited by the Chinese Peace Conference to visit China. This visit did not materialize because of some difficulties in the delegation's tour.

A preliminary conference for the preparation of the Asia-Pacific Peace Conference was invited in 1952 in Beijing. **(pp 67)** Kosambi was chosen the leader of the Indian Delegation. He faced a number of difficulties in attending this conference to be held by the end of May. The correspondence that took place between Kosambi and Ingalls in this connection gives an idea of the kind of circumstances prevailing at that time. Till the middle of May Kosambi was not sure whether he would be attending the preparatory conference in Beijing. He was in regular contact with the Prime Minister's Office. He was given to understand that there was no problem at all in Kosambi's going to

Beijing but it is difficult to clear the visits of the other delegates. Regarding this Kosambi himself has written, **(q 31)** 'The Prime Minister informs me through his first secretary that there will be no obstacle in my way but (and the real reply begins always after such a "but") the others whom I am supposed to lead in a delegation of three will not be allowed. In addition it is made unmistakably clear that the Prime Minister would be very happy to see me refuse.' He complained to Ingalls that all his mail is opened and every movement of his is closely watched by the government. He warned Ingalls that since the Indian Government worked under America's pressure, openly keeping contact with him might put him (Ingalls) into trouble. Ingalls himself denied that he had to face any difficulties in this regard. Yet considering the circumstances prevailing then in India; movements of communists were closely watched and Kosambi might have suffered to some extent since he was involved with the work of the Peace conference.

After all these difficulties Kosambi could go to Beijing in the month of May 1952 with the Indian delegation. Kosambi presided over the inaugural session of this preparatory conference held on 3rd to 6th June; an indication of the esteem with which the Indian Delegation was held. It was also proposed that the Peace Conference of the Asia-Pacific region be held in India. But the possibility of co-operation from the Indian Government being very slim, it was finally decided to hold it in Beijing. Kosambi visited China for the second time to attend this regional conference.

The conferences held at the national and later on at regional levels culminated into the World Peace Conference. This conference was held in Helsinki, the capital of Finland, in 1955. This admittedly should be the zenith of the peace movement as well as Kosambi's participation in it.

This conference between 22nd and 29th June was presided over by Frederick Julio Curie, the French Nobel Prize Winner, Nuclear Physicist and the son in law of the illustrious Madam Marie Curie. Bertrand Russell had sent a message. Many scientists, writers and politicians attended as members of delegations from countries all over the world. Among the worthies who attended the conference were scientists John Desmond Bernal from Britain, Oparin from Soviet Union, Leopold Infeld the Polish Scientist who was Einstein's associate, along with Frederic Julio Curie; literati like the Russian Poet Illya Ihenburg and the French writer-philosopher Jean Paul Sartre and, the principal political leader of China Kuo Mojo to name just a few.

(pp 68) The delegation from India was the largest consisting of as many as 90 delegates, led by Damodar Kosambi and Romeshchandra being its secretary. One of the delegates was Acharya Atre. A Presidential Committee of 150 members was formed for the smooth working of the conference in which along with Kosambi, other Indians like Meghnad Shah, Sahib Singh Sokhe, Comrade Dange, Mulkraj Anand were included.

Acharya Atre has summarized the speech Kosambi made as the leader of the Indian delegation thus; **(Q32)**

'First and foremost I am an Asian and next an Indian citizen. Whatever party each of us may belong to we all are advocates of peace. Every nation has the right to take its own decision and at the same time every free nation should get assurance of protection from foreign invasion. All colonies should be dismantled and peaceful co-existence should prevail all over the world.

'Splitting of nations as in two Germanys, two Koreas and two Vietnams is very dangerous to world peace. It is ridiculous that America should install Taiwan instead of Beijing to represent China in the UNO. The military bases built by America in Pakistan, ostensibly as economic aid, are also a real threat to peace. These bases are meant for nothing but invasion. Nations' independence and guarantee of protection against foreign invasion are interdependent which we must understand most clearly. Existence of colonies is another menace obstructing world peace. South Africa and the organisations like the SEATO and the NATO are driving us closer to the Third World War. Rearming Germany too is a similar danger.

'Recognition of the principle of 'Panchasheel' is a great victory for the people of the world. Our Prime Minister, who enunciated this principle, is also the leading figure in the peace movement, busy organising conferences and visiting far away countries. We are proud of him. He receives a grand welcome which ever country he visits. This is the expression of popularity of our country. We have to struggle hard to win all these people for World Peace and prevail over their nations to recognise 'Panchasheel' enunciated by Chau-Nehru.

‘The people of America are all for peace despite the disappointing stand of the American government regarding peace.

‘Commitment to peace, non-interference and non-aggression are our (Indians’) intrinsic qualities. Let us all, the people of the world unite to create a bright and happy world free of fear.’

Kosambi was thus honoured at the universal level as the leader of the Indian delegation at Helsinki. However the fact remains that this was non-governmental representation. In less than two months after the Helsinki conference, another international conference on the ‘Peaceful Use of Atomic Energy’ was held in Geneva, in the same year. Homi Bhabha had the honour of presiding over this first Geneva conference which was attended by both America and the Soviet Union, the main competitors in the nuclear weapons race. (pp 69). Both Kosambi and Bhabha being thus honoured was a striking coincidence. It illuminated the different styles in which their lives unfolded.

After the Helsinki conference Kosambi visited Soviet Union along with the Indian Delegation on being invited by the Soviet Science Academy. Immediately after Helsinki, the Soviet Union had planned a special congress on the ‘Peaceful Use of Atomic Energy’. This was probably a preparation for the World Conference to be held in August in Geneva. This preliminary meeting was attended by the Indian Scientists Meghnad Shah and Sahib Singh Sokhe too. Scientists from thirty more countries participated. The Cold War had still not been over and as a result, the nations aided by America under the Martial Plan were not represented. The delegates utilized this opportunity to visit various scientific research institutions.

Later Kosambi delivered a series of lectures on Indian History in the University of Moscow. That being vacation period, many professors and researchers had been out of Moscow. Yet those who were students of history did return early to attend Kosambi’s lectures cutting short their vacation.

Kosambi was not appreciative of the research work done by researchers in the field of ancient Indian history. In his opinion these researchers fail to study or even consider the special Indian circumstances and arrive at lousy conclusions using Marxism mechanically. He bluntly expressed his opinion before the researchers in the field of Indian Oriental Studies at Moscow. Those senior professors towards whom Kosambi’s harsh criticism was directed were unsurprisingly did not take it lightly. Instead of refuting Kosambi’s objections on the level of debate on the research, the soviet scientists, it seems, entered into a bitter repartee. ‘Kosambi’s Marxism is just skin deep’ they scoffed at him. Kosambi retaliated equally scornfully, (q 33) ‘Yes; Quite possible! I am quite thick skinned. Probably I am all skin!’ Despite all this Kosambi found this visit quite satisfactory because the Soviet intellectuals took notice of his work where as the recognized Indian Historians simply chose to ignore his historical research.

He also availed of the medical facilities available there. Kosambi suffered from rheumatism since long and had undergone a number of therapies for curing it. The treatment in Soviet Union was one of them.

(pp 70) He returned to India on 13th August after a lengthy tour of two moths. He was destined to receive a big shock of his life on his arrival. His mother passed away on the 4th of July in Bangalore while he was still in Russia. As her condition became critical there wasn’t enough time to call Damodar back from so far away as Helsinki in Finland. The poor mother breathed her last all the time pining for her son. Kosambi has a soft corner for his mother. When he went to Bangalore on his return to India, as his friends recall, he cried uncontrollably.

The Helsinki Conference was the zenith of the work of the World Peace Conference by all means. After this the movement gradually came under eclipse. The movement was under communist control. The changing atmosphere of the communist world and the changing relations between different communist parties inevitably affected it. The schism that occurred between the Soviet Union and China impacted other communist parties. The unity of the peace movement came to end and different groups pursued their own objectives and policies and used the World Peace Conference for their own agenda.

Kosambi was not comfortable with this changed state of affairs as he was not interested in party politics and the two most important issues for him were World Peace and Opposition to Nuclear Weapons. To add to his disappointment, the pace of the Peace Conference too slowed down considerably. The Soviet Union sent its army into Hungary to wipe out people’s uprising there. As a result many sympathizers and co-workers distanced

themselves from the party. Many intellectuals who were active participants so far either deserted the party or became indifferent and apathetic. All of them had worked hard and shared responsibilities in the movement. It adversely affected the movement's popularity and contact with the masses. The work of the Peace Conference-the mass movement it had grown into- was now reduced to meetings and conferences of the workers and leaders. Those with an eye on the opportunity of foreign trips remained and those with sincere wish for peace became fewer and fewer.

In this situation Kosambi could not get along with the other leaders. Small differences gave way to heated wrangles due to his bluntness. Kosambi complained that the issue of World Peace was pushed to the background giving undue importance to immediate objectives and policies of the party. He has also accused the leaders of making use of him for their own benefit and then trying to get rid of him. Of course this type of reaction to the Peace Movement was but expected especially when it had almost come to a stand still. Even Kosambi's participation had become negligible since 1959-60. Visits to represent the Indian Delegation no more took place. And yet he did not sever his relation with the Peace Conference immediately. He resigned from it only in 1963.

(pp 71) Around this time he wrote a letter to one of his student-friends. In that letter he says, **(q 34)** 'Finally after a long interlude of vacillation, I have resigned. I don't think any thing fruitful that can advance the peace movement, would come out of our work in the peace conference. Whatever is happening in this direction would continue to happen even if there is no World Peace Movement or the Indian Peace Movement. As far as I am concerned, the Indian Peace Movement has been quite opportunistic. I would have stomached even this, had there been any concern, honesty and integrity in the main component of the movement. But it is a pity that these communists are fighting their party battles from this platform which I thoroughly deplore.' In the same context, he further mentions, **(q 35)** 'the Indian delegates have formed a gang for fixing their own comfortable foreign tours'

Thus even in the work of the Peace Conference, Kosambi finally got disillusionment and despair in his lot.

In the period till the end of the Second World War, intellectuals all over the world were enamoured of the Soviet Revolution and its novel experiment of socio-economic Political restructuring. By the time the war was over the soviet revolution was a quarter of a century old. Along with the inspiring events taking place in the Soviet Union, episodes of Stalin's oppressive dictatorship also unfolded beyond the iron curtain. The pitfalls and perils with which the path of the Soviet type revolution was strewn, drove them to rethink. They blatantly felt the need to search for alternative paths of revolution and social change in ones own country. Despite having Socialism as the ultimate objective it was clear that every country needs to discover its own appropriate way. After the war many nations had turned to Socialism. Socialist parties came into power in Eastern Europe with the help of the Soviet army. In our country the declared aim of the Nehru Government was 'creation of a socialist society.' In China the Communist Party came to power after a successful revolution under the leadership of Mao Ze Dong in the year 1949. Because of the vast territory, huge population, and the long drawn armed revolt the Revolution in China proved much more important than the Independence of Indian sub continent with regard to balance of power in the world.

The Chinese Nation Building experiment attracted every body's attention. Many western and eastern thinkers, disillusioned with the Soviet Union supported China. Kosambi of course was not an exception. **(pp 72)**

The Soviet Revolution had gained eminent Sympathizers like Bernard Shaw and the couple Sydney and Beatrice Webb. The Chinese Revolution too found sympathizers in the famous Joan Robinson, Joseph Needham and others. The 'Great Leap Forward' of 1958 and the later 'Cultural Revolution' captivated these thinkers. These movements made them aware of the socialist structure of the society in the offing; although the later developments clearly revealed that in the run of actions and events in China, these possibilities did not materialize. But this outcome was difficult to imagine earlier. Kosambi was not alive when the Cultural Revolution commenced. Yet the dreamy, unsuspecting optimism that exudes from his writings on China is strikingly different from that of his usually critical and consciously thought-out writing. He credulously describes the new situation in China as; **(q36)** 'The common Chinese has totally changed not just outwardly but inwardly too. A new socialist society has built up here.' This he supplements with, **(q 37)** 'In Peking, people are so care free that they don't even lock their houses to go out and there never occur any thefts!' It reveals that he was fully aware of the enormous pre-revolution human misery in China and the strikingly contrasting post-revolution improvements. Yet singing praises to China in this

manner on account of its supposed total transformation is more out of his sympathy for the revolution than the real changes that occurred there.

One can reproach Kosambi for his exaggeration or over simplification of Chinese post-revolution achievements; but the fact that the special context of the overstatement was the circumstances prevailing in India cannot be ignored.

The Nehru Government in post-independence India, while mouthing 'Socialism' all along, adopted pro capitalist policies in practice. Kosambi as one would expect, became a harsh critic of it. The contrasting policies adopted by the post-revolution Chinese Government and the reforms that Kosambi had seen there was the backdrop for this criticism.

He had visited China several times during the ten years period from 1952 onwards. He met with a number of scholars of Oriental Studies, Researchers of Buddhism and many other scholars in various fields. Manuscripts of many rare Indian tomes that had disappeared from India were available in the Buddhist hermitages in Tibet. Kosambi corresponded and met with a number of people in order to obtain photocopies of these manuscripts. But more important than this was the opportunity that he had to stay in China for a few months as an adviser in statistics. He was invited by the Academia Sinica, (Spl ?)- a Chinese Institute of Science, in 1959-60 as a guest. (pp 73) The project, under which he was sent to China as a statistician on behalf of the TIFR, was India-China exchange of expertise. At that time China did not have any developed system to collect and analyze data on industrial and agricultural turn out in the country. Kosambi, it is said was consulted for building the required mechanism. In this connection he enjoyed visiting many big and small plants and agricultural institutions. 'The Great Leap Forward' movement was in progress there at this time. Huge communes covering as large a population as 50 to 80 thousands were being built up to be run on co-operative basis. Collective tilling and cultivating of combined privately owned pieces of land was emphasized making it possible to utilize all the available land profitably, according to its fertility and richness, for agriculture, forestation or for grazing in a well planned manner. It also made possible the utilization of human resources most appropriately. The second point of importance was the emphasis on developing the communes to become self sufficient units. Along with collective cultivation, small units of production of agricultural tools, weaving, etc., were tried on experimental basis. The experiment of erecting small iron furnaces, every where to fulfil the communes' demand for iron and steel, attracted a great deal of attention.

In the initial stages at least the communes experiment seemed to be marching towards self management and governance along with self sufficiency. Activities like buying and selling of the produce, bank transactions, running of schools and at times, even technical institutes, etc. were organized in many communes. Kosambi praised the 'Commune Experiment' as 'socialist reconstruction' meaning thereby planning and execution of reconstruction programmes and activities to satisfy people's primary needs and to empower and enable them to build their own future. Kosambi states that since this heightens the level of local self governance, some functions of the central control will vanish which is a sure, although small step towards "withering away of the states" as conceived by Lenin.

In the light of later developments, this too seems quite romantic. This, however, is important in order to understand the various abilities, potentials of the socialist society that were visualized in the then prevailing atmosphere. The technology used in heavy steel industry is certainly not as simple as can be used by any individual black smith. The experiment of producing steel in the backyard kilns to decentralize the industry failed. Later this policy was blamed as responsible for putting a spoke into the wheel of Chinese Industrial Development. But the commune system cannot be described as useless or as a failure as far as agriculture, protection and care of the forests and the pastures, small scale industries and co-operative sale and purchase are concerned. (pp 74)

Kosambi thought especially in respect of the communes experiment, that the Chinese example was worth emulating in the then prevailing Indian conditions. Some developments taking place on these lines in Maharashtra appeared important to him. The co-operative movement was taking roots here. The formation of Co-operatives for Purchase and Sales at several places was likely to reduce the profit of the middle men between the farmers and the end users. Many co-operative sugar factories were coming up. All the processes-construction of the factories, their management, production, every thing from growing sugarcane to the sale of sugar including its export- could

possibly be handled on co-operative basis. Dr. Dhananjay Rao, an expert agriculturist and economist who had devoted his life to rural uplift, with a few chosen colleagues was busy guiding this movement and laying its foundation. Kosambi detected resemblances in the two parallel systems- the Chinese Communes and the Co-operative movement in Maharashtra. He surely was aware of the differences too. In his opinion the Chinese efforts were made consciously while our experiments of co-operation were unorganized and carried on a small scale. The traders and industrialists had stood in opposition to it; the Swatantra Party was formed with this very objective in mind while the government had adopted a vacillating and meek policy. Because of all this there was no chance for the co-operative movement to be efficient and effective. He also predicted that in the absence of enough support and enthusiasm on the part of the government the co-operative movement is likely to be captured by rich and influential farmers holding back the original objectives. His predictions have come true. Even then in the initial stages, at least, he did feel that co-operative rural manufacturing had the capacity to lead us in the direction of rebuilding a socialist society. The basis for this optimism, it seems, was the experience of the communes in China. One of his comments is important for understanding his views as well as the severity of his criticism of the Indian situation.

In one article he wrote, **(q 38)** 'In India, all go into raptures over socialism and yet no one believes that our society can actually become socialist. That is why it does not occur to many, that a way to socialism is available to us through the Rural Co-operative Industries.'

He was equally impressed by the water management policy of China as he was with its co-operative agriculture. In China they built huge dams but did not neglect the most needed small dams in big numbers. The irrigation projects that accompanied building of small dams were prudently exploited to make maximum and efficient use of available water. In our country, on the contrary, irrigation projects that are beneficial to common small farmers are totally neglected **(pp 75)** while seemingly grand and gigantic projects that benefit big rich farmers, steal all the attention. Kosambi criticizes this as sheer waste of national resource. Instead of imitating the west in this regard, India should emulate the example of China, he stated. In short his traveling around and exploration in China engendered his stand of vigorous advocacy of what can be called People's Science and Technology (Lokavidnyan).

Kosambi, one must admit, was treated with great respect and honour in China for his Peace Conference work, his valuable help as an authority in statistics and his research as an Oriental Scholar. His lengthy meeting cum interview with Chow En Lie, the then Prime Minister of China is enough to prove this. Later the affable chummy atmosphere of 'Hindi-Chini Bhai Bhai' got clouded by the India-China border issue and relations between India and China became strained. Before the commencement of the war in 1962, the irritation between the two countries was aggravating increasingly by the day. Kosambi, it is said, met with Chow En Lie during his visit in 1961 and gave him a historical account of the various societal groups dwelling in the region of India's frontiers and explained to him its relation with the border conflict and India's stand on it. Before visiting China he had contacted the Prime Minister's office and possibly carried a message from the Prime Minister to China. This was, but an unofficial mediation and his efforts in explaining the historical background obviously did not bear fruit due to the muddled political atmosphere. Despite all this it is certainly significant that Chow En Lie should spare as much as six hours to converse with him.

In the strained circumstances after the Chinese War, Kosambi had to suffer the consequences of his cordiality with China. In one of his letters to a German student cum friend written in 1964, he complains, **(q 39)** 'My correspondence is scrutinized. The interesting thing about Academia Sinica **(spl?)** is that earlier even though I had paid the full subscription they were not sending me their issues regularly and now they send me several copies of the issues free of charge. This has made me a suspect in the eyes of the authorities.' It is difficult to decide how true this complaint was but this surely proved to be an additional factor that increased his alienation from the established gentry.

Kosambi was greatly impressed by the things he observed in China and the policies adopted by the Chinese Politicians. What he found worth emulating for the progress and development of India can be spelt out thus.

But before that it would be fitting to follow in depth Kosambi's thoughts **(pp 76)** on the mutual relations between society and science. The points of fundamental value that he raises are as relevant today as they then were. This is

what gives him an honourable place as a critic of the established structural patterns and policies in the field of science in India and as an advocate of alternative policies.

To bring prosperity and power, overcoming poverty and backwardness in the country, modernization and industrialization are essential; and to achieve that we must consciously make use of modern science and technology. Such was Nehru's progressive stand when he encouraged laying a foundation and building institutions in the field of science and technology. All scientists approved of this stand. The point of dispute, however, was how to go about it. The differences on this point were related to the various viewpoints regarding the process of modernization and the mutual relationship of science and society. The difference between the viewpoints of Bhabha and Kosambi is a glaring example of this.

Bhabha was the chief architect of in the field of science and technology and also the main pillar of the government's edifice of science and technology. His concept of modernization was naturally considered more important. In the last speech of his short career in 1966, Bhabha said, (q 40) 'The developed nations have two things which the backward nations lack. They are modern science and the economy based on modern technology. So the problem of their development is, in fact, the problem of introducing modern science and transforming the present economy into an economy based on modern science and technology.'

Bhabha's concept of modern science and modern economy was the western life style and following the footsteps of western society and our progress in science and technology has followed almost the same route. He did not feel the need for inventing a path appropriate to the special circumstances existing in our country.

Kosambi's concept was quite different. A seminar had been organized in May 1966 to discuss the issue of increasing co-operation among the nations of Asia and Africa for advancement of science in these regions. Kosambi presented his views on 'the Problems of Science and Technology in Backward Countries'. (Incidentally like Bhabha this happened to be Kosambi's last speech.) The burden of his speech was that while making use of science and technology the background circumstances are of utmost importance. His visionary potential was revealed when he strongly pressed this point. In his speech Kosambi stated, (q 41)

'Most of us are so engrossed in science and technology that we no more are aware of its being utilized in life. (p 77) There are three aspects of its reference to utility-Political, Economic and Social. Science and technology are not bound within the borders of nations. This makes the surroundings in which it is used most important for us. Political atmosphere is a very important component. Most of the backward nations were intimidated for a very long time by the colonizers; in fact the basic cause of their backwardness is their exploitation by these foreign colonists.'

He very forcefully affirmed his stand that our background, our context is quite different than that of the western people and simply imitating them or treading in their footprints will not help. We have to search for and follow an alternative path appropriate to our circumstances. Many grand and ostentatious projects were planned and executed just to imitate the west or to help our elite overcome their feeling of inferiority in comparison with their foreign counterparts. These projects were a drain on our limited national resources. We should, instead, choose technology from the utility point of view that would be appropriate to fulfil our immediate needs as well as our long term plans of development.

There is a general misconception that the technology appropriate to backward countries is inferior technology. Many times imported modern technology does not suit our situation because certain external factors needed for the use of that technology, are absent in our circumstances, our peculiar context. But to conclude from this, that modern up-to-date technology is appropriate for developed countries only and the backward countries need 10 to 15 year old technology is absurd. All that it means is that technology appropriate to the western countries need not necessarily be suitable in our context.

On the other hand we may even assume that since backward countries like ours face more complex and complicated problems our need for good and more sophisticated science and technology is greater. We too should indulge in developing sophisticated science and technology. But all that we must keep in mind while doing so is that our concept of front line research should be distinctively suitable to our milieu. This becomes clearer on

examining Kosambi's thoughts on energy.

While advocating World Peace, Kosambi opposed Atomic Energy Projects all over the world because he was against the Atomic Weapons and most of the Atomic Energy Projects covertly aimed at making atom bombs.

He did not oppose atomic energy per se, as one source of energy. (pp78) In fact he, himself has given a very good account of how in certain circumstances atomic energy can be used most profitably.

Such energy generating plants require very little fuel and need refuelling after a very long period. Due to large scale automation running those plants needs much less man power as compared with traditional plants. Atomic power plants, therefore, can be erected in remote, inaccessible and thinly populated places and can facilitate decentralization of power generation as stated by Kosambi. Such tiny atomic plants are already in use in space ships and submarines. Ironically almost all nations have ignored this potential of atomic plants in their power generation projects and instead erected huge plants in thickly populated urban areas and connected them into the main grid. Without doing proper research on it, the problem of risks of radiation, was simply swept under the carpet. Atomic power generation in comparison with other methods was more expensive. But a large part of this expenditure was shown under expenditure on research. And it was proclaimed from the top of the house that atomic energy is soon going to be much cheaper than any other energy.

The reasons for this, Kosambi thought, were firstly that the undisclosed objective of the atomic research projects of all most all nations happens to be building the capability of producing atomic weapons and secondly the vested interest of the powerful atomic energy corporations in securing people's recognition for atomic energy.

Kosambi wrote in 1960 that the developed nations have realized the risks involved in atomic power projects and the huge expenditure involved in them; and therefore they have unceremoniously cut down their atomic power generation projects while at the same time keeping their nuclear weapons programs in tact. He was much disappointed by the way we still blindly pursue atomic energy generation instead of learning a lesson from the experience of the developed world.

The points he mentions while advocating use of solar energy are worth taking note of. The amount of solar energy is much less in the developed countries of the temperate and cold zones. It was quite natural for them not to put much store in research on it as a source of energy. But for us it is a source available in plenty and that too free of cost. It will be of immense value if we could exploit it. Beginning with this plain fact he further explains; utilizing solar energy properly and efficiently, however, is not at all easy. A villager won't be able to use it very cheaply on his own. Utilizing solar energy is not as simple as using a spinning wheel. (pp 79) A lot of first rate science and technology that is needed for this purpose will have to be invented first before any efficient solar power generators and other equipments can be provided to individual consumers. The organizing and administrative skills needed to provide them on a vast scale, also will have to be planned scientifically.

Kosambi was not the only one to express such views. Many others were thinking on the same lines. Those who agreed with him were not just a few. But the trend of events taking place in this country was such that very little progress was made in this direction.

Many responsible individuals feel that had we spent even one per cent of all the money, the resources and the scientific talent put into use for research on atomic energy, in this direction the picture of the country would have been quite different.

Agreed, that it was not easy in the beginning, to build an institution to carry out research on solar energy on a vast scale. Yet it was not impossible. The scientists like Bhabha were capable of making the first move in this direction and pursuing it. In fact Bhabha did advocate use of solar energy in one of his addresses in 1951 in Bombay. And his arguments too were very similar to those made by Kosambi. But this turned out to be a momentary backing and Bhabha soon got immersed in atomic energy research. His relation with Kosambi strained to a breaking point. And by this time Bhabha had become the sole authority in the field of science and technology in India. No other individual possessed power enough to pursue any alternative ways.

Later the western countries too started thinking about the alternative methods of energy generation. In Indira Gandhi's rule efforts in the direction of finding renewable energy sources alternative to mineral oil and gas as well as atomic energy, were encouraged at the governmental level. In 1992 the Prime Minister, Narasimha Rao in his Independence speech proclaimed from the Red Fort that government of India will make special efforts to exploit solar energy-as if it was some new invention. Looking at all these developments a disturbing thought comes to one's mind: what if we had taken all these steps in the right direction 40 years ago?

It was in 1963 that Kosambi resigned and quit the World Peace Organization. Even before that his career in the TIFR had come to an end an year earlier.

He was completely marginalized there. Kosambi accepted the situation but was, it seems, determined to go his own way. A few close associates of Bhabha had even advised him to patch up with Bhabha. (pp 80) Dharmananda had once said, 'our Baba's ego is larger than himself.' With this remark in mind, it was futile to expect Kosambi to patch up with Bhabha.

Kosambi was not the only person who could not get along with Bhabha. Many had left TIFR even earlier not being able to get on with Bhabha on one pretext or another. Right from the earliest students like Alladi Ramakrishnan and R. P. Thatte to Professor Gill, Sahiyar, Masani, Singhvi, George, Sudarshan, even Bernard Peters and finally K.C. himself left TIFR at some stage or other. It is difficult to understand why Kosambi did not resign and quit like the others. But there is some difference between him and the other colleagues who left earlier. Most of these scientists were devoted to their own subjects, i.e., either mathematics or physics. So they must have felt suffocated once they discovered that their relations with Bhabha had turned sour and had no alternative but to leave TIFR and join another institution where they could pursue their objectives and improve their prospects. Kosambi on the other hand had interest in a number of research fields. And the freedom and comparative prosperity that he enjoyed in TIFR were conducive to his idiosyncratic and diverse research going beyond the acknowledged routine.

Though he had not resigned, Kosambi surely was well aware that he will have to leave the institution one day, since he started to work in the World Peace Movement. As early as in 1952, while he was in touch with Dr. Ingalls regarding the compilation of critical edition of 'Subhashitaratnakosh' he wrote, (q 42) 'I am bound to be removed from my post in this institution because of my participation in the Peace Movement.' Whether this was paranoia or his childlike habit of playing mischief- pricking and shocking people with exaggeration-is difficult to discern.

His fear to some extent was reasonable. For, it is said, that during this period he had made inquiries with Dr. S.P. Adharkar, the Founder-Director of the "Maharashtra Association for the Cultivation of Science", a minor institution then whether he could get an opportunity to work in his institute during a conversation. That the mild natured Dr. Adharkar, who knew Kosambi well, evaded answering him with a counter question, 'how could such a great intellectual like you be accommodated here?' is another story. But Kosambi, being fully aware of having incurred displeasure of both Bhabha and Tata must have sent feelers in search of alternative succour if need be. (pp 81) Later when he was actually in need of it Dr. Adharkar did give him shelter in his institute is an indication of the above.

As Kosambi refused to quit on his own TIFR had decided to tolerate his presence in the institute; but Bhabha also was waiting for an appropriate opportunity and moment to get rid of him.

And Kosambi offered them one such cause which on the face of it was the appearance of a certain research paper written by him in a mathematics journal.

Ryman (spl ?) Hypothesis or Ryman Conjecture is an enigma in mathematics. Ryman, a German Mathematician of the 19th century, had mentioned this presumption in one of his article in the year 1959. His hypothesis is quite significant because many other problems like the Number Theory in the field of mathematics are closely connected with it. The mathematician who could either prove or falsify Ryman's hypothesis would naturally be greatly honoured. Many a great mathematician have fretted and toiled in vain over this brainteaser. Now and again some mathematician would presume that he has solved the puzzle only to be disillusioned later, when a mistake was detected in his proof. Norbert Wiener has said in his autobiography, that every real genuine mathematician is invariably tempted by these enigmas; and having a go at them is essential to stretch his intellect as far as possible

and thereby become conscious of his limitations.

Despite his wide-ranging research in a number of fields Sanskrit, History, Archaeology and what not, Kosambi did not lose any interest in mathematics. He continued research on mathematical problems that kept teasing him on a small scale independently on his own. In 1959 he wrote a lengthy paper of 15 pages titled 'An Application of Stochastic Conversions.' In that paper he proved a few theorems and concluded his arguments saying that Ryman's conjecture can be proved using certain theorems. In the light of Wiener's opinion, every mathematician is tempted to try and solve such brain-teasers and there was nothing very unusual or odd in Kosambi's attempt. The controversy arose because this was an unsolvable problem; and before claiming that it can be solved, the suggested solution should have been very carefully examined and that too by acknowledged mathematicians. Such mathematicians were available to him as his personal friends. Again had Kosambi published that paper in any recognized mathematical journal it certainly would have undergone a thorough scrutiny by renowned mathematicians. But no; Kosambi chose to send it to the 'Journal of Indian Society of Agricultural Statistics' and got it published in the 11th issue of the year 1959.

Publishing the solution of such an important problem in a journal of Agricultural Statistics was a jolt and an affront to many blue blooded mathematicians. (pp 82) In addition a few shortcomings too were noticed in his proof. A few young mathematicians of those days, working in the TIFR, remember that in a review of this paper published in an American Mathematical Journal the critic remarks, 'in his proof Kosambi has conveniently taken many things for granted.' Although Kosambi had failed to prove Ryman's conjecture, his article contained many important novel ideas; but as Professor Masani had said, unfortunately no one tried to follow and work further on them. Kosambi's attempt in connection with Ryman's conjecture failed but the article itself undoubtedly was of a very high standard.

However his negligence and bungling of things like his unsubstantiated claim, choice of medium for publishing, etc., were exploited unscrupulously by his enemies. He did not distribute copies of his paper to his colleagues. But eventually K.C. got a tip-off regarding it and also the critical review on it. He then complained that Kosambi's half cooked and imperfect research work caused damage to the reputation of his department. Bhabha took upon himself to do the remaining needful.

Most of the appointments in the Institute were of three years duration. On completing this period the employees were reappointed in the same post or a higher one. So far Kosambi was reappointed on the same post. From 1960 onwards his reappointment was for only one year instead of three years. Kosambi was to complete 55 years of his age in 1962 and a government servant would retire at that age. This opportunity seems to have been availed of and instead of giving him an year's reappointment it was decided in the meeting of the council that he be relieved from the institute. None of the members of the council except one spoke in favour of Kosambi.

This happened in the first half of the year 1962. Kosambi got a letter from Bhabha while he was in Pune because of the summer vacation. Bhabha wrote to him that he was relieved from service and also sarcastically added that he would now get more time for research of his liking i.e., Ancient Indian History, etc. He was to be relieved in December and was to get his pay till then. But the letter also mentioned that Kosambi need not join duty at the end of the vacation. Kosambi was greatly annoyed at this, we are told. It was quite natural and not unexpected. Even then Kosambi protested against it and wrote to Bhabha, that he will need his cabin and his typist there. But he hardly ever visited the institute afterwards. He went there twice or thrice just to wind up his important files and paper work and dispose off the rest.

The Institute shifted to its new grand and beautiful building in Navynagar in 1962. When it was shifted from Pedar road to the Old Yacht Club near Gate Way Kosambi and Bhabha were alienated. (pp 83) Now when the Institute shifted to its own posh premises Kosambi had to leave it. Kosambi, who was next only to Bhabha was not given even a simple send off when he left.

At the age of 55 years, after being relieved from the TIFR Kosambi became completely independent. So far all his research work was carried out on his own independently. Whichever institution-Banaras Hindu University, Aligarh Muslim University, Ferguson College, and TIFR- he worked with, the institutional work and his own individual research did not progress in harmony. Even though he was Professor of Mathematics, his research in mathematics

had nothing to do with his students in the institution and was carried on unaccompanied by the students or by his colleagues excepting a couple of students. His research in fields other than mathematics obviously has nothing to do with them. However so far he did have a firm institutional foundation to support him. He was now left without any such support.

And this was a difficult situation. In a way it was a blessing in disguise because it saved him a lot of time and energy that were wasted in travelling up and down between Pune and Mumbai. He had a number of research projects and plans of writing on his hands and many more in his head. For all this work time was of essence; and now even saving energy also became essential as his strength reduced with growing age.

Kosambi was blessed with so much energy and such capacity that, he used to finish single handedly two to three people's work. He had a very impressive personality; he had enviable height, broad sloping shoulders, sturdy neck and arms with powerfully built strapping muscles. This was the result of his body building effort that began while he was in Cambridge in America. The passion for work out and training the body remained with him till the end. He did weight lifting consistently. An admirer of his says that some of the weights he had in his house were so heavy that an ordinary man would not be able to move with both hands, leave alone lifting them. He used to keep heavy dumbbells in his cabin while he was in TIFR and exercised his muscles behind closed doors, in the afternoon to reduce tension. When he had pain in his back and neck after reading for a long time sitting in one place, he used to keep a big stone on his neck and walk very briskly in his bungalow in Pune. A few huge stones fashioned by ancient dwellers of that region could be found on the Vetal hill of Law College. During his wanderings, in search for such remains of Stone Age man, Kosambi used to pick these huge stones and carry them home on his shoulders.

(pp 84) He had picked up a habit of going for long treks during his participation in the Scout Movement. On returning back to India it proved quite useful for roaming about in the surroundings for collecting data for historical research. During his Ferguson days he used to wander on the Vetal Hill and later, on joining the TIFR when he had to travel between Pune and Mumbai every day, he used to walk from his house on Bhandarkar Institute Road to station to catch the morning train. (Good for health, he would argue.) As if this was not enough he would walk from Boribandar station to the Gate Way of India on reaching Mumbai. Many people still remember his impressive figure walking quite briskly with a knapsack on his back. (And most of them were acquainted with him only to this extent, not one bit more!)

Out of his 17 years in TIFR he travelled between Pune and Mumbai for 10 years; he walked long distances for field work and data collection in the remote interior regions where even roads were lacking; he kept awake for reading and writing till 2 am and dealt with a very large correspondence typing all of it himself. What energy he must have had!

However out of his available letters, those from 1960 onwards show that his health was on the decline. Very often he would complain in his letters that his health is deteriorating which comes in his way, obstructing his work and also that he was not sure how long he would be able to carry on with his work. Since long he suffered from rheumatism of the joints that caused stiffness and unbearable pain. In one of his letter he says, 'with my aching fingers typing has become very painful, so I close now.'

In his 1955 Moscow visit he underwent treatment for this rheumatic trouble. He was, it seems, very fastidious about this ailment of his and used to take plenty of medicines for it. He used medicinal oils made from wild herbs, available with the rustic village physicians and also recommended them to his friends in the foreign countries as very effective analgesics and even sent those oils to them. At the same time he also took many western modern medicines. He often wrote to his young student-colleagues to send him certain medicines and injections from London and complained in his letters that those medicines are either not available in India or are not of proper standard if available. A Hungarian physician too was treating him for Rheumatism and it is said that these medicines proved too harsh for him.

Professor Gokhale, Kosambi's close friend, thought Kosambi habitually gulped too many pills, like a proper tablets popping American. His sister, Manorama Sathe had said, he was rather **(pp 85)** a chicken-hearted moaner and used to make a lot of fuss over even a slight indisposition.

Though he was a bit of a hypochondriac, his health certainly did deteriorate from 1960 onwards. The hectic life that he led all through out was telling on his health in his advancing years. He would not have otherwise written such pessimistic sentences as, there wasn't much time left for him then.

He was no doubt saved of the daily drudgery and hardship after his compulsory retirement and would now be able to devote much more time to his own research and writing of history. But the other side of it that was equally important and urgent for his own research work was his financial status.

He was not badly off as far as running the house hold was concerned. He already had his own house in Pune, his wife came from a rich family and in addition, he drew a real fat salary for those days while he worked in the TIFR. In 1962 he was free of all his family responsibilities. The elder daughter Maya was married and settled with her husband, Mr. Sarkar in Sweden. Her daughter Nandita was born in 1960 and Kosambi by now had become a grandpa. The younger daughter Meera graduated from Ferguson College worked as a lecturer for some time and was now employed in the British Council Library. He also must have been getting some remuneration as royalty for his books and other articles.

Despite all this, he must not have been able to save much for he was given to spending liberally and lavishly.

He did not follow his father's Gandhian style of simple living and was not at all parsimonious regarding his personal expenditure. He travelled by first class during his daily up and down journey between Bombay and Pune. According to Professor Ingalls, a Sanskrit Pundit of Harvard University, while in India he travelled every where by third class except on one occasion; and that was when Kosambi travelled with him from Pune to Bombay to see him off and insisted that he travel by first class. Ingalls later sarcastically wrote, 'I happened to represent American Capitalism while he was a communist; however....'

He was fond of good food and enjoyed treating his friends lavishly. While in America he picked up the habit of munching chocolates. He loved Cadbury and other imported chocolates. One worker in TIFR related that Kosambi had given him a standing order to buy chocolates for him (Kosambi) and he used to buy Italian and other imported costly chocolates with the money given by Kosambi. Another worker told, 'nobody dared enter his cabin while he was engrossed in reading or writing. (pp 86) But whenever it was necessary to carry any official papers to him this worker was always willing to go in because he knew that he would be getting a big chunk of chocolate from him.' R. P. Nene, his young colleague from Pune, too had experienced his generosity. He relates, (q 43) 'Whenever I finished the piece of work that he gave me, to his satisfaction, he would be quite pleased and would buy me a big bar of chocolate from the corner shop telling me apologetically that, that was all he could give me.'

He was especially fond of Chinese food. Taking meals in 'Nanking' the Chinese Hotel near Gate Way of India once a week was a regular practice with him. He used to treat his visiting friends and his student-colleagues to Chinese Food with great zeal.

His voracious reading and the great expanse of his fields of research resulted in a huge regular expenditure on books as well as on writing and research related work. He was very particular about the material-paper, envelops, type writer ribbons, etc.- he used for his writing. It had to be of high standard and certain type. His correspondence spread all over the world. It has come to light that his correspondence with his research associates like John Arvin, Günter Sontheimer and others so regular and large that he at times wrote to them twice a week and sent his letters by airmail. Now, all this spending had to be from his own pocket and not on institute's account.

In addition to these individual private expenses, he was fond of helping his juniors and other lower level workers generously. (That he could not get along well with his colleagues or superiors was, so to say, a blessing in disguise.)

He used to give money and presents to the peons, clerks, typists and others in the institute. One of them told the author that his Diwali Baksheesh used to be a hundred rupee note in those days! If he sensed that someone is in need, he would enquire affectionately with him and offer him money for clothes, fees, medicines or even tonics. One officer in TIFR recounts that many have taken undue advantage of his generosity. Quite often someone would approach him and tell him a woe some story of his misfortune and Kosambi would immediately part with the

biggest note that he had in his pocket.

Especially noteworthy is the episode at the time when the Panshet Dam burst. He gave succour to many who lost every thing in the floods, in his own house for one full week. He put up shelters in his court yard for them to stay and offered them food and clothes. In short, all this boils down to lack of any savings on his part.

So in such circumstances the main problem was how to obtain the monetary support that was essential for continuing his research projects. (pp 87) In one of his letters to a young researcher-friend during this period, he wrote, 'I have enough to sustain myself for three years; what happens later is anybody's guess.' But his self esteem would not allow him to say anything more even to his close friends who were ready to help. On the other hand he was worried that his clash with Bhabha will hamper his prospect of getting another post else where.

He was upset due to this. Swaying between optimism and pessimism he would talk about ever new plans and research projects enthusiastically and then a dark shadow of despair would peep through his talk. This perturbed state of his mind caused a pang in the hearts of all those who came in contact with him.

Kosambi had wandered a lot through the cliffs and precipices of the Sahyadri Ranges as well as villages and river valleys on the Deccan Plateau for field observation. Searching for small stone age weapons and tools and the remains of **memorial boulders** (?)—the signs of habitats, places of worship and funeral and migration routes of the aboriginal tribes—in order to track development in the prehistoric period, was an old habit with him. He wandered either alone or in company with a friend like Professor Gokhale. From 1958-59 a small group of young students gathered round him. This was a group of international volunteers.

Students from all over India, along with foreign students came to the Bhandarkar Institute of Oriental Studies, the Deccan College and the Law College at Pune for research in the fields of Sanskrit, Religion, Oriental Studies, etc. On hearing about Kosambi, some of them started joining him on his trekking tours on Saturdays and Sundays. Kosambi's penetrating study of history and culture of India and his fresh, unconventional outlook attracted these young men towards him. Although they were not his students formally, they acknowledged him as their Guru. His pupils in this international group were Günter Sontheimer- a German, P. Franklin-an American, Toshio Yamazaki, Takahara and Nakada —the Japanese students and two Indians Divyabhanu Sinha, Chavda and Vishnu Sisodiya. They all wandered a lot in the Pune district and the Karha and Bhima river valleys.

These research wanderings culminated into an article, 'Pilgrims' Progress: Contribution to Prehistory of Western Deccan Plateau' first published in his well known book, 'Myth and Reality.' This anthology with a sub title- Studies in the Formation of Indian Culture- had been published in 1962 (pp 88) by the 'Popular Publication' of Bombay. While expressing his gratitude towards these volunteer pupils, Kosambi has made a special mention of Chavda and Sisodia in the Preface of this book. Both of them came from royal families and they provided jeeps and cars that were essential for their excursions. Both of them later joined the Society for Oriental and African Studies in the London University; but they, however, did not persist in the research field there after. His Japanese pupils became well known as students of Ancient Indian Knowledge. Of all these pupils, Kosambi impressed the German pupil Gunther Sontheimer most. He became Professor of Oriental Studies in the Heidelberg University and chose Maharashtra as his main field of research.

The important fact here is that all these volunteer pupils were attached to the Institute of Oriental Studies in London and Kosambi had excellent relations with the chief of the research department there. Basham, the authority on Indian Historical Research and Kosambi were good friends since long. In 1960 the British Council sponsored Kosambi's London tour when he lectured in the Institute of oriental studies. His novel field observations and the excellent slides that he himself had developed, made the lectures very effective. These are some of the threads that led to the formation of his international group of pupils.

Another point comes to light here. Kosambi could get foreign pupils and pupils from other provinces for his field work-wandering through villages for observations and collecting information from the rural people to help him in his research work. But not the local Marathi speaking boys and girls from Pune where he himself worked. Had he been able to attract local pupils conversant with the people's language and the local beliefs and creeds to work with him, he could have done his job much more efficiently. But here in Pune, it seems, he remained aloof from the

people of Pune and they from him.

Thus Kosambi was immersed in the field observations with his international pupils' group and many other programs and activities when he received Bhabha's letter. In the summer of 1962 he made a quick visit to Rumania in connection with the work of the Peace Conference and met with archaeologists there. He was invited to visit East Germany too. But he avoided going there as he had a difference of opinion with the Oriental Scholar, Ruben. In the month of October he completed his survey of the Bhima River valley with Chavda and Sisodia in jeep and Station Wagon. There he noticed a number of Memorial Boulders (?) and symbols and figures inscribed on stones by the ancient tribes. He started pondering over a plan of developing a comprehensive map of these remains dispersed over this whole region with the help of aerial survey. (pp 89) In 1963 his international pupils' group completely dispersed but his work in this field continued till the end.

By now Kosambi with the publication of books like 'An Introduction to the Study of Indian History' in 1956, 'Subhashita Ratnakosh' in 1957 and many other articles on history and culture, had become famous and was recognized in the field of oriental studies. His release from the TIFR too seems to have added to his fame and name, for, invitations from foreign and indigenous institutions started pouring in. That many of these invitations and programs did not materialize is another matter; but it did reveal that he had a large number of well wishers spread all over the world who acknowledged the significance and value of his work.

In 1962 Kosambi received a letter from Daniel Ingalls. In his letter Ingalls had suggested that Kosambi should give the Tagore Memorial Series lectures that were planned for the year 1965-66. Kosambi did not accept or decline the offer unambiguously then but he began preparing for the series of lectures on the Culture of Ancient India. In the letters that he wrote to his friends in this regard, many sentences like, 'I cannot think far ahead in the future about my health' or 'I am not sure, my health would permit me to undertake this tour of America', etc. can be detected. Finally the proposal of 'Tagore Memorial Lectures' did not materialize because Harvard University failed to send a formal invitation to Kosambi. The reason for this could only be guessed. On the one hand Kosambi was known for his Marxist views while on the other America being involved in the Viet Nam War, the atmosphere there was very much anti Communist (the anti Viet Nam War public opinion built up later.) These two factors must have gone against his being invited.

Kosambi had received invitations from Australia, Japan and Germany too during this period. Kosambi's close friend Professor Basham had by now moved from London to Australia; a pupil-colleague of his who joined him in his research excursions in Pune had joined the Tokyo University in Japan; and Günter Sontheimer had returned to Heidelberg University. They all wanted Kosambi to go to their respective universities for a lecture series or for conducting a course there. These proposals too failed to materialize further.

In this same year, 1962, Kosambi received one more proposal like the 'Tagore Lecture Series' again from the American Continent. But this time it was from Cuba of the anti-United States of America group.

(pp 90) Only recently a revolution had taken place in Cuba-a small island in the court yard of the great USA. An armed band of young Cubans, under the leadership of Fidel Castro had removed the dictator Batista from power and installed a revolutionary government. As the government of the USA opposed it tooth and nail, the Socialist Castro turned to the Soviet Union for help. During the initial fervour of the revolution many a novel projects were planned enthusiastically. One of these projects was to develop an encyclopaedia spreading into hundred volumes. This project aimed at strengthening the revolution and making progress towards socialism by spreading knowledge and education far and wide among the common people. This the Cubans thought could be achieved by rendering into simple language, the whole stockpile of knowledge built up all over the world for the benefit of their people. Kosambi was assigned the work of writing a volume or a chapter on the Ancient Indian Culture for this encyclopaedia. Kosambi readily accepted the assignment and immediately started working on it. He was to write in English and that was to be then translated into Spanish to be used in the encyclopaedia.

This ambitious project was planned in the initial stage of the revolution. However, whether such a small, backward and poor nation like Cuba could afford such a daunting task in the turmoil that ensued was anybody's guess. And finally it had to be dropped although the immediate reason for doing so was different. The gulf of Florida on the east coast of the North America is often lashed by hurricanes. The island of Cuba situated in the gulf is not spared.

One such hurricane, named Flora thrashed Cuba causing untold devastation and misery. Cuba was compelled to regretfully withdraw its invitation to Kosambi. It is learnt that Cuba did offer Kosambi some honorarium to compensate the hard work he had put in so far. But Kosambi instead of accepting it requested that it be used for the World Peace Movement.

Kosambi missed both the opportunities; the one of the Tagore Memorial Lecture Series and the other of important contribution to the proposed encyclopaedia. But the groundwork that he had already done for both these tasks did not go waste. It culminated into the publication of an important book that brought him long lasting recognition in the field of Indian History as it was translated into many languages and several editions of it had to be published in a short period. The title of this popular book was 'Culture and Civilization of Ancient India.'

In fact the subject of this book was almost the same as the book 'An Introduction to the Study of Indian History' published by the Popular Publication in the year 1956; the framework of both the books too was quite similar. The second book was, so to say, an easy to read, improved version of the first.

(pp 91) The earlier book-'An introduction to the Study of Indian History' was a fat tome consisting of 400 pages. A large number of references and deliberations on methodologies of studying history made it rigorous. It was, no doubt much valuable for history teachers and research students. But for a lay man it made a difficult reading.

For the encyclopaedia proposed by Cuba, Kosambi wrote in a simple, succinct and concise style. To make this writing interesting he collected a huge number of sketches, photographs and plates. In addition his field observations carried out in the intervening period provided valuable material. In the light of the new experience and the demands of the encyclopaedia, some alterations, additions and deletions in the earlier text became unavoidable. The resulting new book was a via media- finding the middle ground-between his first erudite tome and the interesting, easy to read matter collected for the encyclopaedia.

Now he was faced with the problem of finding a publisher. He wanted that it be published by a British Publisher for a couple of reasons. First, he was confident that this book on 'Indian Culture' would be of quite a high standard and therefore should reach as many readers from as many countries as possible. Next, it was necessary to make the book attractive and the Indian publishers of those days, Kosambi thought, would not be able to do justice to the printing of the coloured photographs and plates he had collected so painstakingly. Printing as per this required standard in India would have increased the cost of the book enormously. Thirdly a publishing company from England would provide additional advantage of its prestige and international distribution network. Cuba's invitation to participate in the work of the Encyclopaedia was a good opportunity for him to gain reputation in Spanish readership and Kosambi naturally aspired to have his book translated in many other foreign languages. Thus it was necessary to get a British publisher and Kosambi strived to get one. John Arvin, the director of the department of India, in the Victoria and Albert Museum in London was quite thick with Kosambi. On consultation with Basham and other professors from the Institute of Oriental Studies in England and with their recommendation he authorized his friend John Arvin to negotiate with British Publishers. Many interested parties had already heard about this latest book of Kosambi and made inquiries in this regard. His connections in East Germany were prepared to publish a German edition of it but Kosambi was reluctant, because as he expressed in one of his letters, he was not sure that the East German Publishers would do a satisfactory job and would pay him enough royalty. Comrade Dange, the then leader of the Communist Party was also interested in publishing the book as his party's publication. In fact, in the past Kosambi had severely criticized Dange's Book on Indian History which had caused bitterness between them. **(pp 92)** But Dange, a great admirer of erudition and scholarship magnanimously approached Kosambi in this regard. Kosambi too wanted a cheap edition affordable to common man but not before the first edition, that ought to be of a very high standard, could be published. Publishing cheaper editions could be considered only after the publication of an excellent first edition in England. So he did not respond favourably to Dange.

In December 1963, the Rutledge and Kegan Paul Publications accepted his typed manuscript. Kosambi now immersed himself in the meticulous preparation of the book with enthusiasm. He regularly corresponded with John Arvin and Gunter Sontheimer on a large scale. He seems to have selected the sketches, photographs and slides to be printed in the book very carefully and with great discernment. He insisted on personally going through the proofs to ensure perfection, not allowing even small mistakes to creep in and provide faultless diacritical marks for

Sanskrit words. He often enquired from and complained to Arvin whom he had authorized to deal with the publishers in this regard.

Once assured of his book's publication from England, the possibility of its being published in other languages came into sight and Kosambi was stirred with enthusiasm. This work was facilitated by Kosambi's good relations with Oriental Scholars in London, Paris, Heidelberg and his international pupil-colleagues group who roamed about with him in Maharashtra. Typed manuscripts of the book alone were sufficient and were accepted to start translations into German, French and Japanese languages. It certainly is a tribute to have one's work appreciated thus and Kosambi was legitimately proud of it. His elder daughter had settled in Sweden; Kosambi could, therefore, start negotiations for the translation of his book into Swedish language with the help of Sarkar, his son-in-law. Professor Paul Baron, of 'the Monthly Review', a leftist publication from America, had made inquiries with Kosambi regarding a paperback edition of his book. Kosambi was thinking of a similar cheaper Indian edition as well as translations into other Indian languages simultaneously.

The book guaranteed Kosambi appreciation of his work all over the world and also name and fame that cheered him enormously. He was corresponding on a very large scale with his friends during this period mostly inquiring about the progress in the translations of his book. And in accordance with his disciplined, meticulous and impatient nature, he would often complain, **(q 43a)** 'so and so states that he has started the translation but has not written to me for two long months; find out how far he has progressed; **(pp 93)** also enquire with his publisher if he is prepared to include a few new plates that are now available with me.'

Here it is worth relating an interesting episode of this period. Information regarding Kosambi's personal life and his research work was required for printing on the fly-leaf of the book. Kosambi wrote two paragraphs 'About the Writer' in a very whimsical and boisterous style. **(q 44)** 'Whatever happens our partner is at fault! This rule in the card game-Bridge is known as Kosambi Law; in 1947 the Harvard ex students' union had passed resolution of condolence for his demise and with all sincerity sent its copy to his Poona address. However the papers retrieved from the Panshet floods give evidence of his being alive at least till 1958, and such other impish stuff.' But the British Publishers-Rutledge and Kegan Paul reproached him and demanded a normal, sober introduction of the writer and Kosambi complied with the demand. This of course is another matter. But writing such a puckish introduction, in the first place reveals Kosambi's whimsical nature.

Finally the book with the title 'Culture and Civilization of Ancient India in Historical Outline' was published from London in the year 1965. It was also published in the same year in America by the Pantheon Publishers on behalf of the London based publishers. The American 'Monthly Review' however could not publish a paper back edition. Eventually German, French and Japanese editions also came out. Whether the Swedish edition could be published is not known. Kosambi entrusted the work of Marathi translation to his niece, Kunda Sathe (now Indrayani Sawkar.) He met with Mr. Bhatkal of the Popular Publications with his niece but the Marathi translation failed to materialize. (Later Jayant Gadkari brought out a condensed Marathi version of it.) It was later translated into Hindi by Gunakar Mule. Dange was not able to publish a cheaper edition of it but the Vikas Publishing Company of Delhi made a special contract with Rutledge and Kegan Paul and published the first Indian Edition in 1970. The Indian Government provided paper at concession. That made it possible to sell the book of 250 pages with many maps, sketches and 32 plates printed on glossy paper at a price affordable to the students. By 1984 Vikas Publication published 8 more editions of this book. Such was the response received by this book in India alone. But all this came too late for Kosambi. He was not destined to experience the popularity that his book received and the recognition and monetary stability that resulted out of it. Yet he must have been quite happy in 1965 when his book was published in London and was being translated into several foreign languages.

Even as he was busy with the publication of his book during 1963-64, **(pp 94)** it did not interrupt his field work in connection with his research. Of course as Sisodia and Chawda, the two pupil-colleagues who arranged for his transport, left for England he had to curtail his wandering. But soon by the beginning of 1964 an army jeep could (unofficially) be provided for his field work.

It has an interesting background. Kosambi had already been introduced to the National Defence Academy at Khadakwasla. The first Commandant of this newly established Academy was Major General Habibulla. Habibulla was commandant of the Defence Academy at Dehra Dun and was now entrusted with the task of building up this

new academy. General Habibulla himself was an archaeology enthusiast. He thought of introducing Archaeology as one of the hobbies in the academy's curriculum. So he developed 'Archaeological Society' in the Academy. Two names as experts in this field prominently came into sight- Professor Sankhalia of Deccan College and Kosambi. Habibulla was told that it would be rather difficult to get Kosambi to consent to his offer. But it turned out to be otherwise. In the very first meeting Kosambi offered him all possible help and participated enthusiastically in his project. He donated a few small stone-age tools to the small museum built by Habibulla in the Academy. Along with lectures Kosambi took the students with him on field trips. This hobby became extremely popular all because of Kosambi; and as Habibulla has mentioned he found it difficult to restrict the number of students who opted for it. Habibulla was thrilled when he joined Kosambi on one such field trip.

According to Kosambi's theory the Buddhist rock-cut architecture was, in fact, meant for providing shelters on the trade routes. Groups of such caves, therefore, should appear at fixed distances that are covered in a day's journey. The Karla-Bhaja group of caves is situated close to the ancient trade route coming up the mountain pass from the Konkan area. There was an ancient harbour in the Janjira creek in the Raigad district. The Kuda caves are found there. But the distance between Karla and Kuda is a two days journey. Kosambi, therefore, inferred that there ought to be another group of caves half way between those of Karla and Kuda. To investigate his inference Kosambi along with the students of the NDA started climbing down this trade route from the mountain pass. And sure enough, they did discover the Karasambhale caves hidden in the jungles close to the route at the estimated distance. This was quite a big group of caves. Due to adverse atmosphere and the thick jungle the artistic work in these caves had deteriorated much more than those found in the caves of the plateau. But Kosambi noticed that the pictures in these caves were coloured. As Habibulla said these caves would put even the Ajantha caves to shame had they been in a good condition. They also discovered rock-inscriptions in Brahmi script. Kosambi taught the academy students how to make plaster casts of those inscriptions. (pp 95) Habibulla and the students were highly impressed. In Habibulla's heart felt remark, 'instead of becoming a mathematician and a historian Kosambi would have made an outstanding commander in chief of the army had he opted for that profession.' Although he could enjoy Kosambi's company only for a short while, his intimate relation with Kosambi gave him a new outlook towards not only the Deccan plateau, our country and our people but a new outlook towards the whole of humanity. From Kosambi he learned how to discover the historical remnants of generations after generations of humanity that are spread around us waiting to be taken notice of. Thus spoke Habibulla passionately about his stint with Kosambi.

So these were the connections that made it possible for Kosambi to get hold of a jeep with a driver for his use during the weekends. He used it for studying the memorial stone-carvings around Theur and the huge boulder of goddess Bolhai.

Again in the same year-1964 he had the opportunity to wander in the north of the country. Professor R. S. Sharma, the great scholar and researcher of Indian History was in the University of Patna at that time. Being a Marxist he had great respect and sympathy for Kosambi and had invited him for delivering lectures to the students in his university. The students exploited this opportunity of personal guidance by Kosambi. In this trip Kosambi had planned field observation of Rajgir (Rajagriha)-the old war time capital city. Accordingly he went to Rajgir to investigate the remains of the fort there. But he could not stand the extreme heat and had to return leaving behind an unfinished job. On his way back he visited Varanasi and delivered a few lectures there.

He visited North India once again in the month of November. Along with Bihar he was also invited at the Banaras Hindu University in Uttar Pradesh and the Aligarh Muslim University. His career in India had in fact started at Banaras and Aligarh. He was naturally delighted to visit these places again at the end of his career. Professor Nurul Hasan, the senior researcher in the history department of the Aligarh University was again a great admirer and well-wisher of Kosambi. Irfan Habib and Gaud were two young researchers working there at that time. Eventually they became very famous for their important historical research. Kosambi was very happy to meet all these friends. His stay in Banaras too was equally fulfilling. Along with the students of history, those studying biology too enjoyed discussions with him. Kosambi had done important work in the field of genetics using his knowledge of statistics. And as stated earlier the formula that he derived from this work had become famous as 'Kosambi Formula'. The Research students of biology therefore requested for his guidance on the use of statistics in their investigations. Despite all this popularity one thing that irritated Kosambi in this visit which he has mentioned in one of his letters was, (q 45) 'The mathematicians at both Aligarh and Banaras, however did not take any notice of my presence there.' Any way, not being honoured as a mathematician (pp 96) was an old sore with him. And he

did get plenty of recognition as a historian on both the national and international level.

One more example of his international renown was the invitation that he received from Moscow. They had organized an International Conference on Anthropology and Ethnography in Moscow from 3rd to 10th October 1964. Kosambi was invited to attend as an honourable guest. Kosambi, for some reason, could not attend it; yet it was quite gratifying for him that they recognized the importance of the work he had done in this field.

Meanwhile efforts were being made to secure an honorary appointment in the Centre for Scientific and Industrial Research (CSIR) for Kosambi. Dr. Husain Zahir, the well known scientist from Hyderabad was at that time the Director General of CSIR. Habibulla, Nurul Hasan, Abdul Rahman and others made a move through him to give Kosambi an appointment as Scientist Emeritus with a monthly honorarium of Rs.1000 to 1500. Of course, to obtain such a post for Kosambi involved a number of difficulties.

Some satraps had established themselves in the field of science in India- Bhabha and his Atomic Energy Department along with all other related institutions on the one hand and on the other the CSIR and its network of National Laboratories all over the country. For a while after independence Shanti Swaroop Bhatnagar was most prominent in the field of science and technology. Bhabha was increasingly becoming prominent. Bhatnagar died on 1st January 1955. From the beginning Raman had remained aloof not entering the competition for prominence. Meghnath Shah was already sidetracked and he too passed away on 16th February 1956. So there was no competitor left in the field for Bhabha. On top of this all, Bhabha had very homely relations with Nehru-the first Prime Minister of independent India, with a special interest in science and technology and the attitude of giving personal attention to this field enthusiastically. All this culminated into Bhabha's unprecedented influence in the scientific field.

This must have been a prickly situation for many an eminent scientist of the day especially those in the CSIR and the Delhi-Calcutta area. Whether all these disgruntled scientists agreed with Kosambi personally is doubtful but they all certainly respected him and also sympathized with him. So it was a good opportunity for them to support Kosambi since he was eased out of TIFR.

But Pandit Nehru was taking personal interest in the work of the CSIR too. **(pp 97)** And Bhabha being his advisor here also Bhabha's opinion counted a lot while taking any decision. So trying to get an honorary post for Kosambi in CSIR amounted to inviting Bhabha's wrath. But by 1964 some important changes had occurred in this atmosphere. By the end of 1963, because of his indifferent health, Pandit Nehru's personal attention in the work of these institution was reduced and he passed away in May 1964. The burden of being the Prime Minister fell on Shastriji's shoulder. Bhabha could not get as close to Shastriji as he was with Nehru. So it can be surmised that the proposal of offering an Honorary post to Kosambi was passed in the ensuing turmoil.

Yet a number of small difficulties remained along with the possibility of Bhabha's opposition. To get such an honorary post one has to be attached with some research institute. It is given to a retired researcher to continue his work in the same institution after his retirement from it. This was the main difficulty in Kosambi's case. After being eased out of the TIFR, he had no institutional support. Moreover the support he needed was expected to come from Pune. Of course he was associated with the Bhandarkar Institute of Oriental Research in Pune where he used to go regularly for his referential work and even had a few research colleagues working in that institution. But this institution was outside the jurisdiction of CSIR. He was alienated from the Ferguson College too for the same reason as he was from TIFR. But as luck would have it, the Maharashtra Vidnyanvardhini, an institution founded by Professor S. P. Adharkar was functioning in Pune employing many researchers, some of them voluntarily. Being at a walkable distance from his house, it was an ideal institution for Kosambi. As already mentioned, Kosambi had inquired with Dr. Adharkar in 1950, while he was still alive, if he (Kosambi) could be accommodated in his institution. It was not possible at that time. But later the institute had grown and was thriving in its own spacious building. Kosambi did not come in contact with this institution or any of the researchers there afterwards. But finally this institution came forward and offered to accommodate Kosambi there as an Honorary Research Scientist of the CSIR.

Finally Kosambi was appointed as a Scientist Emeritus of the CSIR affiliated to the Maharashtra Vidnyanvardhini in Pune. He was offered a monthly honorarium of one thousand rupees in addition to some grant for his research

work. It took a long time for receiving the appointment letter and the money but the appointment was for five years from June 1964.

Thus after a lapse of a little more than two years Kosambi had some support and stability in his life again.

(pp 98) But we cannot conclude that Kosambi was very happy with this appointment for, according to some of his colleague-friends, he was expecting to be appointed as National Professor. This was a great honour and could be bestowed on an individual working at the highest level. For a person like Kosambi, who was not nominated even on any official committee, leave alone for a Padmashree award and who could not get on with powers that be, especially with Bhabha it was futile to expect such an honour. This shows how high his expectations were or may be expressing his wishes in this manner was part of his habit of provoking others; for, he very well knew that this was impossible.

Again, he was not dissatisfied, it seems, with this appointment, because all that he aspired for was to be able to continue his work. He never bothered about his status that declined with the amount that he received as honorarium. On the contrary in some of his letters of this period he mentioned about this new appointment with appreciation and even a little pride. He writes, for example, (q46) in one letter, 'I will have to ponder over it before taking any decision, for it involves the issue of Vivekavardhini's prestige too.' In another letter to Sontheimer he wrote, (Q 47) 'In case you or Yamazaki wish to come to India to stay in Bihar or even in Pune for a while just let me know. It is possible for me, now, to arrange for a modest scholarship and allowance for your stay here.'

In Vidnyanvardhini Kosambi got the support he needed but he could not blend with the milieu in the society. He never liked to get involved in the working of the institution. He mostly worked from his house, occasionally visiting the institution. He does not seem to have developed rapport with any senior or junior researcher there. Now and then the Institution's jeep was made available to him and he donated many research papers on several subjects that he had collected along with their copies to the library of the institution.

1965 must have been a good year for Kosambi. The honorarium started coming in regularly; his book 'Ancient Indian Culture' was published in England and America; his article-the result of his itinerancy in northern India in 1964-titled 'Ashok Stambh: the Enigma of Banaras' (?) was published in the 'Times of India' in January 1965 and in its annual journal was Published his lengthy article 'Historical Krishna'. This article was a blue print of a plan of writing a book on Krishna that had captured his imagination for a long time. In the mid December of this year he visited Allahabad-Varanasi once again and stayed in Delhi for some time. He met with many people in order to get help for the field investigations for the projects he had in his mind (pp 99) as also to overcome some difficulties he was facing. One among them was the then defence minister, Yashwantrao Chavan.

Kosambi had been searching for ancient ruins on the Vetat Tekadi in Pune for many years. This small hill had proved a personal treasure in his own court yard for him. There he had discovered small tools made of stones, signs inscribed on stones by humans and burial sites of Stone Age man. Part of this area by now had come under the possession of the Defence Department and a Defence Laboratory was built there. This made it necessary for him to obtain permission from the defence department for continuing his field investigation of the Stone Age burial places. Kosambi met with the Defence Minister Yashwantrao Chavan in this connection. He had met Chavan earlier a few times casually. It was when young Yashwantrao Chavan was active in the Pratisarkar movement in Satara and Kosambi had deeply sympathized with that movement. In a letter, written later, Kosambi states that he did not bring up any memories of this bygone casual meetings but Yashwantrao himself made a mention of it. Chavan undoubtedly must have heard of Kosambi's achievements and assured him of a prompt permission without any hassles.

He also met with a student of his of the earlier days and now a Vice Marshal of the Indian Air Force. This was to ask for an air survey of the field under investigation.

These were the signs of Kosambi's commencing his work afresh with new enthusiasm. Despite the intervening period of depressing anxiety his enthusiasm and creativity had not suffered one bit.

Though no more a professor of mathematics and much too involved in writing and research work in history,

Kosambi's writing and research in mathematics too continued without interruption. He used to say that he still had a lot to do in the field of mathematics too.

To his long list of articles in mathematics he added two more in each year 1963 and 64 and one more in 1965. This work was in the field of statistics and number theory. His article 'Sampling Distribution of Primes' was published in an American paper 'Proceedings of National Academy of Sciences'; while a small paper 'Normal Sequences' was published in the Bombay University journal. In 1964, two articles- 'Probability and Prime Numbers' and 'Statistical Methods in Number Theory' and in 1965, one article 'Sequence of Primes' were published in prestigious journals.

Out of these five articles, three were published under a nickname. **(pp 100)** The invention of this funny name gives away the persistent bitterness in Kosambi's mind as well as his sense of humour.

These articles were published under the pseudonym S. Ducray sounding like a French or similar European name. This name he used first in his article of 1963 published in the Research Journal of the Bombay University. A note added at the end of it gratefully says, 'this article could not have been produced without the co-operation and guidance of Professor D. D. Kosambi.' This name when pronounced has a sardonic meaning in Marathi, viz., a pig and is intentionally used in this sense.

Kosambi had a reasonable but somewhat exaggerated grudge against the established mathematicians in the country. In his opinion they were quite powerful and ignored him, deliberately disparaging his work. Some were startled just by the mention of his name. So he had the bright idea of using a pseudonym. First he thought of his pet dog's name-Bonzo-and dispatched his articles under that name. Later he decided to change it to Ducray, the name that sounds well like a Marathi name and is spelled like a good European name. This childish chicanery apart, Kosambi was particularly serious about his research work in Mathematics. His letter to Sontheimer in 1963 illustrates this fact. He wrote, that an article of his (probably 'Sampling Distribution of Primes') had been published in an American research journal and another article was ready. He further adds, **'(Q 48 pp 100)'**. 'We should get an expert referee for this article. Could you casually ask Paul Erdoss, the universally acknowledged mathematician who happens to be in England right now? If he opines favourably on my article then we might contact him later.' Erdoss it seems, did not respond very enthusiastically because in a subsequent letter he complains, **'(q 49)'** 'Despite my numerous contacts it is not yet possible for me to find a referee because in my article several branches of mathematics are combined whereas today's mathematicians are super specialized in different branches.'

He had done a lot of work putting Statistics and Number Theory together and wanted to publish all that work in a book form. He had even prepared a typed manuscript of it and sent it to Rutledge and Kegan Paul Publishers of London who had published his 'Ancient Indian Culture'. In the preliminary correspondence regarding this book he told the publishers to get the matter reviewed by Erdoss and think of printing it only on receiving his approval. How important and of what standard this material was, is impossible to verify, sadly because Kosambi expired a week after this! It is said **(pp 101)** that the publishers lost the manuscript and no other copy could be found elsewhere. It must have been of much value and significance to Kosambi for he called it, 'my lifework'. Even after making a momentous contribution to the field of history and thereby getting name and fame Kosambi was still striving to pursue his first love-mathematics and gain recognition in that field through his work till the last moment.

As the year 1966 was ushered in, with Kosambi being financially stable and secure, it looked as though a new era of his research work too is going to be ushered in. Most of his work in hand was completed; the projects and plans he pondered over were about to be set in motion and many a new plan was taking shape in his mind.

As the 'Scientific American' published his article on Numismatics in February 1965, he wrote another promised article, 'Living Prehistory in India' and dispatched it to them. The already mentioned manuscript on 'Prime Numbers' was ready. A critical edition of the poetry 'Avimarak' by the ancient poet Bhasa was being compiled in collaboration with a young American researcher, J.L. Mason and was almost completed. In addition he had written a story, 'Hump on Nandi's Back' for children. It is a parable to explain the evolution of man living by hunting and eating fruits and bulbous and tuberous roots into a stable agricultural society. He eagerly wished that this small

story book be published with attractive sketches and translated into many languages. He had discussed the work of making sketches with Margaret Hill, an assistant of John Arvin, who headed the department of India in the Victoria and Albert Museum of London. This job too was almost finalized and efforts were on for securing a publisher for the book.

He wanted to write a book on 'Krishna' for a long time. He had thoroughly studied the character of 'Krishna' changing through Indian history and historical myths. His article 'Historical Krishna' had already been published in the annual issue of the Time Magazine of 1965. But he felt that it is necessary to clearly understand the impact the Krishna character has made on the Indian culture and to achieve this Krishna as depicted through the arts should also be studied along with the Historical Krishna. This being Arvin's subject, Kosambi had expressed his wish to work on this with him and was repeating it again and again.

(pp 102) Additionally there were a few projects involving field observation. He had closely observed the Folk Festival Karaga in Bangalore. He had started collecting details about the Shiralshet Festival taking place near Pune and was planning to write an article on it after some additional research. (He had asked Mr. R.P. Nene to get the idol of Shiralshet photographed. Although it was not possible to photograph the Idol that year due to rain, Nene managed to get one in the next year's festival and gave to Kosambi. He liked it very much and Nene got a big bar of Cadbury!) Kosambi had investigated many stone memorials (?) strewn around Pune.

Names of many places mentioned in the ancient Indian history are presently associated with wrong locations with which he was much annoyed. This part of history needed to be rectified and presented in a proper manner. For this he had resolved to carry out field work in the region of Uttarpath (Road northwards in the Himalayas) and determine the locations of the places as named in the Puranas.

A plan of recording the oral history of past events of comparatively recent period was also taking shape. For this purpose he had started a search for people who participated in various movements like the Pratisarkar of Satara, the armed uprising in Telangana, and the Tibhaga movement of Bengal farmers. His plan was to record their recollections regarding these movements on tape. Similarly he wanted to record the musings of old people from the interior areas who are still not affected by urbanization, regarding old customs and traditions, rituals and stories of deities. These folk memories are going to be obliterated with the passage of time but these tapes will still be useful as oral resource of studying history. He had dotingly ordered Sontheimer to get him a small tape-recorder that will not frighten a villager during the recording of his reminiscences.

There were a number of projects and plans of works before him waiting to be undertaken and the possibilities of doing so were clearly perceptible. So obviously he was in buoyant mood.

The circumstances too had changed considerably in this year 1966. On the 24th of January Bhabha had most unfortunately died in a plane crash. This naturally affected the balance of power in the field of science and technology. Many individuals holding important positions had sympathy for Kosambi but they had to keep aloof from him lest they should incur Bhabha's wrath. Now, in the changed condition there would have been more scope for Kosambi and also the possibility of his being consulted on important matters.

In January itself a little earlier Prime Minister Shastri had expired and on 26th of January Indira Gandhi became the new Prime Minister. The teething trouble of the early developmental stage in the field of Science and technology had ended by the time of Bhabha and Nehru's demise and the next stage of development had begun. A review of the progress made so far as also of its merits and shortcomings was necessary at this stage. Moves were made in this direction. So far Kosambi's role had been that of a critic. **(pp103)** So in this second stage of development his opinion and advice would have been weighty and of much importance.

A Third World Science and Technology Conference was held in the last week of May in Delhi. The general topic for discussion was use of science and technology to overcome the problems faced by the developing countries. Kosambi attended this conference and his speech on this topic turned out to be very important. His opinion and critical views were greatly valued.

But this speech delivered in the last week of may proved to be his last one too. Bhabha too delivered his last

lecture before an International Conference in the Birla Matoshri Sabhagriha in Bombay in January, days before the plane crash in which he died. Like Kosambi he too had reviewed the development in the field of Science and Technology in India in his lecture. One more coincidence in the lives of these two great men!

In the last week of June Kosambi was in Pune discussing novel projects and their planning with his friends. On the 28th of June a complete check-up of his health was done and he was declared absolutely hale and hearty by his doctor. But the night of the same June 28 proved to be his last. As usual Kosambi was busy reading and writing in his study late in the night. In the small hours of the morning of June 29 he went to bed destined not to wake up ever again. Since he was still in bed late next morning, his near ones hesitatingly opened the door of his room, only to find him dead. He died in his sleep because of heart failure. Four decades of indefatigable incessant striving in research abruptly came to an end.

In the lives of Damodar Kosambi and his father Dharmanandaji there were similarities as well as contrasts. Their lives ended in totally different ways. As the age advanced and strength declined Dharmanandaji was beset with illness and was convinced that he was now incapable of producing any significant work; he then decided to put an end to his life giving up food and water, squarely facing death. Damodar was only 59 and had several projects and plans on his hands and many more in his head when death sneaked in while he was asleep and snatched him away to our great misfortune!

Except one or two, all his unfinished jobs remained so. Many of his finished jobs too could not see the light of the day. 'Living Prehistory in India' was published in the February 1967 issue of the Scientific American while the critical edition of 'Avimarak' was published in 1969 in the names of Kosambi and Mason jointly. The manuscript of 'Number Theory' was lost (pp104) while the 'Hump on Nandi's back' remains unpublished. He did not live to see the tape recorder that Sontheimer brought for him and his projects of field observations disappeared in thin air.

The impact of his work, however, continued growing after his death. Eight years after his death, in 1974, three books honouring Kosambi were published. As many as 14 years after his death, in the year 1980, he was decorated with the 'Hari Om Ashram Award' by the University Grant Commission for bringing to light the mutual relationship between science and society. The freshness of his ideas and thoughts has not reduced one bit even nearly half a century after his demise. This is his shining glory!

Translated by Suman Oak

This book in Marathi was written by C.D. Deshmukh and was first published in 1993. There is no mention of the references of the quotations given in the book. Shri Deshmukh was contacted in this connection and he had promised to dig into his old notes and find the necessary information. Meantime, to our great misfortune and shock Shri Deshmukh had a massive heart attack and succumbed to it. With Shri R.P.Nene's help efforts were made to locate those references from the books available in Mr. Nene's personal library. Whatever references we were able to trace are given below. The remaining were translated into English from the Marathi version given in the book by C.D. Deshmukh.

Q1 to Q8 may be found in the biography of Dharmananda Kosambi which is written in Marathi. They are translated here.

Q9. Page 194, Prof. D.D.Kosambi : Science and Human Progress. **Commemorative Volume**. Popular Prakashan.

Q10. On the same page of the book above, 'about Baba'.

Q11. Page 195, Commemorative Volume.

Q12. Translated from the present book.

Q13. P 22, Indian Society : Historical Probings; **In Memory of D.D.Kosambi** . People's Publishing House.

Q14. P311, Commemorative Volume.

- Q15. Translated from the present book.
- Q16. Translated from the present book.
- Q17. Translated from the present book.
- Q18. P367 Commemorative Volume, item No.26.
- Q19. P367 Same as above.
- Q20. Translated from the present book.
- Q21. Anecdote narrated by R.P.Nene.
- Q22. Anecdote narrate by Nene or someone else.
- Q23. Translated from the present book.
- Q24. P xi Preface to the First Edition; An Introduction to the Study of Indian History; Popular Prakashan.
- Q24a. P1; An Introduction to the Study of Indian History.
- Q25. Translated from the present book.
- Q26. P 277, 'Marxism and Ancient Indian Culture' in 'On a Marxist Approach to Indian Chronology.' (Kosambi Papers)
- Q27. Translated from the present book.
- Q28. Translated.
- Q29. Translated.
- Q30. P1, Introduction. Myth and Reality by D.D.Kosambi; Popular Prakashan.
- Q31. P23, Volume **in Memory of D.D.Kosambi.**
- Q32. Regarding the conference at Helsinki. Translation of original report in Marathi by a Acharya Atre who had accompanied Kosambi in that conference.
- Q33. to Q 49. Translated from the present book.