Part I
References

1. J.D. Bernal, Nature **211**, 1024 (1966).
2. The bibliography that now appears on pages xv–xix of this volume is a listing of the complete set of the papers of DDK that are of a mathematical nature. The list has been compiled in part from incomplete sources in the biography by Chintamani Deshmukh [DDK-JK] as well as web listings. In addition to the papers listed, many of his essays relate to scientific issues, but these are not included here.
3. *The Oxford India Kosambi*, ed. by B.D. Chattopadhyaya (Oxford University Press, New Delhi, 2009); *Combined Methods in Indology & Other Writings: Collected Essays*, D.D. Kosambi, Compiled, edited and introduced by Brajadulal Chattopadhyaya (Oxford University Press, New Delhi, 2005); *Indian Numismatics*, ed. by D.D. Kosambi (Orient Longman, Hyderabad, 1981); *Exasperating Essays*, ed. by D.D. Kosambi, (Peoples Publishing House, New Delhi, 1957).
4. *The many careers of D.D. Kosambi: Critical essays*, ed. by D.N. Jha (Leftword, Delhi, 2011); *Damodar Dharmanand Kosambi* (in Hindi), ed. by R.S. Sharma (SAHMAT, New Delhi 2010).
5. R. Ramaswamy, Integrating mathematics and history: the scholarship of D.D. Kosambi. Econ. Polit. Weekly **47**, 58–62 (2012). Reproduced in [35].
6. S.G. Dani, Kosambi the Mathematician. Reson. J. Sci. Educ. 514–528 (June 2011). This issue of the journal is dedicated to D.D. Kosambi and contains several articles that discuss the scientific contributions of DDK as well as two essays on his life and historical work.
7. R. Narasimha, Kosambi and proper orthogonal decomposition. Reson. J. Sci. Educ. 574–581 (June 2011).
8. C.K. Raju, Kosambi the Mathematician. Econ. Polit. Weekly **54**, 38 (2009).
9. P. Antonelli, R. Ingarden, M. Matsumoto, *The Theory of Sprays and Finsler Spaces with Applications in Physics and Biology* (Kluwer Academic Publishers, Amsterdam, 1993).
10. K. Karhunen, Über lineare Methoden in der Wahrscheinlichkeitsrechnung. Ann. Acad. Sci. Fennicae. Ser. A. I. Math.-Phys. **37**, 1–79 (1947); M. Loève, Fonctions aleatoires de seconde ordre. C. R. Acad. Sci. **220**, 295 (1945) and related papers.
11. K.K. Vinod, Kosambi and the genetic mapping function. Reson. J. Sci. Educ. 540–50 (2011).
12. Starting with [DDK3], Kosambi developed the idea in a number of papers, including [DDK5, DDK6, DDK8] and [DDK18] and so on. In the 1950's he was on the editorial board of the Japanese journal, Tensor (New Series) wherein he published [DDK55], possibly his final paper on the topic.
13. 'Atomic Energy for India', the text of a talk by DDK to the Rotary Club of Poona, on July 25, 1960 was published in the posthumous volume, *Science, Society, and Peace* (The Academy of Political and Social Studies, Pune, 1967, reprinted by People's Publishing House, 1995).
14. A. Weil, (1992). *The Apprenticeship of a Mathematician* (Birkhäuser, Basel).

15. T. Vijayaraghavan (1902–1955) was a Founding Fellow of the IASc, being elected in 1934. He did his Ph.D. under the supervision of G. H. Hardy in Cambridge. From Dacca he moved to Waltair, and eventually became the founding director of the Ramanujan Institute of Mathematics in Madras.
16. The number theorist S. Chowla (1907–1995) moved to the US in 1947 after a career at Delhi, Benaras, Waltair and Lahore in undivided India.
17. In 1940, Weil was in military prison in Bonne-Nouvelle for refusing to take part in the war as a conscientious objector (since his true *dharma* was the pursuit of mathematics and not war, he said) when he proved an analogue of the Riemann hypothesis (for the zeta function of curves over finite fields). He did discuss the Riemann hypothesis with T. Vijayaraghavan, who is supposed to have said that if he could have six months—undisturbed and undistracted—in a prison, he could have a crack at solving the RH. See Ref. [14], and M. Raynaud, André Weil and the foundations of algebraic geometry. Notices of the AMS, **46**, 864 (1999).
18. The historical spellings of some city names have been retained.
19. S.S. Chern, Bulletin des Sciences Mathematiques **63**, 206.
20. In a letter to Bhabha on 8th July 1946 (TIFR Archives, D-2004-387-5) DDK says, "Of the Chinese and more particularly of our Visiting Professor Chern there is no news; the difficulty here is unquestionably that of permission to leave China and passports. A letter from Jawaharlal Nehru would have helped, and in fact he has written that he is in full sympathy with my project; but he can't do anything further [with important work keeping] him much too busy for lesser affairs like ours. However, I have every hope of getting co-operation from him as well as from China—in due course".
21. The Kosambi–Bhabha correspondence has been made available through the kind courtesy of the TIFR archives. There are a large number of letters that are presently being catalogued and edited. The letter of 8 July, 1946 (TIFR Archives, D-2004-387-5) and 21 November, 1946 (TIFR Archives, D-2004-387-10) were both written while Bhabha was in England, and DDK was the Acting Director of the TIFR. Some letters have been reproduced in [35].
22. In 2010, when Louise J. (Mrs. Marston) Morse was nearly 100 years old, the Morse archives were searched one last time. However, she was not able to locate this manuscript or any reference to it.
23. Of the 110 or so Fellows appointed in 1934 and 1935, about two thirds were from the south of India or worked there and Raman might have had greater familiarity with their work or their reputation.
24. The University of Madras announced the Ramanujan Memorial Prize for "the best thesis based on original contributions submitted by an Indian (or one domiciled in India) on some definite branch of mathematics, applied or pure" in 1933. The prize was awarded in 1934, as reported in Nature **135**, 28–28 (1935).
25. 'A Chapter In The History Of Indian Science', an unpublished essay by DDK is a damning indictment of Raman's role in suppressing creativity in Indian science. The first half of the essay was published anonymously in People's War (the Organ of the Communist Party of India) on 22 July 1945 [51].
26. K.A.N., Metrology of punch-marked coins. Curr. Sci. **7**, 345–346 (1941). This might have been the historian of South India, K.A. Nilakantha Sastry (R. Thapar, Private Communication).
27. D.D. Kosambi, A Note on two hoards of punch marked coins found at Taxila. New India Antiquary **3**, 156–157 (1940) and On the study and metrology of silver punch marked coins. New India Antiquary **4**, 1–35 and 49–76 (1941).
28. 'Adventure into the Unknown', in *Current Trends in Indian Philosophy*, ed. by K. Satchidananda Murty, K. Ramakrishna Rao (Asia Publishing House, Bombay, 1972).

29. H.M. Edwards, *Riemann's Zeta Function* (Academic Press, New York, 1974). I am grateful to Prof. S.K. Dani for several technical suggestions regarding this section.
30. These results need elementary methods of complex analysis that can be found in standard textbooks.
31. M.V. Berry, Private Communication. In November 1960, Carl Siegel sent a very negative review of the paper in confidence to Professor Chandrasekharan at the TIFR, and this letter (TIFR Archives, D-2004-00387-145) also quotes the opinion of A. Selberg. Both mathematicians were then at the Institute for Advanced Study, Princeton.
32. M. du Sautoy, *The Music of the Primes* (Harper Perennial, London, 2004); K. Sabbagh, *Dr. Riemann's Zeros* (Atlantic Books, NY, 2003); J. Derbyshire, *Prime Obsession: Bernhard Riemann and the Greatest Unsolved Problem in Mathematics* (Plume Books, New York, 2004); D. Rockmore, *Stalking the Riemann Hypothesis* (Vintage, New York, 2005).
33. A. Odlyzko, Private Communication.
34. I. Chowdhury, Fundamental research self-reliance and internationalism: the evolution of the TIFR, 1945–1947, in *Science and Modern India: An Institutional History, c.1784-1947*, Project of History of Science, Philosophy and Culture in Indian Civilization, vol. XV, Part 4, ed. by Uma Das Gupta (Pearson, New Delhi, 2010). See also I. Chowdhury, A. Dasgupta, *A Masterful Spirit: Homi J. Bhabha (1909-1966)* (Penguin Books India, 2010). A copy of the letter sent by Bhabha to DDK on 18th May, 1945, the same day that the Council met, is available in the TIFR Archives, D-2004-00387-1.
35. Meera Kosambi (ed.), *Unsettling the Past: Unknown Aspects and Scholarly Assessments of D. D. Kosambi* (Permanent Black, New Delhi, 2012).
36. I. Chowdhury, D.D. Kosambi: A Most Unusual Scholar. Mid Day (Bangalore), 11 Feb 2008.
37. Professor M. Raizuddin Siddiqi who originally headed the committee decided to emigrate to Pakistan to take up a position in Peshawar at that time. He indicated to the Policy Committee of the AMS that Kosambi should take his place.
38. The original delegation for the meeting that was held from August 27–29, 1950 in New York was to have consisted of Profs. M.R. Siddiqi, D.D. Kosambi and T. Vijayaraghavan, none of whom could attend (see the several letters in the TIFR Archives, D-2004-389-2 onwards). In addition to Chandrasekharan and Minakshisundaram, Prof. S.S. Pillai of Madras University, who was going to the Institute for Advanced Study in Princeton was also deputed to attend the conference. Tragically, he left too late to attend the meeting, taking the TWA Flight 903 from Bombay to New York that crashed outside Cairo on 31 August, killing all on board. An Interim Committee of the IMU was set up at this meeting, and DDK was invited to serve on it for a period of two years.
39. In addition to K. Chandrasekharan and K.G. Ramanathan, the other two signatories were M.S. Narasimhan and C.S. Seshadri. This letter (TIFR Archives, D-2004-00390-4) dated 23 August, 1960, alleges that Kosambi, in correspondence with eminent mathematicians outside India, in addition to the RH also claimed a proof of Fermat's last theorem (FLT), namely that the equation $x^n + y^n = z^n$ has no solutions with x, y, z being positive integers, if n is larger than 2. This is odd; other than in some notes he made in 1926 when he was an undergraduate at Harvard and in the epilogue of the essay "Adventure into the Unknown", there is no mention of the FLT elsewhere among Kosambi's other papers. This theorem was proved conclusively only in 1995 by Andrew Wiles (see Simon Singh, *Fermat's Last Theorem* (Fourth Estate, London, 2002)).
40. R. Ramaswamy, *Adventures into the Unknown: Essays by D.D. Kosambi* (Three Essays Collective, Gurgaon, 2016).
41. The essay 'On Statistics' is Chapter 3 of this volume. See the concluding line: *But if I go any further into his achievements, I shall be preaching Bolshevism in the sacred portals of Bombay House and so must stop here.*

42. As noted by Robert Anderson in *Nucleus and Nation: Scientists, International Networks, and Power in India* (Chicago University Press, 2010), some of Kosambi's "Marxist way of seeing things" appealed to Homi Bhabha in the initial days of their association.
43. This is one of three essays on solar energy that were first reprinted in *Science, Society and Peace* (The Academy of Political and Social Studies, Pune, 1986), as well as now in [35].
44. The history of the Bourbaki collective has been written about extensively by Maurice Mashaal, *Bourbaki: A Secret Society of Mathematicians* (American Mathematical Society, Providence, 2006) as well as others, including Liliane Beaulieu [49]. While the eventual name chosen by the group was Nicolas, the original Kosambi paper [DDK2] cites D. Bourbaki.
45. L. Beaulieu, Bourbaki's art of memory. Osiris **14**, 291 (1999).
46. See http://tinyurl.com/q2medrh and the linked pages.
47. N. Bourbaki, *Éléments de Mathématique, Book 1: Théorie des ensembles: Fascicule de Resultats* (Hermann, Paris, 1939).
48. R.P. Boas Jr., Bourbaki and me. Math. Intell. **8**, 84 (1986).
49. L. Beaulieu, *Nicolas Bourbaki: History and Legend, 1934-1956* (Springer, Berlin, 2006).
50. D.D. Kosambi, The function of leadership in a mass movement; The Cawnpore Road. Fergusson Coll. Mag. 1–7 (1939). Ahriman is the destructive spirit in Zoroastrian mythology.
51. 'The Raman Effect', Peoples War, 22 July 1945, by An Indian Scientist. An editorial note adds: The writer of this article who prefers to be anonymous is a versatile Indian Scientist whose original work in Mathematics is well-appreciated in foreign countries especially in America and Great Britain. We hope to be able to publish many more articles like this on popular science subjects from his pen. – Editor.
52. D.D. Kosambi (with Miss Sushila Gokhale), 'Progress in the production and consumption of textile goods in India. J. Indian Merchants' Chamber (Bombay), January, pp. 11–15 (1943). There is also an unpublished essay, 'Notes on the Marxian Theory of Value', where DDK signs off as Vidyārthi.
53. As informed by Meera Kosambi. However, Divyabhanusinh Chavda, who was a student of DDK's at this time, maintains that according to DDK, the S was for 'Stupid'.
54. D. D. Kosambi, *Prime Numbers*. The manuscript of this book, that was apparently mailed to his publishers shortly before DDK's death in June 1966, has not been traced.
55. H.W.O. Pétard, A contribution to the mathematical theory of big game hunting. Am. Math. Monthly **45**, 446 (1938).
56. In 1958 DDK authored an article in collaboration with U.V.R. Rao, analysing the statistical defects underlying para-psychological experiments [DDK58]. This paper was subsequently commented upon by A.W. Joseph who pointed out an error in analysis as well as in the conclusions, ending with "The above comments do not detract from the valuable experiments in card–shuffling made by the authors, but it is suggested that there is little weight left in their criticism of the ESP investigations.". See A.W. Joseph, A note on the paper by D.D. Kosambi and U.V. Ramamohan Rao on 'The efficiency of randomization by card–shuffling'. J. R. Soc. Stat. **122**, 373–74 (1959).
57. In 'Artless innocents and ivory-tower sophisticates: Some personalities on the Indian mathematical scene'. Curr. Sci. **85**, 526–537 (2003), M.S. Raghunathan recalls a conversation with André Weil in 1966 or 1967, when he (Weil) says of DDK, "… Let me tell you this: he was one of the finest intellects to come out of your country." In his autobiography [14], Weil has this to say: "I appointed Kosambi for the following year. He was a young man with an original turn of mind, fresh from Harvard where he had begun to take an interest in differential geometry. I had met him in Benares (now Varanasi) where he had found a temporary position". Weil was a little over a year older than DDK.
58. G.D. Birkhoff, Mathematics at Harvard in the 1940's. Proc. Am. Philos. Soc. **137**, 268–272 (1993).

59. ‘Steps in Science’, in *Science and Human Progress: Essays in Honour of Late Prof. D.D. Kosambi, Scientist, Indologist, and Humanist* (Popular Prakashan, Mumbai, 1974).
60. DDK edited the following three books on the poetry of *Bhartrhari*: (a) *The Satakatrayam of Bhartrhari with the Comm. of Ramarsi*, ed. by D.D. Kosambi, K.V. Krishnamoorthi Sharma (Anandasrama Sanskrit Series, No.127, Poona, 1945), (b) *The Southern Archetype of Epigrams Ascribed to Bhartrhari* (Bharatiya Vidya Series 9, Bombay, 1946) and (c) *The Epigrams Attributed to Bhartrhari* (Singhi Jain Series 23, Bombay, 1948).