Kim Plofker

Department of Mathematics
Union College
Schenectady, NY 12308 USA
plofkerk@union.edu
1-518-388-6674

1396 Parkwood Boulevard
Schenectady, NY 12308 USA
Kim_Plofker@alumni.brown.edu
1-401-301-5981

Education:

1989–1995	*Brown University*, Providence, RI: Ph.D. in History of Mathematics. Thesis: "Mathematical Approximation by Transformation of Sine Functions in Medieval Sanskrit Astronomical Texts" Advisor: David Pingree
1981–1985	*Haverford College*, Haverford, PA: B.A. in Mathematics.

Employment:

9/12–	*Department of Mathematics, Union College*: Assistant Professor.
9/07–8/12	*Department of Mathematics, Union College*: Visiting Assistant Professor.
9/06–6/07	*Estate of David E. Pingree*, Providence, RI: Independent consultant. Identified and inventoried approximately 10,000 items in the scholarly library of the late Professor David Pingree of Brown University. *Brown University*, Providence, RI: Visiting Scholar, Department of Egyptology and Western Asian Studies. Supervised the Ph.D. dissertation work of Toke Knudsen (the final doctoral student in Brown's History of Mathematics department). Continued individual research program.
9/04–8/06	*Mathematics Institute, University of Utrecht*, Utrecht, Netherlands: Assistant Professor/Postdoc. Conducted research on the history of the exact sciences in India and Islam. Completed book on the history of mathematics in India. *International Institute for Asian Studies (IIAS)*, Leiden/Amsterdam, Netherlands: Affiliated Fellow. Simultaneous appointment with above.
7/04–9/04	*Brown University*: Research Associate. Catalogued Sanskrit manuscripts in the collection of the Houghton Library at Harvard University.
9/03–6/04	*American Institute for Indian Studies*, Chicago/New Delhi: Senior Fellow. Studied and catalogued Sanskrit manuscripts in the exact sciences in various collections in Jaipur, India.
9/02–5/03, 7/95–8/00	*Brown University*: Visiting Lecturer, Department of the History of Mathematics. Designed and taught undergraduate and graduate courses in history of science and mathematics; conducted personal research; served as a member of Brown's South Asia Faculty Committee, and co-authored proposals for development of South Asian Studies at Brown; served as departmental computing coordinator and Webmaster for the department; supervised and trained clerical staff. Served as Resident Faculty Fellow in student dormitory on the Pembroke Campus. Served as Technical Director for the American Committee for South Asian Manuscripts of the American Oriental Society, and researched and wrote grant proposals for technological support for the Committee's manuscript cataloguing and digitization project.
9/00–8/02	*Dibner Institute for the History of Science and Technology*, M.I.T., Cambridge, MA: Research Fellow. Conducted research on medieval Indian and Islamic mathematics and astronomy. *Brown University*: Visiting Scholar (honorary appointment), Department of the History of Mathematics. Continued participation in project development for the American Committe for South Asian Manuscripts of the American Oriental Society and in Brown's South Asia Faculty Committee; continued to serve as Resident Faculty Fellow.
2/99–8/00	*Brown University*: Project Consultant (part-time), Scholarly Technology Group. Programmer/analyst working primarily on design and creation of Web and print delivery systems for large SGML textbases. Specializing in software design relying on non-proprietary tools and platforms to improve access (in

both free-distribution and commercially restricted systems) to high-volume complex textual materials involving sophisticated layout and hypertext formats, as well as multiple scripts.

7/97–1/99   *Texterity, Inc.*, Newton, MA: Software engineer (part-time) for company specializing in electronic document conversion and publishing systems. Designed, used, and developed documentation for proprietary data conversion software using SGML, Scheme, and Perl in UNIX and Windows environments; assisted in conducting interviews and composing report for extensive requirements analysis consulting project; trained clients and colleagues in the use of SGML tools, which included writing training materials and assessments.

Summers 1990–93   *Brown University*: Research Assistant, Department of the History of Mathematics. Developed and used text processing and typesetting software (e.g., TEX, Script, and GML) to produce camera-ready text of books and articles involving scholarly and mathematical text layout, diagrams, and various non-roman fonts.

9/89–5/93   *Brown University*: Departmental Computing Coordinator, History of Mathematics. Responsible for selecting, purchasing, installing and maintaining computing equipment and software, and for all departmental computer-related administrative and clerical tasks, as well as electronic typesetting projects.

12/85–8/89   *M.I.T. Lincoln Laboratory*, Lexington, MA: Assistant Staff, Systems Engineering Group. Programming in VAX/VMS environment for projects related to development of airborne optical measurement system; chiefly responsible for creating real-time data reduction software subsystem; participated in site and flight testing and in data collection at Mauna Kea Observatory, Hawaii.

TEACHING EXPERIENCE:

Department of Mathematics, Union College:

9/12–   Assistant Professor;

9/07–8/12   Visiting Assistant Professor.

• Taught courses in probability and single- and multivariable calculus, including in some cases pre-calculus review, for undergraduates.

• Designed and taught new general-education courses for undergraduates, in history of mathematics and quantitative literacy. Co-designed with colleagues in Religious Studies new interdisciplinary course on history of cosmology.

• Served as academic advisor to first-year and upper-class undergraduates.

• Served as thesis advisor to 24 senior mathematics majors and two graduate students in the MAT-Mathematics program at Union Graduate College.

• Served as chair and coordinator of departmental student learning assessment committee; designed and carried out assessment procedures and wrote annual reports.

• Served on dissertation committee of Jambugahapitiya Dhammaloka in Department of Mathematics, University of Canterbury, NZ (degree expected 2018).

• Served on dissertation committee of Sho Hirose in Laboratoire de Philosophie et Histoire des Sciences, Université Paris Diderot, France (degree expected 2018).

• Served on dissertation committee of Anuj Misra in Department of Mathematics, University of Canterbury, NZ (degree awarded June 2016).

• Served as thesis examiner for Ph.D. candidate Rupa K in Faculty of Science and Humanities, Anna University, Chennai.

• Supervised to completion in May 2008 the Ph.D. dissertation work of Toke Lindegaard Knudsen in the Department of the History of Mathematics at Brown University.

2002–03,   *Department of the History of Mathematics, Brown University*: Visiting Lecturer.

1999–00,   • Proposed and taught new undergraduate course in History of Mathematics Department, "History

1996–97   of Astrology and History of Science" (Spring 2003).

• In collaboration with department chair, proposed and taught new undergraduate/graduate course in History of Mathematics and Mathematics Departments, "History of Indian Mathematics" (Spring 1999, Spring 2000).

• Served as academic advisor to first-year undergraduates (1999–00).

• Proposed new undergraduate course in History of Mathematics and Mathematics Departments,

"Calculus and its History", exploring the techniques of calculus through its historical development; taught the course in collaboration with a graduate teaching assistant in Mathematics (Spring 1997) and independently (Fall 2002).

• Designed and taught intermediate and advanced graduate readings courses in the history and study of Sanskrit scientific texts (2002–03, Fall 1999, 1995–96).

• Taught undergraduate Reading and Research course, "Mathematical Cosmology from Ancient to Modern Times" (Fall 1996).

Spring 1995   *Department of the History of Mathematics, Brown University*: Teaching Assistant. Taught a graduate readings course in the history and study of Sanskrit scientific texts.

Other Professional Activities:

2016–	Team member, project TAMAS (Table Analysis Methods for the History of Astral Sciences, `tamas.hypotheses.org`), supported by 2017–2018 PSL grant "Jeunes équipes/ nouvelles équipes"
2016–	Co-Editor of Volume 2, *A Cultural History of Mathematics in the Medieval Age (500–1450)*, of *A Cultural History of Mathematics* series, Bloomsbury: general editors Benjamin Wardhaugh and David E. Rowe
2014–	Project Co-Head for Sanskrit, EKOH (Early Knowledge of the Heavens) Digital Library Project
2013–	Research collaboration (with Clemency Montelle, University of Canterbury, NZ) HAMSI (History of Astronomical and Mathematical Sciences in India, `hamsi.org.nz`, supported by 2013–2018 Rutherford Discovery grant (Royal Society of New Zealand), "New perspectives on the history of the exact sciences in second millennium Sanskrit sources"
2012–	Member, Editorial Board, *History of Science in South Asia*
2011–	Manuscripts Reviewer, Princeton University Press, heiUP "Heidelberg Studies in Transculturality"
2006–	Member, Editorial Advisory Board, *Interpretatio: Sources and Studies in the History of Classical Philosophy and Science*
2004–	Assistant Abstracts Editor and Manuscripts Reviewer, *Historia Mathematica*
2013–2015	Visiting Scholar, Chennai Mathematical Institute, Chennai, India
2011–2014	International Mathematical Union representative to Executive Committee of the International Commission for the History of Mathematics
11/14	Consultant and guest on "India in 50 Lives (Āryabhaṭa)", BBC Radio 4 series episode, broadcast 19 May 2015 (`http://www.bbc.co.uk/programmes/b05v7tqh`)
7/13	Consultant and guest on "Nirvana by Numbers", BBC Radio 4 program on Indian numerals, broadcast 7 October 2013 (`http://www.bbc.co.uk/programmes/b03c2zvr`)
9–12/12	Visiting Scholar, Department II, Max Planck Institute for the History of Science, Berlin
2011	Guest Editor, *Gaṇita Bhāratī* 32, 1–2 (2010), Special Issue: Proceedings of the International Conference on "Mathematics in Ancient Times", Kerala School of Mathematics, Kozhikode, 29 August–1 September 2010
4/11	Interview with *NRC Handelsblad*, "Oude Sanskrietverzen zingen van wiskunde" (Bennie Mols), 16 April 2011
11/10	Professeur invité, Université Paris Diderot, Paris VII (UFR Sciences du Vivants, Histoire et Philosophie des Sciences)
2009–2010	Chair, Organizing Committee of the Satellite Conference on Mathematics in Ancient Times in conjunction with International Congress of Mathematicians 2010, Kozhikode, India
31/7/08	Panelist, *Encounters between Early Modern Sanskrit and Persian Cultures: Practical Arts and Sciences*, Seventh Biennial Conference on Iranian Studies, Toronto
6/07	Instructor, Professional Enhancement Programs of the Mathematical Association of America (MAA-PREP) workshop on "Mathematics from Asia's Past", Washington DC

Spring 2006 Co-organized (with Prof. Jan P. Hogendijk of the Universities of Utrecht and Leiden) a memorial seminar in honor of Prof. David Pingree, "Empires and Exact Science in Pre-modern Eurasia", International Institute for Asian Studies, Leiden, Netherlands, 29–30 May 2006

Spring 2005 Consultant and guest on BBC/Open University television program on Indian science, *What the Ancients Did for Us: The Indians*, broadcast on BBC-2, 16 March 2005 (`https://vimeo.com/33694982`)

1/03 Instructor, MAA Joint Mathematics Meetings Short Course on "Mathematics in the Ancient World", Baltimore MD

1995–2000 Technical Director, American Committee for South Asian Manuscripts (American Oriental Society); researched and wrote several grant proposals for technological support for the Committee's manuscript cataloguing and digitization project; assisted with workshops in South and West Asian palaeography to train data gatherers for ACSAM.

1994–1999 Member, Working Group on the Exact Sciences in Indic Traditions, Dharam Hinduja Indic Research Center, Columbia University; co-chair of Working Group, 1997–1999

7/98 Instructor, Institute for the History of Mathematics and its Use in Teaching, Mathematical Association of America

6/95, 6/96 Participant, Institute for the History of Mathematics and its Use in Teaching, Mathematical Association of America

Member of the *American Oriental Society* and the *Mathematical Association of America*

FOREIGN LANGUAGES:

Modern: French, German, Hindi/Urdu, Dutch
Classical: Sanskrit, Latin, Arabic, Greek, Persian

PUBLICATIONS:

BOOKS:

Mathematics in India, Princeton University Press, 2009;
  reissued as vol. 7 in Culture and History of Mathematics Series, Hindustan Book Agency, 2012

(co-edited volume) *Studies in the History of the Exact Sciences in Honour of David Pingree*, ed. C. Burnett, J. Hogendijk, K. Plofker, and M. Yano, Brill, 2004

BOOK CHAPTERS AND JOURNAL ARTICLES:

"*Siddhānta-karaṇa* conversion: Some algorithms in the *Grahagaṇitādhyāya* of Bhāskara's *Siddhāntaśiromaṇi* and in his *Karaṇakutūhala*", *Gaṇita Bhāratī* 38 (2), 2016, 93–110

(with Anuj J. Misra and Clemency Montelle) "Eclipse computation tables in Sanskrit astronomy: A critical edition of the tables of the *Karaṇakesarī* of Bhāskara (fl. c. 1681)", *History of Science in South Asia* 4, 2016, 1–79

"The influence of Bhāskarācārya's works in 'westernized' Sanskrit mathematical traditions", *Gaṇita Bhāratī* 37 (1–2), 2015 (issued March 2016), 97–109

(with Clemency Montelle) "The transformation of a handbook into tables: The *Brahmatulyasāraṇī* and the *Karaṇakutūhala* of Bhāskara", *SCIAMVS* 16, 2015, 1–34

"Spoken text and written symbol: the use of layout and notation in Sanskrit scientific manuscripts", to appear in *From Mulberry Leaves to Silk Scrolls: New Approaches to the Study of Asian Manuscript Traditions*, ed. Justin Thomas McDaniel and Lynn Ransom, University of Pennsylvania Press, 2015 (an earlier version published in the *Digital Proceedings of the Lawrence J. Schoenberg Symposium on Manuscript Studies in the Digital Age*, vol. 1 (1) (*On the Nature of Things: Modern Perspectives on Scientific Manuscripts*), 2009 (`http://repository.upenn.edu/ljsproceedings/vol1/iss1/3/`))

"Mathematical models and data in the Brāhmapakṣa school of Indian astronomy", *Gaṇita Bhāratī* 36, 2014, 185–196

(with Clemency Montelle) "The *Karaṇakesarī* of Bhāskara: a 17th-century table text for computing eclipses", *History of Science in South Asia* 2, 2014, 1–62

"Sanskrit astronomical tables: the state of the field", *Indian Journal of History of Science* 49 (2), 2014, 87–96

(with Takanori Kusuba) "Indian combinatorics", in *Combinatorics: Ancient and Modern*, ed. Robin Wilson and John J. Watkins, Oxford, 2013, pp. 41–64

"Treatises and tables, algorithms and approximations: the role of computation in early modern Sanskrit astronomy", *Gaṇita Bhāratī* 34 (1–2), 2012 (issued April 2014), 181–199

"Indian exact sciences in Sanskrit manuscripts and their colophons", in *Aspects of Manuscript Culture in South India*, ed. Saraju Rath, Brill, 2012, pp. 173–185

"'Yavana' and 'Indian': transmission and foreign identity in the exact sciences", *Annals of Science* 68 (4), 2011, 467–476

"Why did Sanskrit mathematics ignore *asakṛt* methods?", in *Scientific Literature in Sanskrit*, ed. S. R. Sarma and Gyula Wojtilla, Motilal Banarsidass, 2011

(with Toke Knudsen) "Calendars in India", in *Calendars and Years II: Astronomy and Time in the Ancient and Medieval World*, ed. John Steele, Oxbow Books, 2011, pp. 53–68

"The 'ignominious fate' of spherical trigonometry?", *Gaṇita Bhāratī* 32 (1–2), 2010, 127–143

"Links between Sanskrit and Muslim science in Jaina astronomical works", *International Journal of Jaina Studies* (Online) 6 (5), 2010, 1–13 (http://www.soas.ac.uk/research/publications/journals/ijjs/)

"Humans, demons, gods and their worlds: the sacred and scientific cosmologies of India", in *Geography and Ethnography: Perceptions of the World in Pre-Modern Societies*, ed. Kurt Raaflaub and Richard Talbert, Blackwell, 2010, pp. 32–42

"Mathematics of the Jain cosmos", in *Victorious Ones: Jain Images of Perfection*, ed. Phyllis Granoff, Rubin Museum of Art, New York, 2009, pp. 64–69

"Sanskrit mathematical verse", in *Oxford Handbook of the History of Mathematics*, ed. J. Stedall et al., Oxford University Press, 2008, pp. 519–536

"Mesopotamian sexagesimal numbers in Indian arithmetic", in *From the Banks of the Euphrates: Studies in Honor of Alice Louise Slotsky*, ed. Micah Ross, Eisenbrauns, 2008, pp. 193–205

"L'India antica e medievale", (tr. Ricardo Bellè et al.), in *La matematica, vol. 1: I luoghi e i tempi*, ed. Claudio Bartocci and Piergiorgio Odifreddi, Einaudi, 2007, pp. 139–154

"Mathematics in India", in *Mathematics in Egypt, Mesopotamia, China, India and Islam: a Sourcebook*, ed. Victor Katz, Princeton University Press, 2007, pp. 385–514

"Euler and Indian astronomy", in *Leonhard Euler: Life, Work, and Legacy*, ed. Robert E. Bradley and C. Edward Sandifer, Elsevier (History and Philosophy of Mathematics Series), 2007, pp. 147–166.

"Relations between approximations to the Sine in Kerala mathematics", in *Contributions to the History of Indian Mathematics* (Culture and History of Mathematics 3), ed. Gerard G. Emch, R. Sridharan, and M. D. Srinivas, Hindustan Book Agency, 2005, pp. 135–152

"Derivation and revelation: the legitimacy of mathematical models in Indian cosmology", in *Mathematics and the Divine*, ed. T. Koetsier and L. Bergmans, Elsevier, 2005, pp. 61–76

"The problem of the sun's corner altitude and convergence of fixed-point iterations in medieval Indian astronomy", in *Studies in the History of the Exact Sciences in Honour of David Pingree*, ed. C. Burnett et al., Brill, 2004, pp. 552–586

"Spherical trigonometry and the astronomy of the medieval Kerala school", in *History of Oriental Astronomy, Proceedings of the IAU Joint Discussion-17*, ed. S. M. Razaullah Ansari, Dordrecht: Kluwer, 2003, pp. 83–93

"Use and transmission of iterative approximations in India and the Islamic world", in *From China to Paris: 2000 Years Transmission of Mathematical Ideas*, ed. Yvonne Dold-Samplonius et al., Stuttgart: Steiner Verlag, 2002, pp. 167–186

"The 'error' in the Indian 'Taylor series approximation' to the Sine", *Historia Mathematica* 28, 2001, 283–295

(with S. Ikeyama) "The *Tithicintāmaṇi* of Gaṇeśa, a medieval Indian treatise on astronomical tables", *SCIAMVS* 2, 2001, 251–289

"How to interpret astronomical references in Vedic texts?", *Electronic Journal of Vedic Studies* 6 (2), 2000 (http://www.ejvs.laurasianacademy.com/issues.html)

"The astrolabe and spherical trigonometry in medieval India", *Journal for the History of Astronomy* 31, 2000, 37–54

"An example of the secant method of iterative approximation in a fifteenth-century Sanskrit text", *Historia Mathematica* 23, 1996, 246–256

"How to appreciate Indian techniques for deriving mathematical formulas?" in *L'Europe mathématique*, ed. Catherine Goldstein and James Ritter, Paris: Éditions de la Maison des sciences de l'homme, 1996, pp. 53–65

Encyclopedia articles and miscellaneous publications:

"Indian astronomy and astrology", to appear in *The Cambridge History of Science. Volume 1: Ancient Science*, ed. Alexander Jones and Liba Taub

"Mathematical astronomy in India", in *Handbook of Archaeoastronomy and Ethnoastronomy*, ed. Clive Ruggles, Springer, 2015, pp. 1981–1989.

Diagram of Śaṅkara's demonstration on Mādhava's infinite series, reproduced on steel sculpture "Wandering the Immeasurable" by Gayle Hermick at CERN, Geneva, installed December 2014

"Mathematics and its worldwide history", *Nieuw Archief voor Wiskunde series 5* 13, 2012, 45–53

(with S. Langton et al.) "Latin for reading historical mathematics: a handbook", compiled for MAA Minicourse "Reading original sources in Latin for the historian and mathematician", Joint Mathematics Meetings, Boston, 5–7 January 2012

"Astronomy and mathematics", in *Oxford Bibliographies Online: Hinduism*, ed. Alixandra Gould, Oxford University Press, 2011 (`http://oxfordbibliographiesonline.com`)

"The mathematics of measuring time: the sinking-bowl water-clock in India", in *Mathematical Time Capsules: Historical Modules for the Mathematics Classroom*, ed. Dick Jardine and Amy Shell-Gellasch, MAA Notes Series, 2011, pp. 55–62

"Biographical sketch of David Pingree", in *Studies in the History of Indian Mathematics*, ed. C. S. Seshadri, Culture and History of Mathematics 5, Hindustan Book Agency, 2010

"Mathematics and geometry", *Brill's Encyclopedia of Hinduism*, vol. 2, ed. Knut Jacobsen, Brill, 2010, pp. 309–317

"A perspective on ancient Indian mathematics", in *Hyderabad Intelligencer*, ed. S. G. Dani, International Congress of Mathematicians 2010, Springer, 2010, pp. 13–23

(with T. Knudsen) Articles on "Yavaneśvara", "Sphujidhvaja", "*Paitāmahasiddhānta*", "Āryabhaṭa", "Kalyāṇa", "Mīnarāja", and "Varāhamihira", in *Encyclopedia of Ancient Natural Scientists: The Greek Tradition and Its Many Heirs*, ed. Paul T. Keyser and Georgia Irby-Massie, Routledge, 2008, pp. 167–168, 466–467, 557, 604–605, 758, 823, 842

Articles on "al-Fazārī", "Yaʻqūb ibn Ṭāriq", "Gaṇeśa", and "Lalla", in *The Biographical Encyclopedia of Astronomers*, ed. Thomas Hockey et al., Springer, 2007, pp. 362–363, 404–405, 669–670, 1250–1251

"Indian mathematics: the discipline of mathematics as it developed in the Indian subcontinent", in *Encyclopedia Britannica Online* (`http://www.britannica.com/topic/Indian-mathematics`, originally titled "Mathematics, South Asian")

(with Katherine Lau, Brown '06) "The cycloid pendulum clock of Christiaan Huygens", in *Hands-on History: A Resource for Teaching Mathematics*, ed. Amy Shell-Gellasch, MAA Notes Series 72, 2007, pp. 145–152

"Eloge: David Pingree, 1933–2005", *Isis* 98 (3), 2007, 605–607

"Empires and exact sciences in pre-modern Eurasia", *Newsletter of the International Institute for Asian Studies* (Leiden) 43 (Spring 2007), 14 (`http://www.iias.nl/nl/43/IIAS_NL43_14.pdf`)

"In memoriam David Pingree (1933–2005)", *Historia Mathematica* 34, 2007, 3–6

"David Pingree and Indian mathematics", *Gaṇita Bhāratī* 28, 2006, 1–6

(with Bernard R. Goldstein) "In memoriam David Edwin Pingree", *Aestimatio* 2, 2005, 71–72

"Leonhard Euler, De Indorum anno solari astronomico" (translation), Euler Archive (`http://www.eulerarchive.com`) E018, 2002 (revised version submitted March 2006)

Reviews:

Review of J. M. Delire, ed., *Astronomy and Mathematics in Ancient India*, *Journal for the History of Astronomy* 47, 2016, 434

Review of T. K. Puttaswamy, *Mathematical Achievements of Pre-Modern Indian Mathematics*, *MAA Reviews*, November 2013

Review of George Gheverghese Joseph, *A Passage to Infinity: Medieval Indian Mathematics from Kerala and Its Impact*, *Aestimatio* 10, 2013, 56–62

Review of K. Ramasubramanian and M. S. Sriram, *Tantrasaṅgraha of Nīlakaṇṭha Somayājī*, *Mathematical Intelligencer*, November 2012, DOI 10.1007/s00283-012-9344-6

Review of Philip J. Davis, *Ancient Loons: Stories David Pingree Told Me*, *MAA Reviews*, October 2012

Review of Sreeramula Rajeswara Sarma, Takanori Kusuba, Takao Hayashi, and Michio Yano, *Gaṇitasārakaumudī: The Moonlight of the Essence of Mathematics, by Ṭhakkura Pherū*, *Journal of the American Oriental Society* 132 (1), 2012, 182

Review of Dominik Wujastyk, ed., *Mathematics and Medicine in Sanskrit*, *Journal of the American Oriental Society* 132 (1), 2012, 181

Review of J. L. Berggren and A. Jones, *Ptolemy's Geography*, *Historia Mathematica* 33, 2006, 362–364

Review of Pushpa Kumari Jain, *The Sūryaprakāśa of Sūryadāsa*, Vol. 1, *Isis* 96 (2), 2005, 273

Review of Helaine Selin, ed., *Mathematics Across Cultures: the History of Non-Western Mathematics*, *British Journal for the History of Science* 38 (1), 2005, 102–103

Review of Anne Tihon et al., *Une version byzantine du Traité sur l'astrolabe du Pseudo-Messahalla*, *Early Science and Medicine* 7 (4), 2002, 404–405

Review of Gyan Prakash, *Another Reason: Science and the Imagination of Modern India*, *Journal of Asian Studies* 59 (3), 2000, 781–782

Review of N. M. Swerdlow, ed., *Ancient astronomy and celestial divination*, *Mathematical Reviews* 1746846 (2001j:01006).

Review of Takao Hayashi, *The Bakhshālī Manuscript*, *Indo-Iranian Journal* 41, 1998, 162–164

Review of Virendra Nath Sharma, *Sawai Jai Singh and his Astronomy*, *Archives Internationales d'Histoire des Sciences* 47 (139 bis), 1997, 69–70

Review of Subhash Kak, *The Astronomical Code of the Ṛgveda*, *Centaurus* 38, 1996, 362–364

SELECTED LECTURES:

"An Indian version of al-Kāshī's method of iterative approximation of sin 1°", Joint Mathematics Meetings (American Mathematical Society/Mathematical Association of America), Atlanta, 5 January 2017;
related version presented in
"Transmission and evolution of trigonometric approximations in 18th-century India", International Conference of The Indian Mathematics Consortium/American Mathematical Society, Banaras Hindu University, Varanasi, India, 14 December 2016

"Sanskrit and Islamic rationalist thought in Indian astronomy",
Scientific and Rationalist Traditions in Muslim India, UC Berkeley, 22 October 2016

"Heliocentric cosmology and technical vocabulary in Sanskrit mathematical astronomy", Colonial Sciences and Indigenous Knowledge Systems in South Asia, Max Planck Institute for the History of Science, Berlin, 10 June 2016

"Astronomical adaptations of algebraic sine approximations",
CISTS/ISHM/SandHI Conference on History and Development of Mathematics, IIT Bombay, 15 November 2015;
related versions presented in
"Algebraic approximations to trigonometric functions in 12th-century Sanskrit astronomy",
Silver Jubilee Lecture, Chennai Mathematical Institute, 3 December 2014,
and in
"Siddhānta-karaṇa conversion: Some algorithms in the *Grahagaṇitādhyāya* of the *Siddhāntaśiromaṇi* and in the *Karaṇakutūhala* of Bhāskara",

Bhāskara 900: International Conference on the 900th Birth Anniversary of Bhāskarācārya, VPM Thane (Mumbai), 21 September 2014

"The 'canonicity' of table texts in Sanskrit astronomy,"
Biennial History of Astronomy Workshop (ND XII), Notre Dame, 25 June 2015

"Integrating a table text into a corpus: the *Grahaṇasāraṇī* of (pseudo?-)Gaṅgādhara",
CNRS-Syrte/HAMSI Seminar on Analysing and Editing Numerical Tables from Ancient Astral Sciences, Observatoire de Paris, 22 June 2015

"The transmission of Bhāskarācārya's works in 'westernized' Sanskrit mathematical traditions",
International Conference on the History and Development of Mathematics, Savitribai Phule Pune University (Pune), 27 November 2014

"Babylonian period relations and 'Tamil' astronomy",
Cultural Connections between Ancient Mesopotamia and India, University of Copenhagen, 12 September 2014

"India at the mathematical crossroads: the pre-modern world's mathematical sciences and their Indian influences",
Non-Western Mathematics, Mathematical Institute, Oxford, 27 June 2014

"Approximation in Indian eclipse calculation and the '*Sūryagrahaṇa* of Muḥammad Shāh'",
Mathematical practices in the context of the astral sciences: Séminaire ERC SAW, Université Paris Diderot, 20 June 2014

"What, if anything, is Greek about Āryabhaṭa's mean motions? An examination of the controversy",
Circulation of Astronomical Knowledge in the Ancient World, Brown University, 13 April 2014

"A Sanskrit astronomy synthesis with Islamic and European theory", Seminar on Mathematical Astronomy, Chennai Mathematical Institute, Chennai, 26 December 2013

"Brahmagupta's stars: mathematical models and data in the Brāhmapakṣa school of astronomy",
International Conference on History and Development of Mathematical Sciences, JECRC University, Jaipur; with
29 November 2013 "Reconstructing observational data in classical Indian mathematical astronomy",
International Seminar on History of Mathematics, Delhi University, 27 November 2013

"The evolution of the sine: a sample path in the history of mathematics",
Colloquium, Chennai Mathematical Institute, Chennai, 20 November 2013

"Balancing calculation and observation in medieval Indian astronomy",
Symposium S092, Astronomy and its Applications in Ancient and Medieval Societies, 24th International Congress of History of Science, Technology and Medicine, Manchester (UK), 23 July 2013;
earlier version presented in
"Observation and (versus?) calculation in medieval Indian astronomy",
Wissenschaftshistorisches Kolloquium, Goethe-Universität Frankfurt, 26 October 2010

"*All their books are in verse*: the assimilation of numerical table texts in Indian astronomy,"
Biennial History of Astronomy Workshop (ND XI), Notre Dame, 15 June 2013;
related versions presented in
"Theory versus tables in second-millennium applied mathematics in India",
Joint Mathematics Meetings (AMS/MAA),
San Diego, 12 January 2013, and
"Treatises and tables: evolution of Sanskrit mathematical astronomy in the early modern period",
International Seminar on History of Mathematics, Ramjas College, Delhi, 19 November 2012

"*Multipliers and divisors in an unusual way*: approximation algorithms in Sanskrit astronomical handbooks",
International Conference on History and Development of Mathematical Sciences, Rohtak, Haryana (India), 21 November 2012;
earlier version presented in
"Types and structures of approximation algorithms in Indian astronomical handbooks",
Seminaire des Unités de Recherche en Mathématiques de Marseille/IMéRA, Marseille, 20 December 2010,
and Seminaire d'histoire des mathématiques de l'Institut Henri Poincaré, Paris, 5 November 2010

"A table is not a text? Interrogating the textual nature of the Sanskrit table",
Seminaire History of Science, History of Text, REHSEIS Paris VII, Paris, 2 November 2010

"Relationships between mathematical and astral sciences in India—challenges for historians",
Colloque IRMA "Courants actuels en histoire des mathématiques", Université de Strasbourg, 21 October 2010

"The 'ignominious fate' of spherical trigonometry?",
International Congress of Mathematicians Satellite Conference on Mathematics in Ancient Times,
Kerala School of Mathematics, Kozhikode (India), 1 September 2010

Plenary Lecture: "Indian rules, Yavana rules: foreign identity and the transmission of mathematics",
International Congress of Mathematicians, Hyderabad (India), 26 August 2010;
related versions presented in
"The various 'Indian rules' in pre-modern western mathematics",
Joint Mathematics Meetings (AMS/MAA), San Francisco, 15 January 2010, and
" 'Indian' and 'Yavana': Foreign identity in the transmission of the exact sciences",
Between Orient & Occident: Transformation of Knowledge, Deutsches Museum, Munich, 7 November 2009

(with Molly Maguire, Union College '10) "Euler's reinvention (and generalization) of spherical trigonometry",
Euler Society Conference (E2K+10), Garden City NY, 20 July 2010

"Euler on determining the orbits of comets",
Euler Society Conference (E2K+9), Bristol RI, 15 July 2009

"Mathematics and astronomy in India: An evening in honor of David Pingree",
New York Academy of Sciences, 21 May 2009

"A medieval Muslim mathematician looks at Indian arithmetic: Al-Bīrūnī's treatise on Sanskrit rules of proportion",
Joint Mathematics Meetings (AMS/MAA), Washington DC, 7 January 2009

"Greco-Persian geometry in 17th-century India",
Canadian Mathematical Society Winter Meeting, Ottawa, 7 December 2008
(a related version presented under the title "Euclid and Aristotle, in Persian and in Sanskrit" at the Australia-New Zealand Mathematics Convention, Christchurch, NZ, 12 December 2008)

"Intimations of calculus in India before Newton and Leibniz",
Proof and Possibility, Matter and Meaning, Tunxis Community College, Farmington, CT, 6 March 2008

"Mathematics and observation in Indian astronomical parameters",
First Joint International Meeting of the American Mathematical Society and the New Zealand Mathematical Society, Wellington, NZ, 14 December 2007

"Euler's early astronomy and the calculus",
Euler Society Conference (E2K+7)/MathFest 2007, San Jose CA, 4 August 2007

"Indian exact sciences in Sanskrit manuscripts and their colophons",
Production, distribution and collection of Sanskrit manuscripts in ancient South India, International Institute for Asian Studies, Leiden, Netherlands, 20 April 2007

"Links between Sanskrit and Muslim science in Jaina astronomical works",
Jainism and Modernity: 9th Jaina Studies Workshop, School of Oriental and African Studies, London, UK, 22 March 2007 (an abridged version read *in absentia* at the 217th Meeting of the American Oriental Society, San Antonio TX, 17 March 2007)

"Is addition a fundamental operation in arithmetic? and other foundational issues in Indian mathematics", Joint Mathematics Meetings (AMS/MAA), New Orleans LA, 7 January 2007

"History of mathematics and original sources in India: a fieldwork report",
Annual Meeting of the History of Mathematics Special Interest Group of the MAA, Joint Mathematics Meetings (AMS/MAA), San Antonio TX, 13 January 2006

"Decimal and sexagesimal computation in Indian mathematics",
Joint Mathematics Meetings (AMS/MAA), San Antonio TX, 13 January 2006

"Concepts and strategies of proof in Indian mathematics",
Exact Sciences in Indian Antiquity, Conference of the Australasian Association for the History, Philosophy and Social Studies of Science, University of Otago, Dunedin, NZ, 5 December 2005
(a related version presented in the Algemeen Colloquium, Mathematics Institute, Utrecht University, Utrecht,

20 October 2005, and in a Stafcolloquium, Department of Mathematics, Groningen University, Groningen, 31 January 2006)

"Sanskrit mathematical manuscripts",
Mathematical Textbooks: History, Production, and Influence, Oxford, 24 September 2005

"Mathematics made manifest: the Indian invention of algebra",
Maths that Changed the World, BA Festival of Science, Trinity College, Dublin, 8 September 2005

"Science and history in the debate over Vedic astronomy",
International Institute for Asian Studies, Leiden, 13 July 2005
(an earlier version presented to the Utrecht Studygroup on History of Astronomy, 14 June 2005)

"Approximation algorithms in the *Karaṇakutūhala* of Bhāskara II",
Mathématiques en Inde, Recherches Epistémologiques et Historiques sur les Sciences Exactes et les Institutions Scientifiques (REHSEIS), Centre Nationale de la Recherche Scientifique, Paris, 9 May 2005

"Heron's formula and the geometry of quadrilaterals in Indian mathematics",
Mathematics Across Cultures, Mathematical Institute, Leiden University, 8 March 2005

"Transmission and impact of mathematical tables",
Joint Mathematics Meetings (AMS/MAA), Atlanta GA, 7 January 2005

"Astronomical tables and mathematics in late medieval India",
International Conference on History and Heritage of Mathematical Sciences, Indore, India, 17 December 2004

"Indian numerical methods and their transmissions between cultures",
Showcase Seminar on History of Mathematics, Delhi, India, 13 December 2004

"Some power series approximations in Kerala mathematics",
India/American Mathematical Society Joint Meeting, Bangalore, India, 20 December 2003

"The astrolabe in India", Annual Meeting of the Canadian Society for the History and Philosophy of Mathematics, Halifax NS, 1 June 2003

(with E. Allyn Smith, Brown University '03) "The mathematics textbook and the disappointed daughter: history of a mathematical urban legend",
Joint Mathematics Meetings (AMS/MAA), Baltimore MD, 17 January 2003 (selected as a Highlight of the Joint Mathematics Meetings)

"Mathematics in India", MAA Short Course on Mathematics in the Ancient World,
Joint Mathematics Meetings (AMS/MAA), Baltimore MD, 13 January 2003

"A medieval Islamic analysis of Indian mathematics",
International Institute for Asian Studies Workshop: Asian Contributions to the Formation of Modern Science, Leiden, Netherlands, 20 September 2002

"Euler and Sanskrit astronomy in eighteenth-century Europe",
Euler Society Conference (E2K+2), Rumford ME, 5 August 2002

"Acceleration of convergence of fixed-point iterations in medieval Sanskrit mathematics",
Joint Mathematics Meetings (AMS/MAA), San Diego CA, 7 January 2002

"Calculus in Sanskrit? Indian mathematics and infinitesimal analysis",
AMS Eastern Section Meeting, Williamstown MA, 13 October 2001

"Islamic reactions to Indian mathematics",
Symposium on the History of Islamic Mathematics, University of Oklahoma, 30 March 2001

"Derivation and revelation: the legitimacy of mathematical models in Indian cosmology",
Dibner Institute for the History of Science and Technology, Cambridge MA, 28 November 2000

"Use and transmission of iterative approximations in India and the Islamic world",
2000 Years Transmission of Mathematical Ideas: Exchange and Influence from Late Babylonian Mathematics to Early Renaissance Science, Bellagio, Italy, 8–12 May 2000

"Four centuries of spherical trigonometry in Sanskrit",
Joint Mathematics Meetings (AMS/MAA), Washington DC, 21 January 2000

"'Guessing with intelligence:' experiments with fixed-point iterations and their convergence in medieval Indian astronomy",

Vassar College, 26 October 1999

(an earlier version presented at the Frederick V. Pohle Colloquium in the History of Mathematics and the Exact Sciences, Adelphi University, 11 November 1998)

"Elegant fractions in Indian astronomy,"
AMS Eastern Section Meeting, Providence RI, 3 October 1999

"A text-based approach to electronic cataloguing of non-Western manuscripts",
Association for Computers and the Humanities/Association for Literary and Linguistic Computing International Humanities Computing Conference, Charlottesville VA, 11 June 1999

"'Command over the native mind:' the nineteenth-century synthesis of Indian and European astronomy",
Massachusetts Institute of Technology, 11 December 1998

"Ganita and Jyotisha: Indian mathematics and Indian astronomy",
MAA Institute for the History of Mathematics and its Use in Teaching, Washington DC, 28 July 1998

"Women and mathematical education in classical India",
Joint Mathematics Meetings (AMS/MAA), Baltimore MD, 9 January 1998

"The Kerala school in 14th-century India: medieval mathematics and its modern interpretation",
New York Academy of Sciences (History and Philosophy of Science Section), New York, 4 December 1997

"Spherical trigonometry in the astronomy of the medieval Kerala school",
Joint Discussion on History of Oriental Astronomy, 23rd General Assembly of the International Astronomical Union, Kyoto, Japan, 25 August 1997

"The 'error' in the Indian 'Taylor series approximation' to the sine",
Joint Mathematics Meetings (AMS/MAA), San Diego CA, 11 January 1997

(with D. Otero) "Gregory of St. Vincent, Antonio de Sarasa and the area under the hyperbola",
Joint Mathematics Meetings (AMS/MAA), San Diego CA, 10 January 1997

"Errors and approximations in medieval Indian and Islamic spherical trigonometry",
Mathematisches Forschungsinstitut Oberwolfach, (Geschichte der Mathematik), Oberwolfach, Germany, 5 November 1996

"Some medieval Indian approximation formulas",
Joint Mathematics Meetings (AMS/MAA), Orlando FL, 13 January 1996

"Problems and puzzles in history of mathematics research",
Joint Mathematics Meetings (AMS/MAA), Orlando FL, 11 January 1996

"Mathematical approximation in Indian astronomy",
University Seminar on the Veda and its Interpretation, Columbia University, 11 May 1995

"Indian techniques for deriving mathematical formulas",
Workshop on Mathematical Europe: Myths and Historical Realities, European Congress of Mathematics, Paris, 3 April 1992

"Brahmagupta's formulas relating to the phases of the moon",
Symposium on Indian and Other Asiatic Astronomies, Hyderabad/Jaipur, India, 13 December 1991

Awards and Honors:

(with co-contributors) *Donald E. Osterbrock Prize* of the American Astronomical Society, for *Biographical Encyclopedia of Astronomers*, ed. Thomas Hockey, March 2017

Nominated by Consulate General of India, NY, for Indian Council for Cultural Relations Distinguished Indologist Award, 2015

Brouwer Medal, Dutch Mathematical Society, April 2011

Marsden Fund Fast Start Grant (Associate Investigator with Dr. Clemency Montelle of the University of Canterbury), Royal Society of New Zealand, 2011–2013

Royal Society of New Zealand Marsden Fund Finalist Award (with Dr. Clemency Montelle of the University of Canterbury), College of Engineering, University of Canterbury, Christchurch NZ, 2010

Research Grant, Nederlandse Organisatie voor Wetenschappelijke Onderzoek, 2004–2006

Affiliated Fellowship, International Institute for Asian Studies, Leiden/Amsterdam, 2004–2006

Senior Fellowship, American Institute for Indian Studies, 2003–2004

Research Fellowship, Dibner Institute for the History of Science and Technology, M.I.T., 2000–2002

Curricular Development Grant, Brown University, 1996/97

Wayland Collegium Course Development Grant, Brown University, Summer 1996

Graduate Teaching Assistantship, Brown University, 1991, 1995

Junior Fellowship, American Institute of Indian Studies, 1994–1995

Dissertation Fellowship, Watson Institute for International Studies, Brown University, 1993–1994

Dharam Hinduja Award, Dharam Hinduja Indic Research Center, Columbia University, 1994