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Title:	Ancient Indian astro-mathematical tradition: Evolution and linkages
Authors:	Kochhar, Rajesh (/jspui/browse?type=author&value=Kochhar%2C+Rajesh)
Keywords:	Astronomy
Issue Date:	2010
Publisher:	American Institute of Physics
Citation:	AIP Conference Proceedings, 1283, pp. 156-160.
Abstract:	<p>Indian astronomical tradition is characterized by antiquity, continuity and interaction with the outside world. From 6th century CE till the time of Kepler's laws, Indian astronomers were probably the only ones in the world who could calculate eclipses with any degree of accuracy. In the 12th century, an astronomer in Central India, Padmanabha by name, predicted the lunar eclipse of 8 November 1128 and was rewarded by the king with a land grant (Mirashi 1933-34). The tradition was alive well into the 19th century. By means of shells arranged on the ground and using mathematical tables memorized "by means of certain artificial words and syllables", a "Kalendar maker residing in Pondicherry" calculated the lunar eclipse of 31 May-1 June 1825, with an error of no more than +4 minutes for the beginning (Neugebauer 1983, p. 436). Even now, traditional astronomical almanacs in India, known as panchangas, used in India for ritual and religious purposes base their calculations on ancient texts. It is only in the case of eclipse that they borrow data from modern sources. The beginnings of astronomy are related to the requirements of the ritual in early cultures. Ritual was seen as a means of securing divine approval and support for terrestrial actions. To be effective, it had to be elaborate and welltimed, so that a careful distinction could be made between auspicious and inauspicious times. Since planetary motions provided a natural means of time keeping and were seen as embodiment of divine signals, astronomy developed as an intellectual discipline (see Yano 2003). Similarly mathematics grew as an aid to designing sacrificial altars. The oldest geometry texts in India are the Sulvasutras which dealt with questions like the square root of two. Different scholars place the earlier of these texts anywhere between 800 BCE and 400 BCE. Astronomy texts are decidedly older. Subsequent developments in mathematics came about as an astronomical aid.</p>
URI:	<a href="http://proceedings.aip.org/resource/2/apcpcs/1283/1/156_1?isAuthorized=no">http://proceedings.aip.org/resource/2/apcpcs/1283/1/156_1?isAuthorized=no</a> ( <a href="http://proceedings.aip.org/resource/2/apcpcs/1283/1/156_1?isAuthorized=no">http://proceedings.aip.org/resource/2/apcpcs/1283/1/156_1?isAuthorized=no</a> )
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