

NEWS

MAGIC SQUARE FOR 2011*

189	202	215	228	250	122	135	148	161	174	187
201	214	227	249	132	134	147	160	173	186	188
213	226	248	131	133	146	159	172	185	198	200
225	247	130	143	145	158	171	184	197	199	212
246	129	142	144	157	170	183	196	209	211	224
128	141	154	156	169	182	195	208	210	223	245
140	153	155	168	181	194	207	220	222	244	127
152	165	167	180	193	206	219	221	243	126	139
164	166	179	192	205	218	231	242	125	138	151
176	178	191	204	217	230	241	124	137	150	163
177	190	203	216	229	251	123	136	149	162	175

This magic square of the order eleven with the magic constant sum of 2011 may be of interest to readers. It is manipulated from the basic pattern of a magic square with the natural sequence of numbers from 1 to 121 and yielding the magic constant sum of 671 made by my father's friend.

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The new square produces the magic sum of 2011 when all the numbers in any vertical column or in any horizontal row are added up. One of the diagonals, however, does not yield this magic sum. It could have been manipulated further so that both the diagonals add up to 2011, but that would have altered the essential feature of the basic pattern, namely the flow of the numbers going upwards in a spiral movement. The flow begins at the top of the central column (122), slides down the column to take off from the bottom of the next column (123) and then winds around the central column until it traverses 11 cells (see the numbers in italics); then the flow begins another round of 11 cells (the numbers in bold font), and so on. If you can visualize that the top and the bottom of the square are joined to form a cylinder, and also the left and the right sides form a cylinder, then you will see that the flow is continuous.

Schuyler van Rensselaer Cammann, in his seminal study of the 'Islamic and Indian Magic Squares,' (*History of Religion*, Vol. 8, 1969, No. 3, pp. 181-209; No. 4, pp. 271-299), calls this pattern the 'Hindu continuous method' and notes that Nârâyaṇa Paṇḍita employed this method in his *Gaṇitakaumudî* of 1356, in drawing two squares, one of five and another of seven. Cammann goes on to say that Nârâyaṇa tried to render the squares 'especially complex to conceal the relatively easy mode of construction.' What Nârâyaṇa did was to tilt the two squares by 90° and fill the square of order five (*pañca-bhadra*) by numbers from 4 onwards and the square of order seven (*sapta-bhadra*) by numbers from 7 onwards. He makes the square a little more complex by leaving out one digit after every round (see *Gaṇitakaumudî*, ed. Padmakara Dube, Varanasi, 1942, p. 393). But, obviously Nârâyaṇa did not quite succeed in concealing the method; others employed it to prepare squares of higher orders as is evident from the magic squares of my father's friend. I have also heard from other sources that this method of constructing magic squares for odd numbers was popular in Andhra Pradesh.

In Sanskrit, magic squares are called *sarvato-bhadra* which literally means auspiciousness, well-being and safety all around. Be it so for all!