

Pascal published in 1653 ‘Traite du triangle arithmetique avec quelques autres’ and after that paper we call the triangle of $C(n,k)$ as Pascal’s triangle.

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In 1527 the arithmetic triangle of numbers $C(n,k)$ was published by Petrus Apianus (German scientist working in mathematics, astronomy and cartography)

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A first reference in Europe to the triangle of numbers $C(n,k)$ leads to work of Gersonides (Levi Ben Gershon, medieval French-Jewish philosopher) who computed them in publication *Maaseh Hoshev* (1321)

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Binomial $C(n,k)$ can be tracked to Omar Kayam (1048-1131), who claimed to know $C(n,k)$ based on the grounds that he had algorithm to extract n -th roots, and for that you expand $(a+b)^n$. In fact Omar Kayam refers to Indian mathematicians for algorithm at $n = 2$ and $n=3$, and claims new algorithms for $n>3$.

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In China the arithmetic triangle of $C(n,k)$ is attributed to Jai Xian (1010-1070) paper “Rújī Shìsuǒ” by mathematician Yang Hui (1238-1298) in his paper “Xiangjie Jiuzhang Suanfa” (1261). The motivation of Yang Hui and Jai Xian seems to be the same as of Omar Kayam: give algorithms to extract n -th roots using binomial expansion of $(a+b)^n$

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The algorithm to construct the arithmetic triangle  $C(n,k)$  by the recursion  $C(n,k) = C(n-1,k-1) + C(n-1,k)$  is found in the commentary “Mṛtasañjīvanī” written by Halayudha, in 10th century AD about a certain sentence in the paper “Chandaḥśāstra” by Acharya Pingala (circa 200 BC).

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