Pascal's triangle of C(n,k)

Pascal published in 1653 'Traite du triangle arithmetique avec quelques autres'

In 1527 this C(n,k)-triangle was published by Petrus Apianus -- German mathematican-astronomer-cartographer)

The numbers C(n,k)
were also computed by Levi
Ben Gershon, medieval French-
Jewish philosopher (1321)

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.

Omar Kayam refers to Indian mathematicians for algorithm at n = 2 and
n=3, and claims new algorithms for n>3.

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

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
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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