shuen-iii-24.pdf 20191117

A72 B162(157) C52286(3.24) D84 | 帀 匝 | Vol. III 算24

Now there be square objects in one bundle; going once around the outer perimeter there be thirty-two objects.
We ask: how much be the area?

匝：周也；around
帀，子答切，chaap8/za

今有方物，一十一束，外周三十二枚。問積幾何？

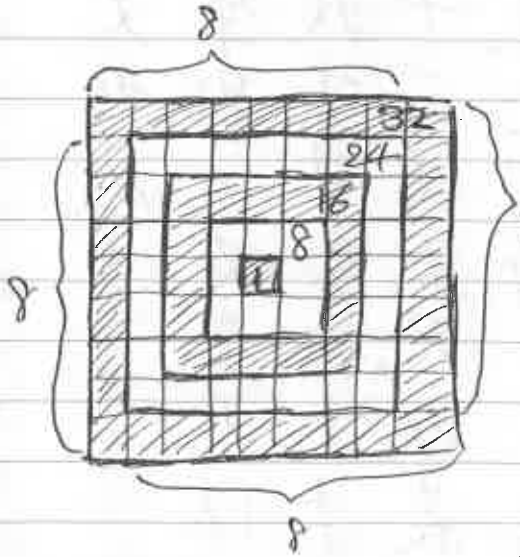
Answer saith: eighty-one objects.

答曰：八十一枚。

Method saith: put it into a stack of two places. Subtract eight from the upper place, and add the remainder to the lower place, unto the empty end. Adding one, we are done.

術曰：重置下二位，減八，餘加下一位，至上盡虛。加一，即得。

$$32+(32-8)+(32-2\times8)+(32-3\times8)+(32-4\times8)+1=81$$



In essence, each successive layer has eight fewer than the layer outside it.

Version C has no fullstop (。) after 盡虛. I think there should be, meaning that one should not add one if zero is not reached; if the final number of objects is even, the algorithm will result in an upper place of four, not zero.

Ver. B has 左位 and 左從 for 上段 and 下位.

END 算24.