A46　B157(152)　C52201(2.24)　D59　、　Vol. II 9 24

Now we have coins, six thousand, nine hundred and thirty; we wish to make two hundred and sixteen people make nine shares to share them. For eighty-one people, each person is given two shares; for seventy-two people, each person is given three shares; for sixty-three people, each person is given four shares. We ask: how much be received, of each of the three types?

Note: you can't actually add the 2, 3, 4 shares to make 9 shares.

Answer saith:

for two shares, each person receiveth coins twenty-two;

for three shares, each person receiveth coins thirty-three;

for four shares, each person receiveth coins forty-four.

In modern notation,

$$\frac{(2,3,4)\cdot 6930}{2\times 81+3\times 72+4\times 63} = (22,33,44),$$

孫子 actually does

$$\frac{(2\times 81,\ 3\times 72,\ 4\times 63)}{(81,\ 72,\ 63)} \times \frac{6930}{2\times 81+3\times 72+4\times 63},$$

which involves more effort than necessary.

Computational

今有錢六千九百三十，令有二百一十六人，作九分分之。八十一人，人得二分；七十二人，人得三分；六十三人，人得四分。問三種各得幾何？

答曰：二分人得錢二十二；三分人得錢三十三；四分人得錢四十四。

Method saith: first put down the eighty-one people above, the seventy-two people next after it, and the sixty-three people below. the upper place, multiplying it by two, resulteth in one hundred and sixty-two; the next place, multiplying it by three, resulteth in two hundred and sixteen; the lower place, multiplying it by four, resulteth in two hundred and fifty-two. Subsidiarily combining the three places resulteth in six hundred and thirty as the divisor.

B has 頭位 for 上位.

術曰。先置八十一人於上，七十二人於次，六十三人於下。上位以二乘之，得一百六十二；次位以三乘之，得二百一十六；下位以四乘之，得二百五十二。副并三位，得六百三十為法。

Also put down the coins, six thousand, nine hundred and thirty as three places. the upper place, multiplying it by one hundred and sixty-two, resulteth in one million, one hundred and twenty two thousand, six hundred and sixty; also multiplying the middle place by two hundred and sixteen, resulteth in one million, four hundred and ninety-six thousand, eight hundred and eighty; also, multiplying the lower place by two hundred and fifty-two, resulteth in one million, seven hundred and fifty-six thousand, three hundred and sixty; each be a dividend.

B has 頭位 for 上位.
A-em. has 乘之四
B has 二百一十六 for 二百十六.

又置錢六千九百三十為三位。上位以一百六十二乘之，得一百一十二萬二千六百六十；以二百一十六乘中位，得一百四十九萬六千八百八十；以二百五十二乘下位，得一百七十五萬六千三百六十；各為實。

20190819

Dividing each of them by the divisor, six hundred _and_ thirty: the upper place resulteth in one thousand, seven hundred _and_ eighty-two; the middle place resulteth in two thousand, three hundred _and_ seventy-six; _the_ lower place resulteth in two thousand, seven hundred _and_ seventy two. Dividing each of them by _their_ number of people, _we are_ done.

以法六百三十各除之，上位得一千七百八十二；中位得二千三百七十六；下位得二千七百七十二。各以人數除之，即得。

END ① 24