A Korean abacus grandmaster

May 19, 2005

Chan-Hee Yi came from Korea to Germany in order to teach us the fun of calculation with the abacus. Hans J. Scheurer visited him.

AT FIRST SIGHT, it seems like the fight between David and Goliath: A modern, powerful pocket calculator is challenged by a mediaeval-looking calculation board, an abacus, with its multitude of small beads. The European, believing in technology, start smiling and they have pity on the lanky David. Also the warning, that Chan-Hee Yi is one of the best abacists in the world, does not impress me. Chan-Hee Yi is holder of the 11th Dan grade, but I am connected to the power supply system.

But my meeting with the highly decorated abacus virtuoso starts with a surprise: I may present an exercise and decide to give an addition of fifteen numbers, each having up to ten digits. While I start to feed the pocket calculator, to my amazement my opponent puts aside his calculation tool and plants his hands on his temples. 15 seconds later he writes the (right) answer on a piece of paper, while I still tip on the buttons of my calculator.

With such simple exercises, Yi prefers to do without the abacus and utilizes his 'head abacus', meaning he just moves the beads in his imagination. This is faster. The hands would not be able to follow his enormous calculation speed. The abacus grandmaster is working freehand.

Not until more complicated exercises occur Yi grabs his abacus. For example, as I ask him to tell me the result of 81,275 by 165,924. It takes only seven seconds and some rustling of the beads until my request has been granted: 13,485,473,100. With a smiliar speed and reliability he extracts square roots or squares numbers with multiple digits - without micro electronics and computer technology. I am at a loss.

In the following discussion, Yi assures me that his calculation art might seem artistic

but that it is the result of a different understanding of mathematics leading to quick and correct calculation without a feat. The 27 year old man from Seoul explains, that calculation with the abacus does not use an abstract number system. While in Western culture, the number 8 is an abstract character, the abacist uses a tangible picture resulting from a constellation of the beads. Each step in a calculation changes this picture of the number. Tedious conversions are needless. Calculation retains something playfully and Yi has transformed it to something sportive.

In his homeland Korea regular competitions are being carried out. On these occasions Yi was the first to obtain the 11th Dan grade, an award only given to people who manage to solve a package of over 1000 exercises in three minutes. Such perfection does not arise from itself. Yi's father is director of an abacus school in Korea. In Seoul alone there are about one thousand such schools which people attend like our type writing or stenography training courses.

In Germany, Yi now wants to promote the abacus calculation system which is so popular in his homeland. Some university teachers have already noticed him. They see a chance to improve the decayed calculation skills of pupils badly affected by pocket calculators. But Yi sees another benefit in the abacus system: it is fun. The playfulness is also intriguing to the sluggish.

The simple calculation device appears quite complicated at first sight. There are five beads each on the 23 vertical rods and one bead is separated from the others by a horizontal beam. This single bead has a value of 5 while the other wooden beads are worth 1. The abacus uses the decimal system and so each rod makes up for one decimal place. Three rods are needed in order to place a number with three digits. The number 273 is represented as 200 + 70 + 3. Thus each number has its own concrete picture which changes while the calculation is carried out. This may seem laborious to us, but the rules soon prove to be practical and are quickly implemented.

I asked Yi why he chose Germany in order to promote the abacus and he answered without hesitation: He assumes this highly industrialized country has a chance of spreading the old calculation tool which makes mathematics descriptive again. He now lives in Bonn and has already assembled some pupils. The goal is not the artistic application of calculation techniques but rather the playful contact with the instrument.

Last not least, the abacus is an excellent partner for training concentration skills. Before I leave, Yi demonstrates it: I put five numbers with each three digits below each other on a blackboard while the master is standing with his back to the blackboard. Then he makes a quick turn of 360 degrees uncovering the numbers for a fraction of a second. Without long thinking he tells me the sum of the listed numbers. After this, I may put some minus signs in front of a few numbers. The solution is only seconds away. I do a third test putting a two-digit number underneath the others and Yi divides the sum by this number with his back to the blackboard. He tells me to write down the result and dictates a 15-digit number.

I try to check the result with my pocket calculator, but realise soon that it has only got nine positions - but these are exactly the sames as in Yi's calculation.

Translation by Torsten Reincke
from a German article
in the periodical 'SpielBox'
(unknown date of origin)