

Square Magic

Pupils and colleagues are amazed – record, and no fuss about it

NUREMBERG - Walter Trump is a quiet person. He is 49 years old and speaks in a low voice, after careful consideration. Only sometimes a bright glimmer flickers in his big brown eyes. For example, when a beautiful sequence of numbers dances across the computer monitor in his house in Reichelsdorf, which is a suburb of Nuremberg. Ten to the 10th. 10 to the 110th power. 107099. Just try to imagine the following situation: Our secondary-modern school teacher, who teaches math and physics at Stein Grammar School, angrily knocks the ruler on the desk or shouts at rebellious pupils – unthinkable!

Walter Trump has found another method to put the fear of God into his fellow men and to make them doubtful and think twice over things: Amazement! The man with the bristly moustache juggles with numbers and arranges them in a "magic" way. Square, practical and creepy – that is the result of his mathematical art, which often causes sensation only among the fans browsing the Web. But every now and then he also shows visitors or his junior pupils "just before holidays" that the addition of his numbers always equals the same total – as if by magic.

The inventor didn't get any applause for calculating the smallest "trimagic square of the world" neither by his pupils nor by his Nuremberg neighborhood residents. But experts round the world simply were over the moon: "Where is will there is way", wrote an inventor of construction methods from Taiwan and also Christian Boyer the former technical director of Microsoft France sent hymns of praise by e-mail.

Always the same final number

What this teacher really does after all is nothing else but choosing numbers and arranging them in a square. But adding the numbers of each row, column or diagonal always results in the same number. The magic number, so to speak. The smallest magic square, consisting of four rows and four columns, ("of order four" as a mathematician would say,) has the magic number 34.

"That's old hat" says teacher Trump with a certain understatement. Already the physician, theologian and magician Agrippa of Nettesheim had shown magic squares "up to order nine" in his book about occult theories published in 1531, using of course quite often the number six, which is a Satanic symbol in occultism. His contemporary Albrecht Dürer, too, has hidden a small magic square in his copper-plate engraving "Melancholia I". At a closer look, you do not only get the same sum (34) in each row, column and across the diagonals, but you also discover something "magic" in the bottom row: from the numbers 4, 15, 14, 1 the date of creation "May 1514" could be read.

During his own schooldays already, Walter Trump created such magic squares and made stencils that could be put on such a square and resulted in new "magic" combinations. Afterwards he spent more time with the Rubik-Cube which was very popular in the Eighties. This cube must be turned until each face shows only one color.

Research combined with pleasure

Just two years ago the Schwabach born teacher started again to deal with number squares, when a man from Bad Griesbach – who also likes fiddling about with things - asked, whether the stencils would also fit with bigger squares. Trump started research using a computer program and took pleasure in dealing with "trimagic" squares. In these cases, also the sums of the numbers to the power of three in each row, each column and each diagonal must equal the same number ... The mathematician who really doesn't seem to have magical powers, who neither arranges his office furniture in a rectangle nor insists on angular soup plates - as his wife Brunhilde confirms - and who only likes wearing shirts with small square patterns on them, loves the magic of small things. Thus, he decided to prove the smallest trimagic square. It should have less than 128 rows and columns, as calculated in 1905, less than 64 rows as the one from 1933 and less than 32, as the one invented in 1976.

The teacher browsed the Web, created a computer program and found 107 099 possibilities for a first trimagic column. It had been like "treasure hunt", often he had had a new idea at four a clock in the morning and had tried it out.

Last summer the breakthrough came. On his computer screen a trimagic square of order 12 built up. While e-mail congratulations from his fan-community arrived, Walter Trump caused extreme astonishment on just another stage: when the headmaster of Stein Grammar School was pensioned off and celebrations began, he constructed a small magic square containing the headmaster's date of birth and other personal dates.

Tiles gave him a thrill

She got goose-pimples, a female colleague admitted afterwards. And a visitor who learned from Walter Trump everything about "square magic", later on had problems when entering his bathroom: the square tiles gave him a terrible thrill.

Recently, when the TV-show "Wetten, dass..?" was on and a math-genius filled incredible squares with numbers, Walter Trump simply smiled. In about one hour he found out the number the artist used basically for his mathematical demonstration. A trick? "No", said Walter Trump, "one has to calculate in order to carry out the task".