

End Note



A Mozart With Numbers

It's encouraging when the occasional genius shows up in our midst, but not nearly as fascinating as the child prodigy. A prodigy is much more of a mystery and a surprise.

Carl Friedrich Gauss (1777-1855) early on displayed an innate facility with numbers that resembled his contemporary Mozart's ability with musical tones. The son of uneducated parents, the boy taught himself to read and count by the age of three. One of the early legends about his genius had its source in a classroom assignment given him at St. Catherine's Elementary School. Gauss was 10 years old at the time, and when his teacher, Herr Büttner, needed some time, he gave the class a busy-work assignment he assumed would keep them occupied for a while.

"Sum the numbers 1 to 100."

Carl Friedrich began, as did the others, with one

plus two plus three. But that was boring, so he began working backward from 100. He saw a pattern and had the answer.

When he raised his hand and gave the correct answer, 5,050, Büttner was amazed. The boy couldn't have added 100 integers so quickly.

Carl explained what he had done. First he noticed a sameness: $1 + 100 = 101$, and $2 + 99 = 101$, and $3 + 98 = 101$. He multiplied that common number (101) times the total number in the series (100), and then, to account for the fact that this would double-count each digit, he divided by two and got 5,050. A pretty elegant insight for a child.

The prodigy fulfilled the early promise of his abilities, and today his name can be found in multiple listings in the index of virtually any text on number theory, in all histories of mathematics, and even in astronomy books. ■