

Comic Riffs

Emmy Noether Google Doodle: Why Einstein called her a 'creative mathematical genius'

By [Michael Cavanaugh](#) March 23 at 8:00 AM

IN 1935, writing to the New York Times, Albert Einstein did not tame his praise.

“In the judgment of the most competent living mathematicians,” penned the great man, “Fräulein Noether was the most significant creative mathematical genius thus far produced since the higher education of women began.”

After a lifetime of being discouraged and disallowed, underpaid and unpaid, doubted and ousted, Emmy Noether had reached the pinnacle of peer respect among her fellow giants of mathematical science.

“In the realm of algebra, in which the most gifted mathematicians have been busy for centuries,” Einstein continued in his letter, “she discovered methods which

have proved of enormous importance in the development of the present-day younger generation of mathematicians.”

In her native Germany, Noether had sometimes been blocked and barred as a student because of her gender; in time, though, she had nurtured the next waves of great students. Noether had risen against wall after wall of obstacles to work on such areas as ring theory; now she was counted among those in a most rarefied academic circle.

“Pure mathematics is, in its way, the poetry of logical ideas. One seeks the most general ideas of operation which will bring together in simple, logical and unified form the largest possible circle of formal relationships. In this effort toward logical beauty spiritual formulas are discovered necessary for the deeper penetration into the laws of nature.” –A.E.

Noether studied French and English as a girl growing up in Bavaria, but upon reaching adulthood, she followed her father (Max Noether) and a brother (Fritz) into math, and it was there she discovered and gave her full expression to the poetry of logical ideas. But at the University of Erlangen, and then at Göttingen University, she was allowed only to audit classes because she was not male.

“Born in a Jewish family distinguished for the love of learning, Emmy Noether, who, in spite of the efforts of the great Göttingen mathematician, Hilbert, never reached the academic standing due her in her own country, none the less surrounded herself with a group of students and investigators at Göttingen, who have already become distinguished as teachers and investigators.” – A.E.

Noether was finally able to receive her mathematics doctorate in 1907, but from the next year till 1915, she worked at the Mathematical Institute of Erlangen without the benefit of a paycheck. She was able, however, to begin working on theoretical algebra — her poetry of the possible and beyond — that would prove the foundation for much of her fame.

“Her unselfish, significant work over a period of many years was rewarded by the new rulers of Germany with a dismissal, which cost her the means of maintaining her simple life and the opportunity to carry on her mathematical studies.” – A.E.

Finally able to teach with authority and clout, Noether was nurturing the next generation of great math minds. But when Germany’s rising Nazi government ousted anyone who was Jewish from their university teaching positions in 1933, Noether headed to America for her livelihood and her safety. Einstein called her two years at Pennsylvania’s Bryn Mawr “the happiest and perhaps the most fruitful of her entire career.”

But then Amalie Emmy Noether, the pacifist who fought against obstacles with the force of a poetic approach to numbers, died just days after surgery to remove a cyst. She was just 53.

“Within the past few days a distinguished mathematician, Professor Emmy Noether, formerly connected with the University of Göttingen and for the past two years at Bryn Mawr College, died in her fifty-third year,” Einstein wrote on May 1, 1935, in his letter that would be published in the Times four days later.

Google celebrates the great woman today, on the 133rd anniversary of her birth in Erlangen, with an engaging illustration by eminently gifted Doodle artist Sophie Diao, who [writes of her artwork](#): “There weren’t any obstacles that would stop Noether from her studies. In this doodle, each circle symbolizes a branch of math or physics that Noether devoted her illustrious career to. From left to right, you can see topology (the donut and coffee mug), ascending/descending chains, Noetherian rings (represented in the doodle by the Lasker-Noether theorem), time, group theory, conservation of angular momentum, and continuous symmetries — and the list keeps going on and on from there! Noether’s advancements not only reflect her brilliance but also her determination in the face of adversity.”

At one point, in Germany, Noether wasn’t even permitted to lecture under her own name. Yet she selflessly fought for, and found, ways for her ideas to take root. Her brilliance would not be denied, and that academic illumination glows still.

“However inconspicuously the life of these [academic] individuals runs its course,” Einstein wrote in his Noether letter, “none the less the fruits of their endeavors are the most valuable contributions which one generation can make to its successors.”

Writer/artist/visual storyteller Michael Cavna is creator of the "Comic Riffs" column and graphic-novel reviewer for The Post's Book World. He relishes sharp-eyed satire in most any form.
