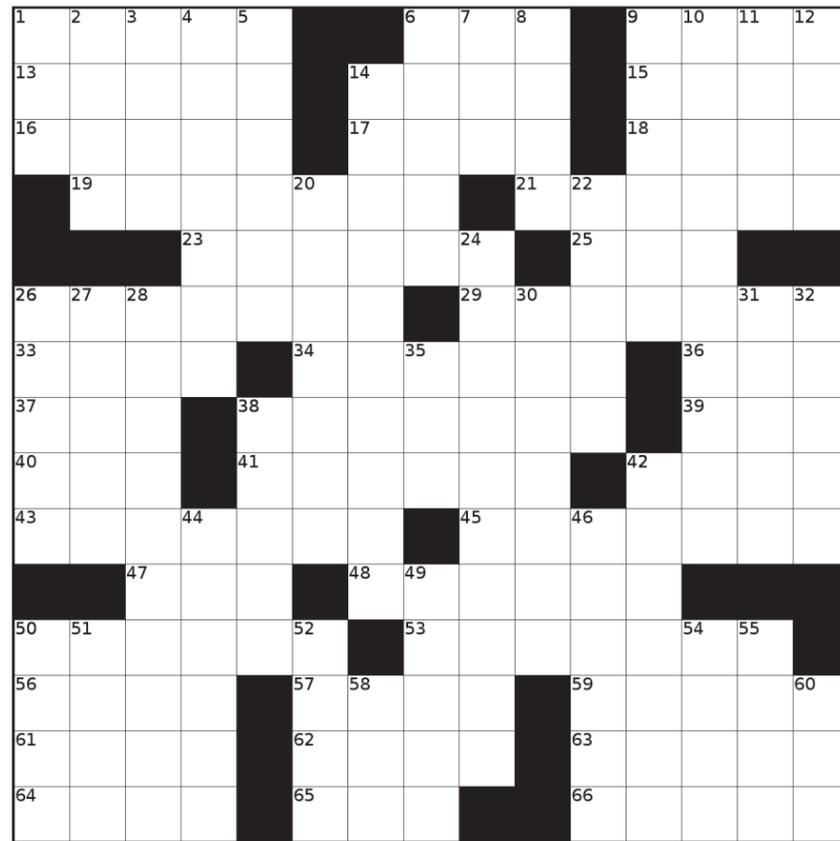


Alums Across the Board, by Steve Ginzburg

ACROSS

- 1 Regina Dugan, PhD '93, former director of ____
- 6 Small part in a large machine
- 9 Org. defending freedoms
- 13 Like Chichen Itza
- 14 Start of "Deck the Halls" refrain
- 15 Defeat soundly
- 16 Spinach alternative
- 17 Some TVs
- 18 Hawkeye portrayal
- 19 Greet like a junkyard dog
- 21 France Córdova, PhD '79, NSF director and former president of ____
- 23 Michael Jackson hit featuring an Eddie Van Halen guitar solo
- 25 Order's partner
- 26 Steingrímur Hermannsson, MA '52, former prime minister of ____
- 29 About two and a half acres
- 33 Mare's hairs
- 34 Bridge combo
- 36 Stimp's pal
- 37 Picnic spoiler
- 38 Harrison Schmitt, BS '57, astronaut and former ____
- 39 It comes from the heart? (abbr.)
- 40 Old orbiter
- 41 Ordained one
- 42 *Rowan & Martin's Laugh-In* comedian Johnson
- 43 It keeps you going
- 45 Sabeer Bhatia, BS '91, co-founder of ____
- 47 ____-Man
- 48 Rain forest vines
- 50 Benjamin Rosen, BS '54, former chairman of the board for ____
- 53 Lost sleep (over)
- 56 ____ Prize (mathematics honor)
- 57 Coffee holders
- 59 Lackluster
- 61 All's counterpart
- 62 "Pick me! Pick me!"
- 63 ____ Walk
- 64 Annual Vietnamese holidays
- 65 "-com" preceder
- 66 Ray Feeney, BS '75, ____ winner for advancing the technology in his field



DOWN

- 1 Run-____
- 2 Contented sighs
- 3 Clancy hero
- 4 Teaching story
- 5 Tenor Bocelli
- 6 Some low-water plants
- 7 Out-of-date
- 8 Sound of surprise
- 9 Landing place of Noah's Ark
- 10 It ended around 1990
- 11 Big Island bash
- 12 ____ Reader: alternative media digest
- 14 "No way, no how!"
- 20 Camper's light
- 22 Bad gut feeling?
- 24 "What a mean thing to say!"
- 26 Islamic leaders
- 27 "Enough!"
- 28 Sting victim's court defense, perhaps
- 30 Transition area between plant communities
- 31 Prefix with linear
- 32 Actress Georgia of *Everybody Loves Raymond*
- 35 Aye's opposite (Scottish)
- 38 Shining light in Virgo
- 42 Dutch beers
- 44 Syrup sources
- 46 Kind of artist or parlor
- 49 Otherwise
- 50 Is incapable of
- 51 Double-reed instrument
- 52 Part of Q.E.D.
- 54 *Iliad* or *Odyssey*
- 55 Star of the opera
- 58 It sometimes represents density
- 60 Article from Germany?

Find the answers to Ginzburg's crossword at magazine.caltech.edu/crossword

In Memoriam

Read more at magazine.caltech.edu/post/in-memoriam



Walter Munk (BS '39, MS '40), 1917–2019

Alumnus Walter Munk, often called the "Einstein of oceanography," passed away on February 8. He was 101 years old.

Munk's early research on quantitative prediction of surf conditions was instrumental in ensuring the success of Allied amphibious landings during World War II. As a professor of geophysics at the Scripps Institution of Oceanography at UC San Diego, in La Jolla, he pioneered the use of sound waves for studying the ocean's structure, demystified the phenomenon of tidal locking, and led a global study of sea temperature that demonstrated conclusively the reality of climate change.

Possessed of a gift for translating observations of nature into profound quantitative descriptions, Munk laid the foundations of modern physical oceanography. A maverick who championed brave, revolutionary ideas, Munk was the first to understand the influence of tidal forces on the rotation of planets, was the first to use power spectra to describe waves, and was one of the first scuba divers on an oceanographic expedition.

"Walter was a legend in the field. I can hardly get through a couple lectures in my introduction to oceanography course without mentioning one of his major contributions," says fellow oceanographer Andrew Thompson, professor of environmental science and engineering at Caltech, who earned his PhD at Scripps. "It was a privilege to meet and talk with Walter as a graduate student and to see, firsthand, his love of science."

Even decades after his official retirement, Munk remained involved in research and scientific advisory efforts. He published his last peer-reviewed paper in 2015 at age 98 and, in that same year, participated in the Vatican City conferences on climate change attended by Pope Francis. He held the Secretary of the Navy/Chief of Naval Operations Oceanography Chair at Scripps until his death.

Though most crossword constructors today use grid-filling software, Ginzburg insists it does not make creating a crossword less challenging. "Grid-filling software will tell you, first of all, if your grid is fillable. It will also help you figure out possibilities, like, 'Here are half a dozen different words that could fit in this slot.'" Still, he says, even with the software, there have been times when he has had 90 percent of the puzzle filled but then found himself backed into a corner. He says, "I have to use this really awful word up in the northeast corner in order to finish it. So, do I put that in there and hope the editor lets me get away with it, or do I come up with a clever clue, or do I unwind three quarters of the puzzle and start over and pursue a different direction?"

This, Ginzburg says, is where heuristics play a role in filling the grid. "A computer program is not going to give you heuristics. There has to be human intelligence applied to it to try to come up with the best possible grid. If not, an experienced editor will look at it and say, 'You know what? This has garbage entries.'"

An example of a "garbage entry" might be something like the word OREO, which, as any cruciverbalist (or crossword puzzle expert) will lament, pops up frequently as an answer. Why is that? There are certain combinations of letters, says Ginzburg, that are "just really handy" for filling a grid. "Anything that involves low-Scrabble-score letters, lots of vowels, or odd abbreviations."

Most words in the English language, he elaborates, alternate consonants and vowels. "So, if you ignore consonant sounds that are made up with two letters, like CK, and you just think about single-letter sounds, in order to fill a square, you have to alternate words that start with a consonant or a vowel. So, in a crossword puzzle, you're going to find more words that start with vowels than you would in ordinary text, and those words are going to be used more often. And that's how you end up with words like OREO and ARIA being overused."

The number of venues for selling crossword puzzles has diminished over the years, says Ginzburg, partly because fewer people read newspapers. And although he has less time to devote to it, solving puzzles will always be a favorite pursuit for Ginzburg: "I enjoy it more now that I've had the chance to create a lot of puzzles and because I appreciate more the artistry that goes into them."

As father of a 7-year-old and a 5-year-old, Ginzburg also gets a kick from hearing them start to make puns and experiment with wordplay. "It's like, 'Yes! They picked up the gene!'" 🧠