## Not Every Vote Counts

Sorry, but it's true, despite conventional rhetoric to the contrary. Election by ballot majority, quite satisfactory for picking the homecoming queen, loses significance in large populations nearly equally divided in choice, as aptly proven by the events of the past few weeks. Any Silicon Valley scientist or engineer will tell you that to experimentally determine the low-order digit precision of a very large number is extremely difficult. And when two such large numbers are close in magnitude, their difference simply can't be trusted. Unfortunately, this year both candidates were so bland that the $50 \%$ of the eligible populace that decided to vote gave us a statistical dead heat. Whether or not we cast our future ballots chad-lessly by thumbprint, retinal scan, voice-reco, or salival DNA, as long as the voters are several hundred million human beings, a certain, hopefully small, fraction will inevitably make mistakes. When the ballots counted on each side are both large and nearly identical in number, and the errors random and uniformly distributed, the practical determination of a "popular will" is confounded. Perfection is simply unattainable.

When scientists are confronted with such "noisy data," we do our best to apply alternative methods of analysis, statistically based, to extract as much underlying "intent" as possible. Astonishingly, the framers of the Constitution intuitively realized this, and established the Electoral College as the preferred way of selecting the Chief Executive of the United States. Basic democratic principles were preserved by directing responsibility for elector choice to the individual and popularly elected state legislatures, and eventually to the US House of Representatives that Gerald Ford, in a moment of rare eloquence, called "the place where the people actually rule." Far from being an antiquated institution, the Electoral College represents an example of modern statistical "discrete sampling," although the present "winner take all" algorithm used by most states definitely needs reconsideration.

I strongly suspect the US Supreme Court, should Gore in the meantime not concede, will tell the Florida legislature it's their job to determine their electors and if they can't get on with it, the House of Representatives will then decide who's to occupy the White House. The robustness of our Constitution and the machinery provided within by the Founding Fathers to eventually give us a President we can all accept, at least legally, is truly remarkable. It's enough make even a secular skeptic like myself ponder that this Republic might just be divinely inspired after all, in which case, God bless America indeed.

