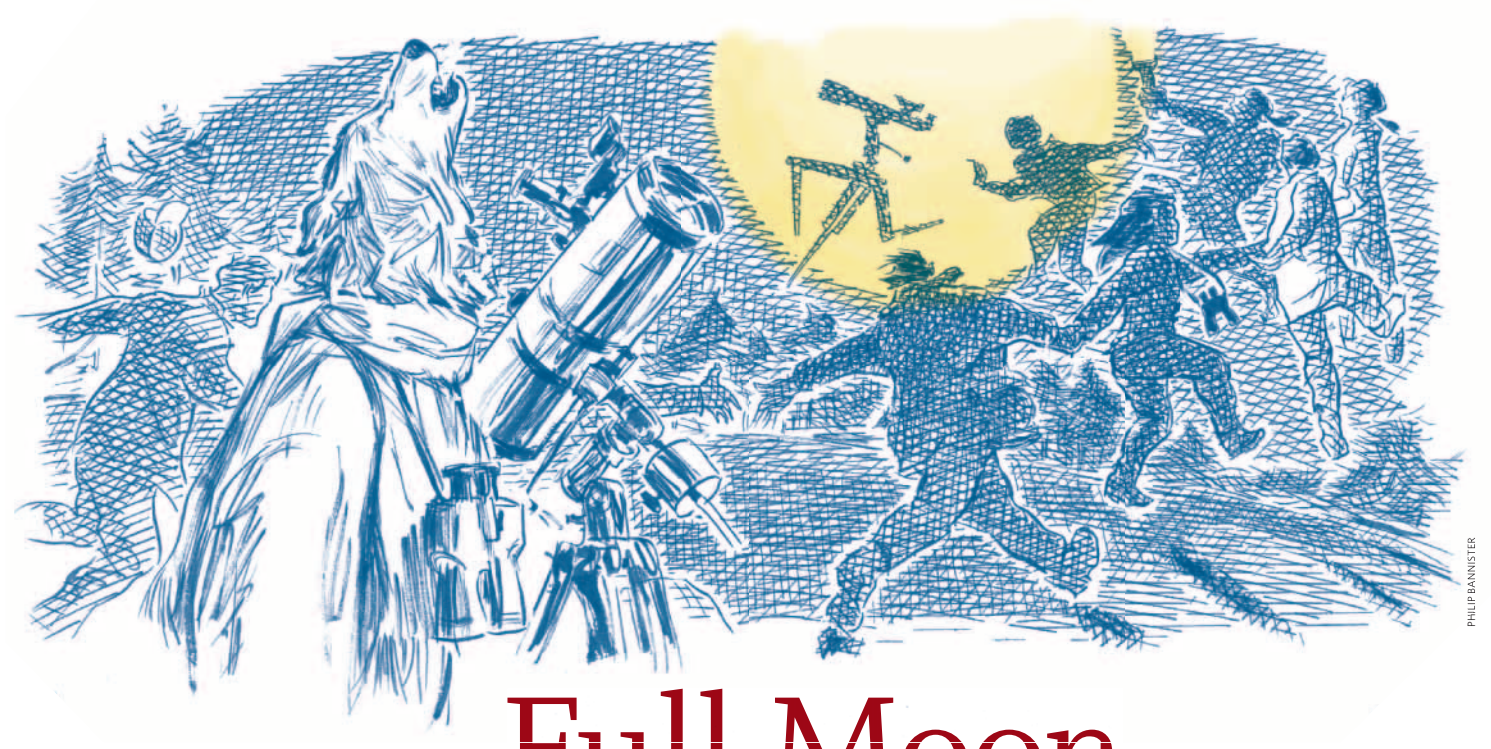


PHILIP BANNISTER

Full-Moon Madness

Not long ago my wife and I were at a local park chatting with friends. As we walked around, a clearing in the trees provided a stunning view of the rising Moon, red and quite full, just barely over the horizon. Instinctively, I pointed it out to our friends. "Look at that!" I exclaimed.

THE MOON'S GRAVITY IS STRONG ENOUGH TO RAISE TIDES IN OUR OCEANS. BUT DOES IT AFFECT HUMAN BEHAVIOR AS WELL?

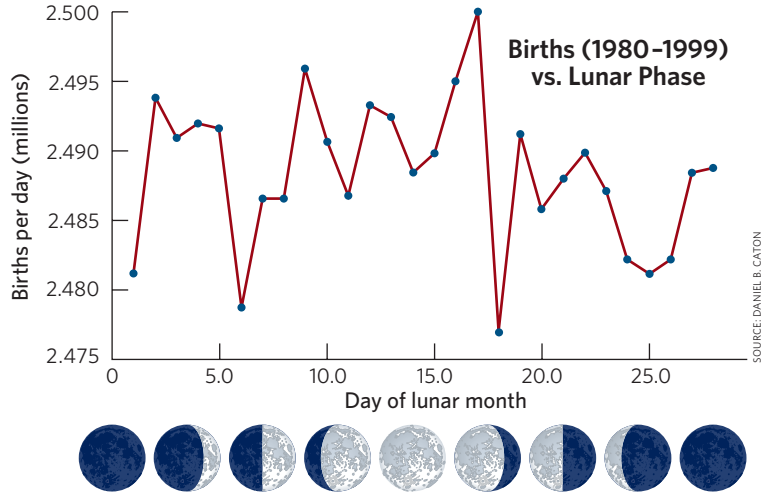
They made the requisite "oohs" and "aahs." But then one of them, a teacher, said, "Looks like we'll be getting trouble at school tomorrow!"

I was puzzled for a moment, and then I realized that he was talking about the idea that the full Moon makes people act crazy. My wife and I, skeptics both, immediately launched into a speech about how there's no evidence supporting a connection between the full Moon and weird behavior.

After we'd finished, the teacher's wife piped up: "I don't believe in that. Never have, either." I asked her why, and she replied that there was simply no reason it should happen, so it can't be right.

I was put in a funny situation. I think both my friends were wrong, though for different reasons. Here's why.

The notion that some people act strangely during a full Moon has been around for a long, long time. Tales of werewolves were recorded more than 1,000 years ago! But this belief seems to go beyond simple legend. It's not hard to find police officers, nurses, doctors, and even lawyers who'll say that they see a sharp rise in "incidents" — more violent attacks, more emergency-room visits, more births . . . you get the picture — when the Moon is full. They call it the "Full Moon Effect" or, more tongue-in-cheek, the "Transylvania Effect." These people — professionals in their fields — will all swear mightily that this connection is real.



READY OR NOT: A 20-year database of live births in the U.S., some 70 million in all, shows that babies have no favorite lunar phase when making their debut.

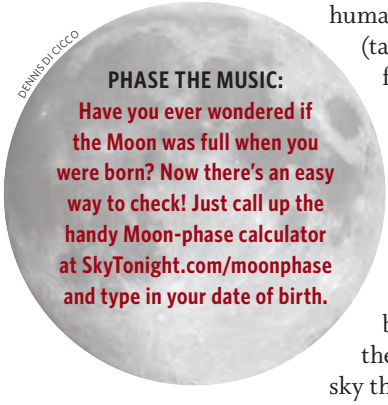
But it isn't. If it were, if some noticeable rise in murders, mischief, and mayhem really occurs, then statistics would back up the correlation. If you examine the daily count of accidents or births, you should see a bump corresponding to the time of the full Moon.

This is just the sort of thing psychologists like to study. A well-known legend that can be backed up — or discredited — by a case study is like, well, blood to vampires. They can't resist digging in.

Enter Ivan Kelly, a professor of educational psychology at the University of Saskatchewan. A man after my own heart, he has spent many years studying various aspects of bad astronomy, including astrology (and you can read how I feel about *that* it in the May/June 2005 issue of *Night Sky*). Kelly and his colleagues not only have conducted their own lunar-phase studies but have extensively reviewed more than 100 analyses done by others as well.

What effects did they look for? Traffic accidents, for one — and they found no correlation with *any* lunar phase, let alone with the full Moon. They also looked at murder rates; no effect. Suicides? Nope. Births? Deaths? Calls to crisis centers, admissions to mental hospitals, emergency calls, maritime disasters, general disasters, fluctuations in mood, nursing-home aberrations, incidence of major trauma, after-hours calls to physicians, behavioral outbursts from mentally challenged adults, discipline problems with middle-school students? Nothing, nada, zippo. They even reviewed fights at hockey games (yes, really) and likewise found no correlation.

Another study, by astronomer Daniel Caton at Appalachian State University, compared 70 million human births in the U.S. with lunar phase (talk about good statistics!), and he also found no correspondence. Similar work by Frederic Chambat turned up no pattern among 14.5 million European births.



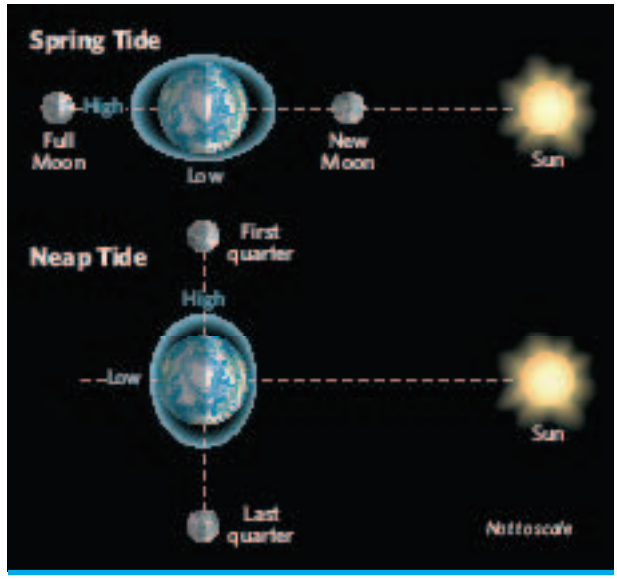
DENNIS DI CICCO

PHASE THE MUSIC:
Have you ever wondered if the Moon was full when you were born? Now there's an easy way to check! Just call up the handy Moon-phase calculator at SkyTonight.com/moonphase and type in your date of birth.

These results are very clear. *There is absolutely no correlation between the time of the full Moon and human behavior.* So why do people still believe it to be true? One reason is that the full Moon is just so obvious in the sky that even people not used to stargazing notice it. That is, they may preferentially notice the Moon only when it's full (or nearly so).

People also tend to link unrelated events if they happen at the same time — for example, if someone sees a bad traffic accident and then sees the full Moon, he'll correlate the two. But how many times have you seen something bad and *not* seen the full Moon in the sky (or vice versa)? We tend to forget those instances. As Kelly points out, what newspaper would print the story "The Moon was full but nothing happened"?

Another reason is that people frequently misunderstand how science works. I've seen claims that the full Moon has a strong influence on us because of tides — after all, we humans are 80% water, and look what lunar gravity can do with the oceans! But oceans have tides only because they're so big. Gravity gets weaker with distance,



NIGHT SKY ILLUSTRATION

TIDAL ATTRACTION: As Brutus comments in *Julius Caesar,* "There is a tide in the affairs of men." Maybe William Shakespeare understood human nature, but the tides that ebb and flow in our oceans are very complicated. They even baffled Isaac Newton — though at least he figured out that tides are highest when the Moon and Sun align in the sky and the effects of their gravity combine. This happens when the Moon is opposite the Sun in the sky, at full Moon, and also when both bodies are on the same side of Earth, at new Moon. Yet you never hear of the "New Moon Effect" — most likely because at such times the Moon is too near the Sun to see.

and it's that change in the strength of lunar gravity over the breadth of an ocean that causes tides (as described further above). Humans are a piddling six feet tall, give or take, which is tiny indeed compared to the distance to the Moon. So tides within a human body are far, far too small to even measure, let alone to affect our behavior.

And sometimes this spurious correlation gets widespread reinforcement due to the mass media's power of suggestion. In the 1993 World Series, Game 4 had so many crazy plays that a sportscaster remarked, "It must be a full Moon!" In fact, the phase was first quarter, but no one corrected him. So millions of baseball fans had the full-Moon misconception reinforced in their minds.

Which brings me back to my friends in the park. The teacher was wrong because the evidence doesn't back up his belief that the Moon affects us. But his wife was wrong too — she shouldn't have just dismissed his belief! When someone makes a claim, it's always best to look at the evidence for and against it. In this case, her conclusion was right, but for the wrong reason. She was a believer just as much as her husband was.

Finally, having said all this, I do have rock-solid evidence that the full Moon *does* affect certain people: astronomers! When moonlight floods the sky, observations of faint objects become a lot more difficult. I tend to go to bed early on those monthly holidays.◂

Phil Plait is prone to odd behavior — but it's probably just a phase. He's also an astronomer who manages the Bad Astronomy website at www.badastronomy.com.