

MEMBERS PRESENT

Chairman Sena
Vice Chairman Glover
Mr. FitzPatrick
Mrs. Hayes
Mr. Polish
Mr. Prengaman
Mr. Stewart
Mrs. Wagner
Mrs. Westall

OTHER LEGISLATORS PRESENT

Senator Jacobsen
Senator Neal
Mr. Getto
Mr. Chaney

GUESTS PRESENT

Jim Struenph, Nevada Highway Patrol
Barney Dehl, Nevada Highway Patrol
Richard Forman, W.P.C.
B. F. Smith, A.A.A.
John Borda, Dept. of Traffic Safety

Vice Chairman Glover chaired the meeting and stated that A.B. 477 would be the first item on the agenda.

Assembly Bill 477 - Limits use of electronic devices to measure vehicle speed for certain purposes and to certain areas.

Mr. Chaney said that this bill would restrict the use of radar in Nevada, but would still permit its use in cities and school zones. Mr. Chaney stated that many people have been unjustly arrested for speeding because of radar equipment and this has caused insurance rates to rise. It was his opinion that radar equipment is subject to a multitude of problems which can make it inaccurate. Mr. Chaney described other aspects of radar equipment which made it unreliable.

Senate Bill 30 - Prohibits use of electronic devices to measure vehicle speed for certain purposes.

Senator Neal appeared in support of this bill. A copy of Senator Neal's statement to the committee is attached as Exhibit A.



Senator Neal also submitted various newspaper and magazine articles in support of S.B. 30, copies of which are attached as Exhibit B.

A film from a television program in Denver, Colorado, was shown which depicted tests of radar equipment in that state and the inaccurate and unreliable results obtained from use of the "Speedgun".

Senator Neal also expressed the opinion that Vascar equipment was inaccurate and said that the aim of S.B. 30 was to get the police officers patrolling the streets. It was also his understanding that the Highway Patrol and most police departments do have a quota system for writing speeding tickets as a method of checking the performance of officers.

Mr. Glover asked what Senator Neal was suggesting as a method of enforcement if electronic devices were prohibited. Senator Neal again suggested the officer patrolling and using his judgment in clocking violators. Mrs. Wagner questioned how exempting school zones could be justified in light of all the inaccuracies claimed against radar equipment. Senator Neal said his original bill did not contain this provision and this was an amendment suggested by others. Mr. Prengaman asked if the individuals who were operating the guns in the film had the same training as police officers. Senator Neal did not feel this was of great consequence and said there were two engineers present who had studied the guns.

Senator Jacobsen appeared in opposition to A.B. 477 and S.B. 30. He said there are presently 199 units in use in the State of Nevada for a total cost of \$207,000. These units range from new to 9 years old. There is a request for 10 more units at this time. There are also 75 Vascar units in operation and they cost approximately \$1,200 each.

Senator Jacobsen told of his experiences riding with a patrolman and learning about Speedgun operations which made him a firm believer in the value of radar equipment. Senator Jacobsen spoke of the extended training given to officers in the use of radar equipment, the number of automobiles that could be checked, the continued service checks of the equipment and the reliability resulting therefrom. Senator Jacobsen particularly objected to the provision in Section 1 of S.B. 30 which prohibits securing evidence for a prosecution of a violation in a school zone with radar equipment. He also said there are approximately 57,000 tickets written per year on radar and at an average of \$10 per ticket that is \$570,000 a year for the permanent school fund.

Mr. Barney Dehl, Chief of the Nevada Highway Patrol, appeared in opposition to A.B. 477 and S.B. 30. Mr. Dehl commented that the only claims presented that radar is inaccurate were two magazine articles and a television tape and that no expert witnesses or other proof was offered. Out of the 57,000 tickets written last year as a result of radar, the Highway Patrol received one complaint. It was later found that the complainant's speedometer was not accurate. Mr. Dehl said that radar does not put out sufficient microwave beams to cause any damage to a person. Mr. Dehl also explained that certain units had been returned to the factory for failure, not for inaccuracy. He further said that the units shown in the film were Speedgun I's and this unit is not used in Nevada.

Mr. Dehl explained in detail the many checks made on radar equipment to determine that it is accurate. The Federal Government is presently trying to set up standards for radar units in order that inferior equipment is not on the market. He also stated that training of the officer was of prime importance, and explained the recertification tests given in this regard.

In regard to quotas, Mr. Dehl said that the Highway Patrol operates on what is called a "enforcement index and selective enforcement". Enforcement index operates on the assumption that if you write tickets for violations causing the accidents, you will reduce accidents. If an officer can find ways to reduce accidents to zero he does not have to write any tickets. Selective enforcement is finding out where accidents are happening and writing tickets for those violations that cause the accidents.

Vincent Swinney, Washoe County Sheriff's Department, agreed with Mr. Dehl's statements and urged the committee not to prohibit the use of radar but rather to legislate standards for equipment and training. He said that radar was a tool which the police and citizens needed in enforcement of the law.

Mr. Barton Jacka, Director, Department of Motor Vehicles, said that the Las Vegas Metropolitan Police Department was unable to be present at this hearing but had asked him to advise the committee it was specifically and vehemently opposed to both A.B. 447 and S.B. 30.

Mr. Jacka expressed deep concern that the legislature would consider taking away effective tools used by the police in pursuing their duty. He felt the film shown was strictly propoganda. He suggested that if electronic equipment used to control speed and slaughter on the highways is to be taken

away, legislation to take away mace, nightsticks and guns from police could also be initiated. All of the devices are necessary to enforcement officers and should be used with the proper training. Mr. Jacka also stated that the Highway Patrol and police departments do not have a quota system but use performance standards.

There being no further testimony to come before the committee, the meeting was adjourned.

Respectfully submitted,

Jane Dunne
Assembly Attache

Statement by Senator Joe Neal on S.B. 30

SENATE BILL 30, AS PASSED BY THE SENATE, PROHIBITS THE USE OF POLICE RADAR UNITS, OR AS COINED BY OUR BILL DRAFTER --- ELECTRONIC DEVICES, EXCEPT IN SCHOOL ZONES OR DESIGNATED SPEED ZONES IN CITIES AND UNINCORPORATED TOWNS. THE BILL ALSO PROVIDES THAT EVIDENCE OF THE SPEED OF A VEHICLE OBTAINED FROM THE USE OF ANY ELECTRONIC DEVICE MAY NOT BE ADMITTED IN ANY COURT IN THIS STATE.

I DON'T THINK IT IS NECESSARY TO SPEND A GREAT AMOUNT OF TIME DESCRIBING SENATE BILL 30. ITS PROVISIONS ARE CLEAR. IT HAS BEEN GIVEN MUCH COVERAGE BY THE NEWS MEDIA AND HAS BEEN THE TOPIC OF NUMEROUS DISCUSSIONS IN THE HALLS OF THIS LEGISLATURE.

I THINK WHAT IS NEEDED IS A CLARIFICATION OF THE INTENT OR MOTIVE BEHIND THE BILL.

I AM NOT FOR REMOVAL OF MANDATORY SPEED LIMITS.

I AM NOT AGAINST FUEL CONSERVATION, WHICH THE FOLKS IN WASHINGTON TELL US IS SO URGENTLY NEEDED.

I AM NOT AGAINST HIGHWAY SAFETY.

AND, I AM NOT FOR SEEING NEVADA TURNED INTO A DRAG STRIP.

LET ME TELL YOU HOW THE BILL STARTED.

EARLY LAST SUMMER I BECAME AWARE OF THE MICROWAVE EMISSIONS GIVEN OFF BY POLICE RADAR UNITS. AS SOME OF YOU MAY KNOW, THERE HAS BEEN CONCERN EXPRESSED THAT REPEATED EXPOSURE TO MICROWAVE RADIATION MAY CAUSE A VARIETY OF HEALTH RELATED PROBLEMS ON PARTICULAR ORGANS, SUCH AS THE EYE. THERE HAVE BEEN NAVY STUDIES ON THE SUBJECT, BOOKS, SUCH AS THE ZAPPING OF AMERICA, HAVE BEEN PUBLISHED AND MANY SCIENTISTS HAVE STUDIED THE MATTER.

I FOUND THAT MOST POLICE RADAR UNITS PROBABLY MEET U.S. MICROWAVE EMISSION STANDARDS. I ALSO FOUND, HOWEVER, THAT CERTAIN SCIENTISTS WHO HAVE STUDIED MICROWAVE RADIATION BELIEVE THAT OUR STANDARDS MAY PERMIT TOO MUCH EXPOSURE.

RUSSIAN AND EAST EUROPEAN MICROWAVE EMISSION STANDARDS ARE MUCH MORE STRINGENT THAN OURS. SOVIET STUDIES OF OCCUPATIONAL WORKERS EXPOSED TO MICROWAVE POWER DENSITIES GENERALLY WELL BELOW OUR STANDARD (10 mW/cm²) REPORT VARIOUS FUNCTIONAL CHANGES IN THE NERVOUS, CARDIOVASCULAR AND BLOOD SYSTEMS. IN FACT, "MICROWAVE OR RADIO WAVE SICKNESS" HAS BEEN ISOLATED AS A DISTINCT CLINICAL ENTITY IN THE SOVIET UNION. CLINICAL RESPONSES USUALLY ARE REPORTED AFTER CHRONIC (APPROXIMATELY THREE TO SIX YEARS) EXPOSURE TO VERY LOW LEVELS OF MICROWAVE EMISSIONS.

ALL THE EVIDENCE ON MICROWAVE RADIATION IS NOT IN. I AM CONCERNED ABOUT THE ADVERSE HEALTH EFFECTS THAT MICROWAVE RADIATION FROM POLICE RADAR UNITS MIGHT HAVE ON THE GENERAL PUBLIC AND THE POLICE OFFICERS WHO ARE EXPOSED TO THE UNITS ALL DAY --- DAY AFTER DAY.

THIS CONCERN, THEN, WAS MY INITIAL MOTIVE FOR S.B. 30.

MY SECOND MOTIVE STEMS FROM THE STRONG SENSE OF JUSTICE WE HAVE IN THIS COUNTRY. TO BE CONVICTED OF A CRIME, A PERSON MUST BE FOUND GUILTY BEYOND A REASONABLE DOUBT. THAT IS AS IT SHOULD BE.

POLICE RADAR IS A DEVICE USED TO CONVICT PEOPLE WITH CERTAINTY. "THE RADAR SAID YOU WERE SPEEDING - YOU ARE GUILTY."

AS YOU WILL SOON SEE, THAT MAY NOT BE THE CASE. POLICE RADAR IS FALLIBLE AND VERY SUSCEPTIBLE TO ERROR CAUSED BY VARIOUS KINDS OF ENVIRONMENTAL INTERFERENCE AND OPERATOR MISUSE.

I THINK THERE IS TOO MUCH POTENTIAL FOR INACCURACY IN POLICE RADAR FOR IT TO BE USED AS A TOOL TO CONVICT PEOPLE WITH CERTAINTY AND FINALITY. THERE IS MORE THAN A REASONABLE DOUBT THAT POLICE RADAR MIGHT BE WRONG.

MARSHALL TREADO, WITH THE LAW ENFORCEMENT STANDARDS LABORATORY OF THE NATIONAL BUREAU OF STANDARDS, ADVISES THAT MANY THINGS IN A

4.

POLICE CAR, SUCH AS THE ALTERNATOR, AIR CONDITIONER, HEATER, TRANSMISSION, OR TWO-WAY RADIO, CAN CAUSE FALSE READINGS TO OCCUR ON THE RADAR UNIT'S SCREEN.

DID YOU KNOW THAT IF A POLICE OFFICER WHISTLES INTO HIS TWO-WAY RADIO HE CAN CAUSE A READING OF UP TO 100 MILES PER HOUR TO APPEAR ON THE RADAR UNIT? MERCURY LIGHTING, CB RADIOS AND HIGH VOLTAGE POWER LINES CAN ALSO CAUSE FALSE READINGS.

DOES ALL THIS INDICATE THAT RADAR IS ACCURATE BEYOND A REASONABLE DOUBT?

I DON'T THINK SO!

I COULD GO ON AND ON, BUT YOU ARE ABOUT TO SEE VIDEO TAPES WHICH I THINK WILL CONVINCEN YOU OF MY POINT.

THERE IS A REASONABLE DOUBT!

ONE FINAL POINT. SOME OF YOU MIGHT HAVE SEEN THE NEWSPAPER ARTICLE IN THE MARCH 19, 1979, RENO EVENING GAZETTE ABOUT THE PROBLEMS OUR HIGHWAY PATROL IS HAVING WITH ITS KUSTOM HR-12 UNITS. THERE HAVE BEEN PROBLEMS WITH THE UNITS OVERHEATING. THERE HAVE BEEN PROBLEMS WITH SHORT RANGE OF USE. ONE HUNDRED TWENTY ONE UNITS HAVE BEEN RETURNED TO THE MANUFACTURER.

EXHIBIT A

5.

SHOULD POLICE RADAR, WHICH IS SUSCEPTIBLE TO SUCH PROBLEMS, BE USED TO CONVICT PEOPLE IN NEVADA WITH SUCH CERTAINTY?

I DON'T THINK SO.

I BELIEVE THERE IS A REASONABLE DOUBT THAT POLICE RADAR, ON ANY GIVEN DAY AND AT ANY GIVEN TIME MAY SHOW AN INACCURATE READING.

I BELIEVE YOU SHOULD CONSIDER SENATE BILL 30 VERY SERIOUSLY AND VERY CAREFULLY.

EXHIBIT A

Exhibit B

Faster than a speeding tree!

MIAMI (AP) — Motorists caught speeding by radar-type devices used by the Florida Highway Patrol and other police in Dade County had their trials postponed Wednesday after judges were shown a film in which a tree was clocked at 86 mph.

In another example shown to Judge Alfred Nesbitt and other county judges, a house was clocked at 28 mph.

The films were made by reporters for Miami television station WTJV, which is broadcasting a series on potential problems, including the accuracy, of the radar-type speed detection devices.

"Acting in my capacity as administrative judge, I have ordered that radar ticket cases be postponed until both sides have an opportunity to present evidence in court," Nesbitt said.

He said a test case would be selected soon in which defense attorneys and representatives of the Highway Patrol or other police agencies would be called to testify about the accuracy of the devices.

It could not immediately be determined what kind of devices were used in the television demonstration.

The order applied only to Dade County — Florida's most populous — but Nesbitt said he wouldn't be surprised if judges in other counties took similar action.

Bob Mayer, a reporter for WTVJ, said the series showed that the most common devices used by the Highway Patrol could be adversely affected by radio

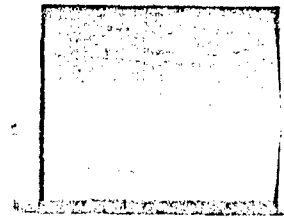
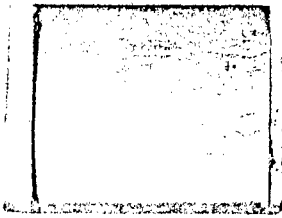
transmissions from Citizens' Band radios and other devices.

Florida Highway Patrol Director Eldrige Beach said in Tallahassee that he wanted any questions about the devices' accuracy resolved, but he was confident that no serious problem existed.

"There's some doubt in their (judges') minds, but there's no doubt in our minds," Beach said. "We're going to continue using the radar."

Asked what the effect could be on cases in which motorists caught by radar were recently convicted, Nesbitt said, "They could petition for a rehearing and those petitions would be heard at the same time as the new ones will be."

R.V. Feb 22, 1979



Utah North DESERET NEWS, MONDAY, MARCH 19, 1979

Professor questions accuracy of radar used by traffic police

By Christopher Hicks
Deseret News staff writer

How reliable is that radar system used by traffic law enforcers when they clock your car as traveling over the speed limit?

If the temperature is moderate and the motor of the patrol car has defrosted, if it is not a high-frequency engine and if no power line surges occur in the vicinity — the radar reading might be correct.

But radar equipment used by traffic enforcement officials is generally inconsistent and imprecise, therefore unreliable, according to an [redacted] chemistry professor.

Dr. R. Dean Hill, on sabbatical leave in Salt Lake City from Rose-Hulman Institute of Technology in Terre Haute, has offered enough doubt about the radar systems used in law enforcement that a Salt Lake City judge ordered him to present his evidence to the police department — and possibly the City Commission.

Hill appeared in 5th Circuit Judge Melvin Morris' traffic court to offer expert testimony in a speeding case and so entranced the judge with his story that they discussed the matter at length in the courtroom.

Hill appeared on behalf of a neighbor who

had received a speeding citation. "We didn't go in to beat the ticket," Hill said. "I'm not for speeding; I'm not against law enforcement. . . . but I saw a chance to hit on this blind faith we have in radar.

"None of us wants to attack the law, but when the method of enforcing a law becomes sacred, one should make sure the bases for that belief are sound."

Morris said he has always been a firm believer in radar. "Unless the individual radar unit proves to be defective, I've always [redacted] works almost as well as a ther- [redacted] er," the judge said. "His (Hill's)

testimony really surprised me. It was so full of revelations that I feel I really became educated."

Morris said he is not taking the evidence presented by Hill at face value but intends to research the matter in depth — including verification of Hill's credentials, "though everything seemed to be in order."

But he said Hill's story struck him as possible because "he attacks radar as a whole. I've had lots of cases where individual radar units were proved to have been improperly calibrated — or not calibrated at all — but his probabilities of harmonic disturbances and so forth may have some merit."

If they do, it may change legal thinking about radar, he said. "Maybe we will have to come up with a more reliable system," the judge said.

Hill said his background is physics and chemistry and he has done a great deal of research in microwave technology. He said he became interested in radar a year ago.

Doubts cast on radar accuracy

Continued from B-1

He said he concluded that if a competent scientist had the same equipment and conclusions as those reached by most police, sheriff and highway patrol officers, "he'd be laughed at."

Basically the system, whether handheld or installed in the patrol car, "is just a crude instrument," Hill said.

The average handheld unit costs about \$1,100, Hill said. "In order to look at the kind of accuracy the general public believes exists — the kind used in aircraft control towers — it would just cost too much."

The law enforcement units measure time and distance, just as aircraft radar does, but the difference in price runs into "tens of thousands of dollars," according to the professor.

He said radar was once attacked in a New Jersey court, some 25 years ago when it first began being used, but the case was ruled in favor of radar.

"Ever since then, for 20 or 25 years, radar has had practically an unblemished record in this country," he said.

But a year ago a physicist in New Mexico went to court over a radar traffic case and beat it.

"That was when I really began thinking about how it works and I intensified my research of the electronics." He found that a company called Custom Speeds in Kansas is the sole market for handheld radar guns, which are calibrated with an external tuning fork.

"The problem is that it's an internal set," Hill said. "They make it to read the tuning fork reading."

Once it is plugged into the cigarette lighter of a patrol car it becomes a subject of the engine. "There is not constant voltage supply," he said. "The charge is not constant. The reading might be right and it might not."

He said the radar beam travels at 186,000 miles per second, the speed of light. The electronic system has to take the light beam and translate it into a difference of miles per hour — "but the difference is so great that the uncertainty is also great."

"In science, precision is repeatability. The beam has to be close to the yardstick, but the speed of light and miles per hour are just too far from each other."

Hill theorized that no one has really questioned radar before because, "until you are actually involved, what do you care if the guy down the block gets a ticket?"

The case against Hill's neighbor was dismissed, with the provision that Hill present his case to the Salt Lake Police Department — and if nothing happens there, the Salt Lake City Commission.

He's a little concerned now, however, that he might not be as scientifically removed from his presentation as he was originally. The day after his testimony before Morris, Hill's daughter was cited by an officer for speeding — a radar ticket.

"I'll probably just go ahead with it," Hill said. "After all, we're just fighting over \$14 here."

The Dubious Witness

Maybe radar doesn't lie, but it sure misunderstands the question a lot.

• Radar tickets have always been the hardest kind to beat. Everybody—the judge, the jury, and even you, the defendant—knows that science doesn't lie. If the radar says you were speeding, you were speeding. Boy. Bailiff, call the next case.

But wait a minute. How come radar critics are willing to put their right hands on the book and swear that up to 30 percent of radar busts are bogus? If that's true, then radar hardly meets the court's requirement of "proof beyond a reasonable doubt."

How can science be wrong 30 percent of the time? Well, it isn't. First, we have to separate out the deliberately falsified readings conjured up by malicious cops. Nobody knows how many of these happen every day, but the percentage of crooked policemen has to run about the same as the percentage of bad folks in the general population. Maybe a bit higher: this sort of kick-ass job just naturally tends to draw the meanies. And when one decides to get you, there's not much you can do about it.

For that reason, let's forget about dishonest cops. A far more common situation is a straight-arrow patrolman, just trying to get through the day like everybody else, who believes his scientific device when he shouldn't. This is not to say that radar lies. It doesn't. It's always measuring something. It just might not be measuring what the patrolman thinks it is.

Channel 9 News in Denver, Colorado, did a series of reports on its experimentation with a hand-held radar sold under the name of Speed Gun. A reporter sat in the front seat of a car aiming it out the windshield, just as a patrolman might to monitor an oncoming car. If he let the barrel drop much below horizontal, the speed dis-

play would produce a reading even if there was no approaching vehicle in range. The radar was picking up the defroster fan. This same situation has been reported by users of Kustom Signals' hand-held HR8.

The Denver news team also demonstrated a quick-draw approach that might be used to foil radar detectors. The reporter was again in the front seat, this time with the gun aimed down toward the floor. When he pulled it up and squeezed the trigger to lock onto a car approaching at a known speed, the radar produced a higher reading. It had picked up vibrations from the transmission tunnel.

Radar can also be influenced by electrical radiation from neon signs, two-way radios, and the like. The Denver news team was able to produce readings as high as 84 mph simply by aiming the radar out the window of a car equipped with a police radio and then keying the mike. Even low-powered CBs have been known to affect radar readings. This is really a matter of poor—you might say cheap—design. The circuitry of many radar units does not have enough filtering to control RF interference.

It's even possible that the audible whistles and squeaks that are a normal part of police radio communication could show up on radar to the disadvantage of a motorist. This is because radar responds to sound vibrations. In fact, this is the way every police radar is calibrated at the start and finish of every shift. The operator strikes a tuning fork and holds it directly in front of the antenna. If everything is right, the speed reading associated with the tuning fork's natural frequency shows up on the display. Given this sort of response, what is to stop some shrill police-radio squeak from show-

ing up as an extralegal speed just when you happen to drive by?

Still, probably the most common source of radar error has nothing to do with these unseen and unanticipated forces. The patrolman simply nails the wrong car. Once again the law shows its ignorance of physics by specifying that the car closest to the transmitter at the time of reading is the offender, plain and simple. In many cases this is true. But not always, certainly not with enough certainty to produce proof beyond a reasonable doubt. Police radar, by the very nature of the principle upon which it operates, has no idea what it's reading. It's totally blind. It does not, as the law assumes, always pick out the front car any more than it, as some people assume, picks out the fastest car. It merely locks onto the strongest reflected signal. That could be a big car traveling behind a small car or perhaps a semi approaching from a quarter-mile or more behind both of them. Given enough time, a skilled operator will usually be able to distinguish between these vehicles by watching what happens to the readings as each vehicle passes the transmitter. If the display remains constant as the front car goes by, he can be pretty sure the radar was reading something behind. But if he locks up the reading as the leader approaches, which is the usual method, he'll never know for sure what he's got if there are other vehicles of dissimilar sizes and shapes within range. This mistake can very easily be made when bushwhacking with the KR11. The operator pushes a button, activating an automatic locking system. Then when a vehicle he intends to shoot comes within range, he releases the "hold"

Continued

button, and as soon as the device can read the speed—about two seconds, give or take a little—it will be locked in with no further verification. *Whose* speed is left to the operator's guess. And in some cases, "guess" is certainly the right term for it.

The greatest danger of radar is that the equipment's response seems so simple; when in fact it's incredibly esoteric. An example of this is a fairly commonly understood detail of speed-radar use known as *cosine error*. This error arises from the fact that radar only measures the rate at which a target approaches the transmitter. This may be true speed or it may not, depending upon the path of the target. If the target is heading on a collision course for the transmitter, the speed should be perfectly accurate. But if the path is angled with respect to the microwave beam, the radar will read a slower speed (mathematically equal to the true speed multiplied by the cosine of the angle). The bigger the angle, the slower the speed, to the point that if Smokey stands perpendicular to the road and pans his radar with passing traffic, there will be no speed reading at all, because the target does not approach or depart from the transmitter.

Usually cosine error is Smokey's problem, because it shows traffic traveling slower than true speed. But few people understand that this is not always the case. Moving radar essentially picks up two radar signals, one for the closing speed of the approaching car and one for the speed of the patrol car. It then subtracts the second from the first to obtain the actual speed of the target. But it's possible for cosine error to read the patrol car at a speed slower than it's really going. This can happen in a lot of ways; one example would be a relatively featureless road with a big truck parked off to the side. The truck would then dominate the ground-speed reflection, but because it's well off the path, the speed of the patrol car would be diminished by cosine error. Say you were going 55 and the patrol car was going 50, for a closing speed of 105 mph, but the radar read the patrol car at 40. It then nails you for 65. You'll never be able to prove you weren't going that fast.

In gathering information for this piece, I talked to the president of one radar-detector company, who recalled one of his first experiences with radar. He was shooting a hand-held gun out the back window of a Porsche 914 and discovered that nudging the gas pedal made the readings change. The radar was picking up the engine's cooling fan. Now, after several years of watching radar and the police in action, he says, "It's funny and depressing at the same time, you know: funny because now I know what they're doing and depressing because they keep doing it anyway." P.B.