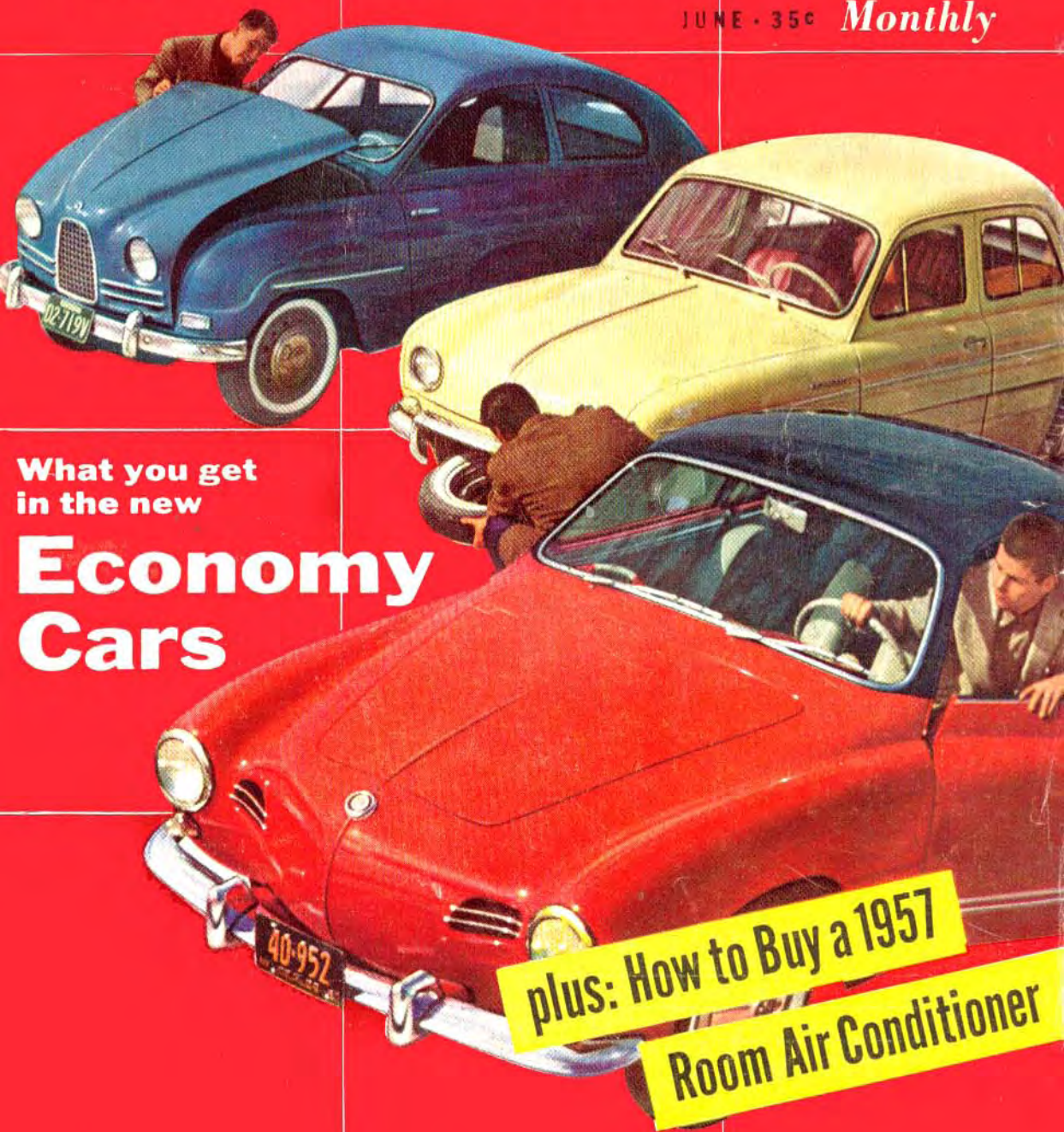


POPULAR SCIENCE

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"It's all part of George



Macabee's plan to get me fired," Tommy cried.

Gus Rescues a Rival Mechanic

By Martin Bunn

WHEN Tommy Brown came into the Model Garage, Gus Wilson noted that his normally pleasant expression was missing.

"Mr. Wilson," he said, "I've half a mind to punch George Macabee in the nose."

Gus could hardly keep from smiling. This thin-shouldered lad of 18 threatening to wallop burly George Macabee?

"Now why would you want to do that, Tommy?" Gus asked.

"For some reason," Tommy said, "George Macabee is trying to get me fired from my job at the creamery. You know I got promoted from maintenance helper for Mike Pagett on the day shift, to light repair of the creamery's rolling stock at night. Every evening drivers list on a complaint sheet what's wrong with their cars and trucks. I fix them during the night. I was doing all right until George Macabee started putting down the same squawk every night about his salesman's car. There's nothing wrong with it."

"That doesn't sound like a thing that George Macabee would do, Tommy," Gus said reflectively.

GUS had a strong hunch that things were not as Tommy thought. But to scoff at his convictions might turn the youngster away from adult influence when he needed it most. Tommy's father was dead, and he often came to Gus for advice.

Gus put a hand on Tommy's shoulder. "Sounds like a pretty low trick," he said. "What does he claim is wrong with his car?"

"Nothing serious," Tommy said. "He's too smart for that. If it was serious, the car would be laid up and sent into the day-shift garage for major repairs, since I'm only supposed to handle minor ones. He just claims it backfires, loses power and misses every now and then. I've checked it all over and there's nothing wrong with it. If Macabee keeps complaining, first thing you know I'll get fired."

Gus asked, "Then why not get Pagett to send the car to the garage so your regular mechanics can look it over?"

"That's just what Macabee wants," Tommy cried. "It's all part of his plan to get me fired! The mechanics wouldn't find anything wrong. But after they finished tinkering, Macabee would claim that it ran all right and that they'd fixed something I'd overlooked. I'd be in Dutch for sure."

"I see," Gus said. "Well, if George Macabee thinks he can get away with anything like this, he's mistaken. Late tonight I'll come down to the creamery and we'll go over that car together, Tommy. Then if Macabee tries to keep up this farce, we'll call him."

Tommy's eyes sparkled. "I knew you could do something about



RAY QUIGLEY



"You know, George," Gus said thoughtfully, "I don't think I should fix it at all."

it. Boy, will Macabee back off when you ask him what he's trying to pull! We'll teach him a lesson."

"Maybe so, Tommy," Gus said soberly. "And lessons never hurt anyone."

ACTUALLY, knowing George Macabee well, Gus was sure that he wouldn't engage in the tactics Tommy suggested. During the day, Gus managed to reach the creamery salesman by telephone.

"George," he said over the line, careful not to violate Tommy's confidence, "I've heard a rumor—about something wrong with your car that has Tommy, down at the creamery, worried a bit. I wouldn't want the kid to think that I was nosing into his business, but could you drop around and let me take a look at the car?"

"Sure thing, Gus," Macabee said. "To tell you the truth, I was starting to worry about getting the kid in bad."

When Macabee drove into the Model Garage that afternoon, Gus found, as Tommy had said, that the car was purring nicely. Still, somewhere, Gus was sure, was some kind of off-on trouble that Tommy must have overlooked. But after an hour's work on the car and a test drive, Gus found nothing. All he could hang on to was his conviction that Macabee wasn't just out to get Tommy fired.

This car was sweet. Its compression was on the nose, which meant sound rings and valves. Ignition points were new, perfectly gapped and aligned. The spark was fat and perfectly timed, coil and

condenser meeting all tests. The carburetor was clean, float level right. There were no blown gaskets; no loose or corroded wiring connections; no oil-soaked, frayed or broken wires or battery cables. A voltmeter showed no abnormal resistance on the line.

GUS backed to the bench at last, ran his hands through his graying hair. "And still you say that this car backfires, misses and loses power, George?" he said.

"That's right," Macabee declared. "And then suddenly it runs okay. It happens three or four times a day."

"Sounds like it's jumping out of time," Gus said thoughtfully. "Which would mean badly worn timing gears at the lower end of the distributor shaft. What gets me is that I've never seen a set of gears worn so that they could jump out of time and back again at will."

Gus decided to take a look at those gears. He pulled the distributor and its base, then the short distributor drive shaft that ran down through the engine block to the gear at the camshaft. This distributor shaft was equipped with female drive slots at each end, which received male driving wedges at the distributor and the gear. The upper female drive unit was enclosed in a round, revolving bushing that rode the engine head.

Gus stared at the bushing a moment, then peered at the head. "Here's your culprit," he told George Macabee, pointing to a small depression in the head, evidently cut by the bushing. This had permitted the shaft to drop away a bit from the distributor, just enough so the drive slot on its upper end could disengage at times from the male wedge of the distributor.

GUS proved this by reassembling the parts. He found that with a bit of finger pressure he could turn the distributor rotor all the way around. The distributor shaft had apparently been manufactured a bit too short.

"I can see why the car acts up," Macabee said. "But I can't see how it manages to jump back into time again."

Gus kept turning the rotor, and presently there was a clicking sound.

Gus grinned. "Here's your answer," he told Macabee, who leaned over Gus's shoulder as Gus spoke.

me, Sullivan," he ordered. "I'll have no conniving between you two."

Gus drove slowly through traffic. At the first stop he signaled with his hand, but his eyes moved to the ammeter. From the rear, Sullivan noticed this and a puzzled expression came into his eyes. Gus drove out to a country road at the edge of town, speeded up, began to apply the brakes intermittently.

"Is this necessary when testing stop lights, Wilson?" Smith demanded. "Anyway, you can't see them from where you sit."

"I can tell if they go on by watching the ammeter," Gus explained. "I'm testing the brakes now."

"Brakes!" Smith rose in his seat like a hooked salmon. "You said the brakes were all right, Wilson."

"I said that they seemed to be all right," Gus reminded him. "Now my theory is that—*whoops!*"

AS GUS hit the brake pedal it plunked suddenly to the floor without effect. The big car careened on without hindrance. Gus brought it to a stop with the emergency brake, leaped out to wriggle beneath it. He came out immediately, shaking one hand with a pained expression.

"What's the matter with you now, Wilson?" Smith demanded.

"Burned my hand a bit," Gus said. "I found that stop-light switch a bit warm when I checked it in the garage, but it sure is sizzling now. No wonder your brakes failed, Sullivan."

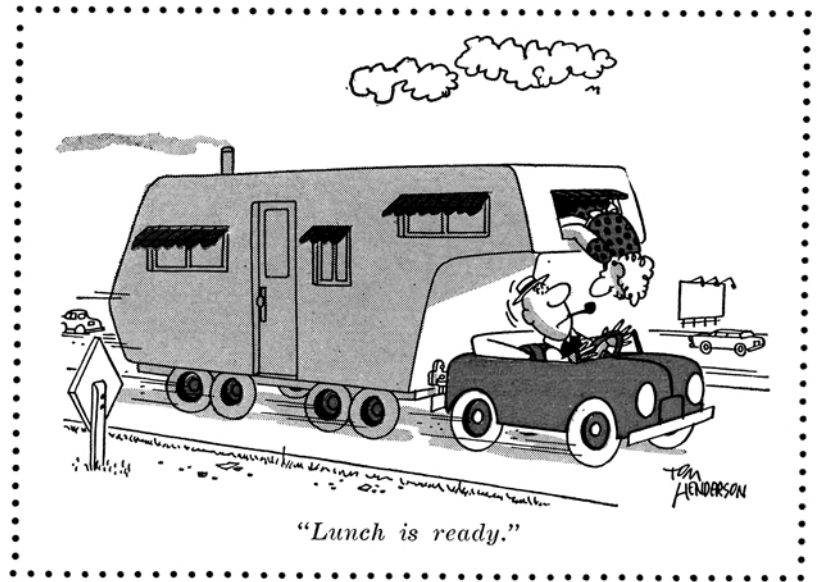
"What has a stop-light switch to do with my brakes?" Smith asked sarcastically.

"Plenty, in this case," Gus explained. "This stop-light switch is located on the end of the master brake cylinder, and is operated by hydraulic fluid pressure. It's shorted out. When Sullivan drove in heavy traffic, using his brakes often, the shorted switch got so hot that it caused

the fluid to boil. Boiling fluid will create gas in the brake lines, which has the same effect as air in the lines, bringing about brake failure.

"When I found the switch warm in the shop and then saw that the stop lights weren't burning, even though the bulbs were sound, I figured a dead-shortened switch. Some inferior grades of brake fluid have low boiling points—in fact, some states have passed laws setting up minimum specifications for the fluid. I'd better check and see what kind of brake fluid Sullivan has been using."

"But you said that the brakes were



working when you tested them in the street," Smith said.

"Brake-fluid gas will condense again as it cools," Gus said, "and the brakes will work normally again. I didn't check your brakes, Mr. Smith, until quite some time after the accident occurred. I'll install a new stop-light switch to correct your trouble. Now about Tony Coskey's tail light. I'm sure—"

"Mr. Wilson," Smith interrupted, and for the first time since Gus had known the testy old codger, there was a twinkle of humor in his eyes. "What a pity you're not a lawyer. I could have used you in one of my corporations. What a beating I'd give Hastings and Company in that lawsuit—er, of course, I'll repair Mr. Coskey's car. Now, since I'm a very busy man, shall we get along?"

END
Next Month: Gus goes to the county fair