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# Popular Science

THE *What's New* MAGAZINE

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WITH BUILT-IN BRAINS  
They Do Everything  
—Even Tell Time**

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That Really Cleans Up  
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"Stop it!" Gus Wilson bellowed. "Stop it and get up—both of you!"

# Gus Turns Up For Christmas

... just in time to teach a pair of feuding mechanics a lesson in business ethics—and auto repair

By MARTIN BUNN ILLUSTRATION BY RAY QUIGLEY

Tossing up a shower of slush, the truck/camper rolled to a stop at the Model Garage. Stan Hicks started to ask, "Fill it up, sir?" Then he glanced at the driver. "Gus, you're back!" he exploded—and nearly wrenched the truck's door handle off its mount. "Why didn't you tell me you'd be home for Christmas?"

"And miss the expression on your face?" Gus asked, as they shook hands. "Not a chance!" He twisted out of the driver's seat. "Besides, I'm only passing through. Tomorrow Doc Wilder and I are heading South."

Gus clapped an arm around Stan's shoulder as they walked toward the office. "Let's have some lunch, and I'll tell you all about my grand tour of the U.S. Do you know, I managed to go fishing in just about every state in the union?"

"Well, I sort of guessed that, from the stack of postcards of lakes and

streams you sent me," replied Stan. "And you always said that you'd hate to retire!"

"When I really do retire," said Gus with a wink, "you'll be the first to know. Anyway, now that I'm a founder I probably have all sorts of new responsibilities."

"Huh?" said Stan blankly.

"Read what it says," said Gus, and he pointed to a freshly painted sign over the office door.

## THE ORIGINAL MODEL GARAGE

*Gus Wilson, Founder  
Stan Hicks, Proprietor  
Known for a Generation of  
Mechanical Skill & Integrity*

Stan hesitated. "Oh, that . . . Well, as they say, it pays to advertise."

"I guess so," nodded Gus. "As I drove up Main Street I noticed a big sign at the East End Garage, too,

along with a mess of colored banners. Ted Phillips never used to—"

"Uh-uh, Gus," Stan interrupted. "Ted sold the place four months ago. All that jazz is Mike Talbot's."

"Mike Talbot?" Gus looked thoughtful. "I think I've heard the name before—a bright young mechanic just about your age."

"Just about," agreed Stan, irritation in his voice. "How about that lunch? I've got sandwiches for two."

"Sounds great," said Gus, pausing to fill his pipe, "as long as they aren't made out of fish."

The afternoon was cold and bleak, accompanied by a stiff northerly wind peppered with tiny bits of sleet—a prelude to the major snowstorm predicted for the area. With only two days to go, a white Christmas looked like a sure bet.

A '69 Ford station wagon drove in.

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## Gus Turns Up for Christmas

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Stan was busy rigging his jeep for the snowplowing jobs he knew were coming up, so Gus walked over to the car. The woman driver waved a paper through a half-opened window.

"Hi," she said. "You were right. Mr. Talbot didn't solve the problem."

Seeing Gus's bewildered expression, she asked cautiously, "You are Mr. Hicks, aren't you?"

"No," replied Gus, "but perhaps I can help, if you explain what . . ."

"I'll handle it!" Stan shouted. He skidded across the concrete apron and stepped in front of Gus. "I'm Stan Hicks," he said, reaching for the paper. "If you don't mind, I'll take this." He crumpled up the sheet and pocketed it. "Now, if you'll drive your car into the shop, I'll check it over to find the trouble."

The car was scarcely moving when a deep voice shouted: "The only trouble around here is you, Hicks!"

From the corner of his eye, Gus glimpsed a flash of motion. Startled, he stepped sideways, upsetting the balance of a heavy-set young man who had just swung a fist at Stan's chin.

The blow fell, instead, on Stan's upper arm, and Stan and the young stranger toppled to the ground. In an instant they were grappling with each other, and it took all of Gus's strength to pull them apart.

"Stop it!" Gus bellowed. "Stop it and get up—both of you!"

A moment later, they were on their feet, glaring at each other, panting and puffing. The driver of the station wagon stood wide-eyed at a discreet distance.

"What's the meaning of this?" Gus asked the two young men. "Why the wrestling match in front of a lady?"

The young stranger turned to the woman. "Hello, Mrs. Crosby," he said sheepishly. "I'm really sorry . . . I mean that you saw this."

"Why, it's Mr. Talbot," the young woman said with surprise. She stepped forward a few paces.

Gus scowled. "You're Mike Talbot, the owner of the East End Garage?"

"Uh-huh," was the reply.

"And you know this lady?"

"Sure," answered Talbot. "And Mrs. Crosby is . . . I mean was . . . one of my best customers. Until Hicks, here, began sending out his little notices."

"What do you mean by that?" asked Gus, his face grim.

"Like the note he mashed up and stuck in his pocket," said Talbot. "He hired a kid to drop them on the front seat of every car that came into my place for service. I just found out this afternoon. Here, I've got one. Look."

Talbot handed Gus a sheet of paper that read:

Your car has just been "serviced." When the problem comes back, really get it fixed by Stan Hicks at the Model Garage.

"Turnabout is fair play!" exploded Stan. "Just you remember those phone calls you made to my customers the other day."

Gus whistled softly. "Do you mean to tell me that you've been trying to pirate each other's customers?"

"Well . . ." Stan began.

"Not exactly," Mike mumbled.

"THEN WHAT!" bellowed Gus.

"It started as a friendly competition," volunteered Mike.

"Yeah," agreed Stan, "with the signs and banners. But then it kind of escalated."

Gus shook his head sadly. "If both you clowns worked day and night, you couldn't take care of a tenth of the cars in this town, and yet you—"

"Excuse me," broke in Mrs. Crosby. "I don't care which of you gentlemen fixes my car as long as it's fixed. But I've got to pick up eight little girls for a Christmas pageant this evening. I'm running late already. And the snow is going to make it worse."

"Snow?" said Stan looking up. The first fat snowflakes of the storm were beginning to come down.

"Fair enough," said Gus. "Since you're Mr. Talbot's customer, we'll let him do the fixing."

"But I don't have time to drive over to his garage," protested Mrs. Crosby.

Gus fixed Stan with an icy stare. "I'm sure," he said, "that Stan will be glad to let Mike use the facilities of the Model Garage."

"Okay," grumbled Stan, "as long as I can watch him."

"Sure thing," said Mike, "come and see a master mechanic at work. Maybe you'll learn something." He turned to Mrs. Crosby. "Still the same problem?" he inquired blandly.

The young woman nodded. "The engine occasionally refuses to turn over when I work the key to start it," she said. "But there's something else—this afternoon it began stalling every once in awhile."

Stan and Mike followed Mrs. Crosby to her car in the shop.

By late afternoon, the Model Garage looked like a Christmas card, with snow accumulating steadily. Gus peered disgustedly at his pipe. During the late fracas he had become so excited that he'd bitten through his pipe stem.

He was sitting in his favorite chair in the office, his feet up on the desk.

Stan, perched on a tabletop, was the picture of gloom—his face as long as a winter's night.

"So Mike turned out to be a good mechanic after all," said Gus, a trifle sarcastically.

"I suppose so," Stan admitted. "At least he seemed to know where to look for trouble."

"Yet you didn't find the trouble spot?" asked Gus.

"Nope," said Stan, "and we darn near took the starting system apart."

Stan heaved a deep sigh. "According to Mrs. Crosby," he explained, "the engine's refusal to turn over is intermittent—and it's without rhyme or reason. Everything worked fine when we were checking it. The starter, the drive gears, the starter solenoid, the connecting cables—everything checked out okay. Mike said the same thing happened when he went over the car last week."

The ringing phone cut Stan off. Gus answered it. The voice on the other end was full of concern.

"Is this the Model Garage?"

"Yes, Gus Wilson speaking."

"This is Mrs. Foster of the Hilltop School for Girls. Mrs. Crosby—one of my teachers—said that she would be visiting you today." The voice was hopeful. "Have you seen her within the last half hour?"

"I'm afraid not," answered Gus. "She was here earlier this afternoon. Is something wrong?"

"I hope not," said Mrs. Foster, "but Mrs. Crosby picked up a group of young girls over an hour ago, and hasn't arrived at the school yet. With the snow . . . Well, anything might happen."

Gus was silent for a moment, then asked, "Have you talked to the State Police?"

"Yes, they said they would watch for the car, but they seemed pretty busy because of the storm."

Gus swept his legs off the desk top. "Do you know what road Mrs. Crosby would have taken?"

"There are two roads she could have used—Route 7 or Route 43."

Gus hung up the phone, grabbed a parka from the coat rack and tossed it across the room at Stan. "Let's get going!"

"Where to?" asked Stan. "And why?"

"To Mike Talbot's garage," said Gus briskly. "I'll explain why to both of you when we get there."

Even with the jeep's four-wheel drive engaged, the short drive to the East End Garage was painfully slow through the steadily worsening storm. Gus didn't give Mike Talbot time to

## Gus Turns Up for Christmas

[Continued]

greet them when they arrived. Taking a stance opposite Stan and Mike he leveled an accusing finger.

"Mrs. Crosby and eight little girls are stuck somewhere out in this storm because both of you insisted on showing off this afternoon," Gus said evenly.

Stan and Mike stood silent.

Gus smacked a table with his gloves. "You're both good mechanics, but you stopped thinking. There's nothing wrong with that car's starting system—there never was.

"Mrs. Crosby said the car's engine sometimes won't turn over. Okay. But she also said—although you probably weren't listening—that the engine occasionally stalls."

Almost in unison, Stan and Mike shouted: "The ignition switch!"

"That's right," said Gus, "the switch. Odds are it has intermittent contacts that sometimes wouldn't close to permit starting, and sometimes opened up to cause stalling. I'll bet those contacts completely failed this evening, stopping the car dead.

"Now," Gus went on, "we need two jeeps to look for the wagon, which is why we're here. You two go in Mike's jeep. I'll use Stan's."

**Eight miles from town**, on Route 43, Stan and Mike found the wagon half buried in a snowdrift. Working together, it took only a few seconds to bypass the ignition switch and jump-start the engine. Minutes later, the car's heater was thawing out the thoroughly chilled occupants. While Mike blazed a path through the drifting snow with the jeep, Stan guided the wagon through the jeep's wheel tracks, and back to town.

Later that evening, with glasses of mulled rum waiting, Mike Talbot and Stan Hicks shook hands for the first time in months.

"I guess a little friendly competition is okay," said Mike.

"Sure," said Stan, "as long as we remember we can get a whole lot more done if we don't waste our time fighting each other. Could be, we might even swap a few friendly favors now and then."

Gus grinned. "Merry Christmas, men," said he, lifting his glass. ■

*Gus Wilson stories appeared every month in POPULAR SCIENCE for 45 years until we allowed him to retire last year in June. His many friends and loyal readers have bombarded us with letters asking about him. We are happy to bring him back for Christmas this year. And we're hoping that our old friend Gus will appear again in these pages from time to time.—THE EDITORS*

## Giant Tri-Jets Are Coming

[Continued from page 52]

keeping the plane's weight on the wheels for effective braking.

The L-1011 and the DC-10 have spoilers that are used in flight, too, to control the amount of wing lift without changing the speed or attitude of the plane. If you're a passenger sitting over the wing, you can see the spoilers, which look just like sections of wing skin that pivot upward. They are placed just outboard of the wing engines and forward of the trailing edge flaps.

Aided by spoilers that provide direct lift control, and with the same amount of stick input as before, a pilot can make a 10-foot height correction in 2.5 seconds, compared with 4.0 seconds under the old system using only the stabilizer. And the plane's attitude and speed stay the same.

**Simpler, more accurate landings.** This use of spoilers will result in more accurate glide-slope tracking. What's more, the final flare of the plane can take place at a lower altitude, since no time need be allowed for the plane to rotate and produce the last bit of lift just before touchdown.

As a safety factor, the direct lift control does not come into play until the main flaps are extended for landing position.

Landing speeds of the new tri-jets are comparable to those of the Boeing 727 tri-jet, according to McDonnell Douglas' Hopkins, who filled me in during an interview in the DC-10 cockpit. Runway-approach speed is about 128 knots, speed over the airport boundary 123 knots, and speed at touchdown on the runway 120 knots. He explained that "minimum control speed"—the speed below which full rudder deflection will not give control of the plane's direction—is under 100 knots.

Incidentally, Hopkins noted that the DC-10's long-range cruise speed of 600 mph roughly matches the 747's. It seems the big bird isn't flying as fast as had been anticipated.

The coming of the new giant tri-jets is not the spectacular leap forward that the advent of the SST will be, but it does represent a substantial nudge in the state of the art of airplane development. It adds up to a move forward in reliability and in airlift capability to fly more people between more places. It also carries real recognition that the airplane is going to be able to maneuver within the ecological limits of our environment and still do an economical job of flying people around the world for business and pleasure. ■

## Mercury-Menace Facts

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air or water. Olin expects to sell the basic mercury monitors for something like \$25,000 each.

Dow Chemical Company has recently developed a similar technique, which gives "same day" results. Details of the analytical technique are available on request from Dow.

Manufacturers of photographic film learned many years ago that even tiny amounts of mercury in their film can create a "fog" which ruins the picture. Accordingly, they take elaborate precautions. Don Anderson, director of Kodak's industrial laboratory in Rochester, N. Y., asserts: "We can identify a single part of mercury among ten billion other parts. That's the equivalent of finding one crystal of sugar in a truckload of sand."

When evaluating film-making chemicals, the company rejects any containing mercury in even the most minute quantities. It regularly examines new cosmetics and fabric finishes on clothing employees might wear. It publishes a list of skin preparations that people working in critical manufacturing areas may safely use.

### Suspect other metal dangers

Our sudden realization that trace amounts of mercury pollution can be a health hazard has suggested that other heavy metals in our environment may be equally dangerous. Dr. Henry A. Schroeder of the Dartmouth Medical School believes that lead, cadmium, and arsenic may have a much greater impact on mankind than other pollutants that get more publicity. Lead, which enters the air through automobile exhausts, can lead to chronic lead poisoning. Cadmium, which is electroplated on steel pipes and electrical equipment to prevent corrosion, tends to produce high blood pressure when absorbed in the body. Arsenic can enter your body by way of food that has been sprayed with insecticides and herbicides.

Oddly, the highly refined foods that make up much of our American diet may contain too little metal, so that the body may not be able to build up resistance to metallic pollution. Also, very small amounts of metallic ions are needed to maintain human chemical processes—a small amount of copper, for instance, is necessary for vision. Too much copper, however, is poisonous. Research into the role of trace metals in the body has been very limited, but accelerated scientific effort should yield new insights on how to deal with the growing threat of heavy metal pollution. First on the agenda, though, is the greatest menace of them all—mercury. ■