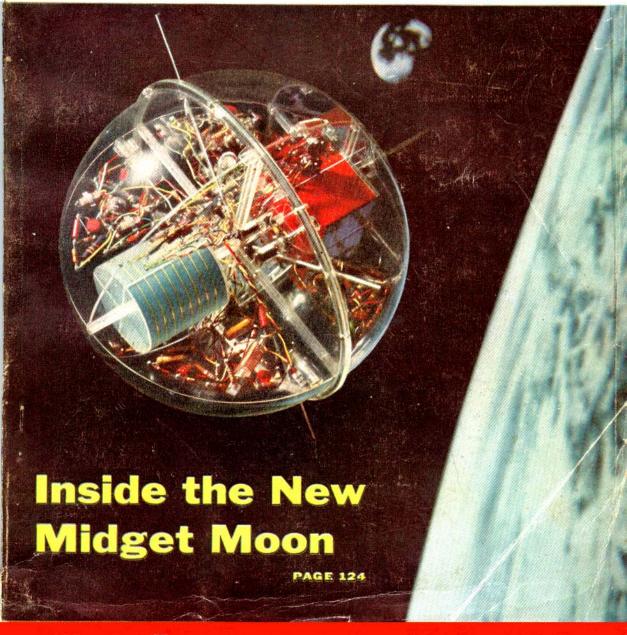
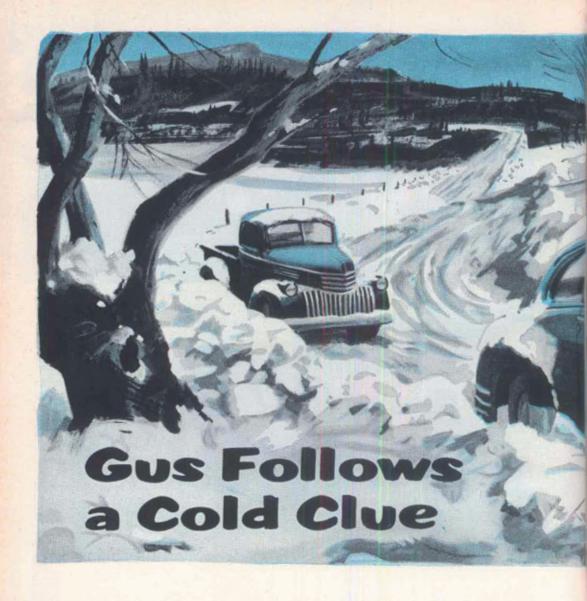
MECHANICS · AUTOS · HOMEBUILDING

POPULAR SCIENCE

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By Martin Bunn

US WILSON was returning to the Model Garage after a welding job at a farm several miles from town. A brisk wind was drifting snow into the ruts of the road and Gus's pickup truck was having heavy going of it.

Three more miles to go, Gus thought with relief, and he would be back on payement again.

At that moment, as he rounded a turn, he saw a stalled car in the road before him. Amos Miller, who ran the Mountain View Dairy, was prying at the rear axle with a long stick of timber.

"Looks like you forgot your jack, Amos," Gus greeted him, coming down from his truck. "Nasty weather to have a flat tire."

"Got a jack," Miller grunted, heaving up on the timber, "but the danged thing won't work, Lend a hand, will you? Me and Ma—"

"Amos!" Mrs. Miller called from the car, "How much longer are you going to fuss around there? You've been two hours fixing that tire. Land sakes . . ."

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"It's all right now, Ma," Miller called. "Gus Wilson's here."

Gus got a jack and shovel from his pickup truck. He had the flat off Miller's car and the spare tire mounted in a matter of minutes.

"There you are," he said, "Now you're all ready to roll."

SOMEHOW Amos Miller seemed a ludicrous figure as he got into his 1948 Chevrolet sedan. He was clad in a neatly pressed overcoat which had been in style way back in the Coolidge era,

topped by a battered hat, and bottomed by four-buckle overshoes which had waded through many a cow stall. The coat fitted his lean, broad-shouldered frame a mite too quick, and his large, work-worn hands dangled from the sleeves.

"Me and Ma," he said as he stepped on the starter, "have right important business in town today. We're much obliged to you, Gus."

"I declare," Mrs. Miller said, busily brushing the snow from her husband's coat and straightening his tie, "it's lucky we started early to do some shopping."

"Glad to help," Gus said, but his ear was cocked to the grinding of the starter.

"Ding it!" Miller snorted. "Now can you beat that. Looks like she ain't going to start."

"Probably just cold," Gus told him, getting into his pickup. "Put her in gear, Amos. I'll give you a push."

Gus managed to push the Chevrolet a few yards in gear. Then, with spinning wheels, the rear end threatening to slue into the ditch, he could move it no farther in the snow.

"It should have started," he told Miller, moving to lift the hood. "Maybe it's gathered some condensation."

Gus got out his tool kit, removed the distributor cap, critically inspected it and wiped it out

with a dry rag. He removed the plugs, cleaned them and set the electrodes at .040 gap. He checked the ignition points for surface, alignment and proper setting, pulled the high-tension wire from the coil, held it within a quarter-inch of the motor block and snapped the ignition points with his thumb. A fat, blue spark jumped the gap with a snapping sound.

Coil and condenser seemed all right, Gus mused, as he made a quick check of ignition timing and inspected wires for loose connections and breaks.

"No reason she shouldn't start," he told Miller after he had replaced the parts. "Try her now."

MILLER ground on the starter without result. Gus, realizing that he could have a hot spark at the end of the coil wire and not at the cylinders, ran a neon-tubed screwdriver along the plugs. All seemed to be firing.

"Better take it easy on the battery, Amos," he cautioned.

"But why don't it start?" Miller demanded. "Seemed to be running all right when I shut it off to work on the tire."

"It's got to start." Mrs. Miller's eyes were wide with concern. "We're meeting the train from New York, Gus. If we're not there, that poor child will feel unwanted."

"Child?" Gus asked, knowing that the Millers were childless.

"We didn't want to tell folks," Mrs. Miller said, and in her eyes Gus beheld an expression of tenderness and joy, "until we were sure. Amos and I have arranged to adopt a war orphan from Eng-

> land. We've never had any children of our own. He'll be here today."

> "Harumph!" Miller said, getting out of the car to stand there in his too-tight pants. "Foolishment, if you ask me. But Ma had her mind set on it, and when

she gets her mind set, Gus, she's-"

"Sorry, lady, but you're blocking this driveway."

"Ha!" Mrs. Miller snorted. "And who, Amos Miller, has been on pins and needles about it for months, shining things up, and all?"

"Well," Miller said sheepishly, "I didn't want the little feller to come to America and find us living like hogs in a pen. The barn needed painting, anyway."

"I see," Gus said. He glanced at his watch. "That train is due in an hour."

"Gus Wilson," Mrs. Miller's tired features were stern now, "you fix this car to run, right away."

"Yes, ma'am," Gus said, grinning. "Since I can't push you or get around to tow you, I guess I'll have to do just that."

"Tow us!" Miller exclaimed. "That wouldn't be right. We aim to drive up to the depot in style."

Queer, Gus thought, as he shoved his shoulders under the hood. He'd always thought Mrs. Miller was a bit on the homely side. But when she was speaking of that kid, she'd seemed almost beautiful. They didn't have much time, he thought. It would take them 15 minutes

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to make the depot, and the train was usually on time. That gave him just 45 minutes to get this crate running.

GUS now fell back, as he always did, on basic mechanical facts. If you had gas in a cylinder under compression and delivered a hot, properly timed spark to it, you got an explosion. If you didn't get an explosion, one or more of these

conditions was not present.

He had a hot spark, properly timed, Gus noted, but did he have gas? He pulled the air cleaner and checked the choke butterfly for proper operation. He peered down the carburetor throat as he worked the throttle, to make sure that the accelerating pump system was delivering the rich mixture required for a cold-motor start. So he had gas—but was it under compression? Maybe this bus had stripped its timing gear. Swiftly Gus again pulled the plugs, got out his compression gauge and made a compression test. It was good on all cylinders.

With the parts replaced, Miller again

failed to start the car.

Now Gus was really stumped. He couldn't think of what to check next. He had gas under compression, with a hot, properly timed spark. Or had he? Since he hadn't got an explosion, one of these factors must be fouled up. Which one was missing?

"I just can't understand it," Miller said, peering anxiously over Gus's shoulder. "I went out to the barn—you know, I keep the car in my dairy barn—and stepped on the starter. Off she went, first clatter. Now she won't start."

Gus mentally pictured the barn where Miller garaged the car. It was almost as warm in there as in his house, with the heat from the bodies of the cows.

ONCE again Gus pulled the distributor cap, snapped the ignition points as he held the high-tension wire from the coil near the block. He watched with a critical eye as the spark flame jumped. There was something wrong

here. If only he had a coil tester with him, he thought, or a spare coil. But who would expect to need those on a welding job? Then an idea struck him. He did have a spare coil—the one on his pickup.

Swiftly Gus moved to take the coil from his pickup motor and install it on

the Chevvy. It started instantly.

"On your way," Gus said to Miller.

"And tell that new son of yours hello from Gus Wilson."

"But how'll you get your truck into town?" Miller sputtered. "If my coil won't start my car, it won't start yours."

"I think it will," Gus said, grinning.

GUS installed Miller's coil on his pickup and drove in to town to the Model Garage, where he put Miller's coil on his coil tester.

"What had me whipped out there," he told his helper, Stan Hicks, "was the hot, strong spark this coil seemed to throw out. But my tester proves that it has a turn or so, maybe more, of primary winding shorted out. This won't markedly affect the peak voltage output of a coil. The distance its spark will jump, and the color, will be the same. But the spark won't last as long, since shorted windings have a dampening effect. Such a coil would be likely to start Miller's car in his warm barn, or the hot motor of my pickup, but wouldn't be able to start a stone-cold motor, like Miller's after he spent a couple hours working on that tire.

"I'll bet," Stan chuckled, "that Miller thinks you're still out there in the snow

with your truck."

"I don't think he's worrying about that," Gus told him, "because by now he's driving home in a cloud with his son . . . You know, Stan, that wife of his sure is a beautiful woman."

"Beautiful!" Stan Hicks howled. "Why, she's as homely as a hedge fence."

"You haven't seen her lately, have you?" Gus said softly, as he charged his pipe and began to clean up his tools. END