

# POPULAR SCIENCE

MONTHLY

15¢  
20¢ IN CANADA  
AUG.

Three m...  
AUTOM...  
...ne  
...NICS

**How Tough is U.S.?**  
INDUSTRY ARMS AMERICA IN  
GREAT DEFENSE BATTLE



"Hey—watch it!" Joe yelled. A snappy convertible almost ran him down



## YOU can't be too careful!

*Two jobs in the same day prove Gus Wilson's contention that most automotive grief is caused by carelessness — the driver's or that of some bum mechanic*

By **MARTIN BUNN**

**J**OE CLARK stepped out of his office into the shop of the Model Garage just in time to be almost run down by a snappy convertible coupe being driven out by a decidedly peevish-looking young man.

"Hey—watch it!" he yelled, but by the time he got the words out the car was gone. He turned to his partner, Gus Wilson. "Say, that guy is in a hurry!" he complained. "What's biting him, anyhow? He looks sore as a wet cat."

"He is sore," Gus confirmed. "And he's

got a right to be sore. I wouldn't blame him so much if he went back to the city and took a sock at the so-called mechanic who fixed up that job of his for him. But he won't—he's off to the Adirondacks on his vacation, and he's in a hurry to get there."

"Oh—then he's not sore at us," Joe said relievedly. "I'm glad of that. I hate to see a customer driving out of the place with a face like that on him. What's his trouble?"

"No trouble—now," Gus told him. "He drove in an hour or so ago with his radiator steaming and told Bill that it was clogged up. Bill just took his word for what was the matter, and reverse-flushed the radiator and then took the car out for a road test. He was back in 15 minutes, cussing—the engine had overheated again. He asked me to take a look, and while I was getting ready to do it the customer told me that just this morning he'd got his bus out of a shop down in the city, after having his engine tuned up and everything else checked to make sure that he wouldn't have any trouble while he was on his vacation. I asked him if he'd ever been bothered before by having this

car overheat, and he said that he hadn't. "I figured that probably his timing was screwy, so I started to check it. Right off the bat I noticed that one of the cables was loose on a spark plug. Then when I tried to tighten the cable, I felt the plug move. Then I tried 'em all, and they all moved. That was the tip-off—the fellow who had tuned the engine had forgotten to tighten the plugs, and of course that made the engine heat up. I tightened the plugs, and just to make certain drove the car a couple of miles down the road and back. Nothing the matter with the radiator—the water stayed right at the proper operating temperature.

"When I told the young fellow what had caused his grief he started to cuss, and he still was cussing when he almost hit you on his way out. Of course there's no excuse for that sort of driving, but I know just how he feels. I guess we all are careless sometimes, but there ought to be a law about a mechanic who's that careless. . . . There's your 'phone, Joe."

Joe went into the office and answered the summons. After a couple of minutes he stuck his head in at the door. "There's a blue sedan with Massachusetts tags stalled in front of Kilrush's store," he reported. "The driver says that Kilrush recommended us, and will we please tow him in, in a hurry."

"Tell him yes," Gus said. "Hey, Bill! You go get him, will you?"

Twenty minutes later Bill towed a blue sedan into the shop. Out of it jumped a young man who wore a Navy ensign's uniform and had a worried expression on what obviously was normally a carefree face. "Hi!" he greeted, a grin breaking through the gloom.

"Hi!" Gus returned, grinning back at him. "What's your trouble, Admiral?"

"Harding's my name," the ensign told him. "And it'll never be Admiral Harding unless you get this can I'm driving rolling in a heck of a hurry. If I don't get over to the Brooklyn Navy Yard by six o'clock I'll miss my ship, and then they're more likely to put me in the brig than to promote me. I'm not fooling, mister—this is dead serious."

"What's your trouble?" Gus asked again.

"Darned if I know," Harding told him. "I was visiting a

friend away out on Cape Cod, and when I got an unexpected order to report aboard a ship in the Brooklyn Navy Yard by 6 p.m. today I figured that instead of taking the afternoon train yesterday I could stay the evening and make it all right by starting early this morning and driving like the devil. So I did that. I borrowed my friend's car—he'll pick it up when he comes down to the city next week. It went along swell until I got into your town, and then the engine stopped dead. I know a little about cars, and I fooled around with it for maybe half an hour, but it wouldn't start. Then the fellow who runs the store came out and told me about your garage, so I called you up. The more swift you put onto getting this can rolling again, the bigger favor you'll be doing me. I've got to get aboard that ship before she sails!"

"YOU will," Gus assured him. "I'll drive you down myself, if necessary. But first I'll give your car a quick checking over. Are you sure that nothing happened before the engine quit—that there wasn't any unusual noise, or any warning of any sort?"

"No, not a thing—" Harding hesitated. "Yes, there was, too. A sort of whistling noise. I noticed it when I was driving with Joe—that's my friend's name—yesterday. He said he'd been hearing it, off and on, for a couple of weeks, ever since he'd had his engine painted, but that it didn't seem to mean anything. I heard it several times today—and, come to think of it, every time I heard it, it seemed louder."

Gus glanced at the shop clock. "If you leave here within a half hour you'll have plenty of time," he said. "So I'll see what I can do. . . . Starter all right?"

"Works fine," Harding assured him, "but



A young man in a Navy ensign's uniform jumped out of the car. "What's your trouble, Admiral?" Gus inquired

the engine just doesn't seem to take hold."

"How about your gas?" Gus inquired.

"Had the tank filled twenty miles back," Harding said.

Gus grunted, and started checking the fuel pump. It was working perfectly. And so was the carburetor.

"You're getting gas, all right," he said. "That means that the bug must be somewhere in the ignition system. Let's see, now, if we can narrow it down some more."

A glance showed him that the spark plugs were almost new. All the ignition wires were solidly anchored, and none of them was broken. A test established the fact that there was a very strong spark in the distributor. But there wasn't any spark at the plugs.

Gus pushed the peak of his cap down over one eye and scratched his ear reflectively. Harding pushed his uniform cap back on his head and grinned at him. "Got you stuck, too, hey?" he observed. "It's such a nice, shipshape-looking motor, too—but if Joe'd paid less attention to its outside and more to its insides, I'd be a lot better off."

Gus nodded as he regarded the freshly painted engine. Suddenly he snapped his fingers. "By gum," he said, "you've given me an idea. You said you heard a whistling noise, didn't you?" He took off the distributor cap, and then made the connection on the starter. Nothing happened. "There she is!" he said.

"There *what* is?" Harding wanted to know. "I don't see anything."

"You should be seeing that distributor butterfly turning," Gus told him. "But it isn't turning. That's the trouble. When it isn't turning no spark can get to the plugs, no matter how much juice there is in the distributor." He examined the distributor closely. "Yes—that's it, all right. See? The pin which should hold the gear on the shaft on which the butterfly is mounted has been sheared off." He glanced at the clock again. "I'll be able to fix it in time, all right."

"That's swell with me, mister," Harding said. "But what made the pin shear off, and what was that whistling noise I heard, and what did it mean?"

Gus worked while he talked. "When you come right down to cases," he said, "carelessness was the cause of your trouble. Be-

fore you can repaint an engine, you've got to get it clean. Whoever cleaned this one used a pressure hose. That was all right, but he was careless about where the water went. A little of it got into the distributor and ran down its shaft. That caused the grease in the distributor to harden, so that instead of lubricating the shaft it caused a lot of friction. Result: after a few hundred miles of running, the shaft froze in its bearing, and the gear pin sheared off. The

whistling noise was caused by the friction, of course. Your friend Joe was careless about that; a driver always should check up on the cause of any unusual noise in his car. Some of them don't mean a thing, but others are the only warning you get of serious trouble."

Twenty minutes later, Harding stepped on the starter and the engine took off smoothly. He paid his

bill, and then held out his hand. "I'm sorry I've got to shove off in such a hurry," he said. "I'd like to ask you to have a drink. It was darned nice of you to offer to take me down to my ship, in case you didn't have time to fix the bus."

Gus's face got red, the way it always does when anyone thanks him for a kindness. "You'd better step on it," he said, "or you'll still land in the brig. I wouldn't want to be the cause of your not getting to be an admiral—the way it looks to me, we're going to need a lot of 'em in the next 30 years or so!"

When Doc Martin dropped in for a chat just before closing time he found Gus busily writing in a battered blank book. "What are you up to—writing the story of your life?" he demanded.

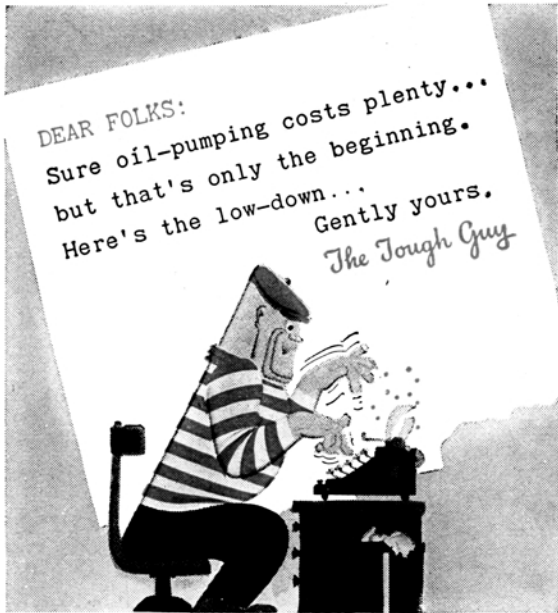
Gus grinned. "Why not?" he said. "Others have done it. . . . No, Doc, I'm making a couple of additions to my collection of carelessnesses."

"Huh?" grunted the doctor.

Gus laughed. "I guess that word's not in the dictionary," he admitted. "What I mean is, a long time ago I realized that a considerable proportion of the automotive grief in the world is caused by someone's carelessness. Drivers are the worst offenders, of course—but they pay the bills. What gets my goat is a careless mechanic causing a car owner a lot of unnecessary trouble and expense. A couple of years ago I started to write (*Continued on page 202*)

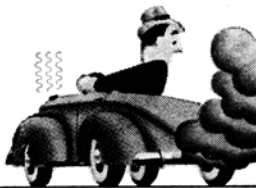
## GUS SAYS:

That vacation trip probably will pile more mileage on your car than months of ordinary driving. It's just common sense to have a thorough check-over before you start, and keep close watch on tires, brakes, and lubrication all the time that you're on the road.



**WHEN YOUR CAR BEGINS TO USE TOO MUCH OIL...LOOK OUT**

Oil-pumping signals that all is not well within your motor. It tells you that a condition has developed that demands attention.



**YOU MAY BE HEADING INTO AN EXPENSIVE REPAIR BILL**



The longer you put it off—the more it will cost you. For oil-pumping usually means rapid cylinder wear has started . . . and that can be even more expensive than buying extra oil.

**AT THE FIRST SIGN OF OIL-PUMPING—DO THIS...**

Have your motor service man install Hastings Steel-Vent Piston Rings—the rings that not only put a stop to oil-pumping, but also check cylinder wear, and forestall high repair bills.

**HASTINGS MFG. COMPANY**  
Hastings, Mich. Toronto • Winnipeg



**HASTINGS**

**STEEL-VENT PISTON RINGS**

*Stop Oil-Pumping*

**IN CARS, TRUCKS AND TRACTORS**

# You Can't Be Too Careful!

(Continued from page 128)

down some of the results of carelessness that come into the shop, and I've rounded up quite a collection. Two today, for example."

He told Dr. Marvin about them. "I get your point," the doctor nodded when he had finished. "I suppose you have had some other pretty queer ones, too."

Gus thumbed through the pages. "Let's look at the record," he said. "Here's one. A fellow brought a car into the shop and said it suddenly had developed a terrible knock—he needn't have told me that, because I'd heard him coming! Sounded as if all the bearings had gone bad. I didn't find the cause of the racket until I'd taken off the head. Then I found a short piece of broken file sticking in the top of one of the pistons. Every time that piston came up the file hit hard against the cylinder head. The owner remembered that a few days earlier he had bought a new set of spark plugs in another garage, and that while they were being put in a mechanic working at a bench near his car had broken a file. Apparently the broken end had flown through the air and dropped down one of the spark-plug holes."

"I'd call that plain hard luck, rather than carelessness," Dr. Marvin objected. "Just one of those things that will happen."

"The mechanic was careless in not looking for the broken piece until he found it," Gus said. "You never should leave such things loose around a shop—they're likely to make all kinds of trouble. . . . Here's another one. Last winter, a woman drove a new car in, and complained that its heater wouldn't work. I checked the water pump and hose and all connections, and found them O. K. Then I tried to blow through the heater's inlet pipe, and found that it was clogged up. I put an air hose on it, and out came a mess of soggy sawdust. Cause: carelessness in packing the heater for shipment, and more carelessness in not checking it when it was installed. Some of the packing sawdust had got into it, and as soon as water got to the sawdust it swelled up and clogged the heater.

"Here's another one. A man drove in and said that his—"

Gus broke off and looked at the clock. Then he tossed the book into a drawer and reached for his coat. "I've got to beat it—going to the Millers' for dinner," he explained. "But you look through that book sometime, Doc. It proves something—that you can't be too careful!"