At the THROTTLE

Top, Engineer Wilson at the throttle. Bottom, the "Century" pulling out for long run between Chicago and New York

By Lou Wilson
Veteran Engineer of the 20th Century Limited
As Told to Julian Lezett

ROARING along at seventy to eighty miles per hour, with 900 tons of steel pounding the rails behind his big locomotive, the engineer has even more to think about than his schedule and the safety of 150 or more passengers.

Watching the public—that part of it that I can see from my cab—is perhaps the most important part of my job. Of course, there is the feeling of great responsibility for my passengers, but in time that becomes instinctive. As I sit at the throttle, I keep thinking about automobile drivers and pedestrians. Four-wheel brakes can stop the modern car quickly, but the way many drivers use them is enough to give every engineer a bad case of the jitters. I see an automobile coming, but I don't know what the driver is going to do. Perhaps he will speed right up to the crossing and stop on a dime—or he may ignore ringing bells, flashing lights and the locomotive's warning screech to shoot over the crossing, without more than a couple of inches to spare. If the motorists would slow up as they approach a crossing, the engineer would breathe easier because he

of the "CENTURY"

would know they had a better chance of hearing his whistle and more time to stop.

The pedestrian is my other big worry. That man standing beside the track ahead of me may decide suddenly to cross. Some people walking the track will stay on until the locomotive is almost on top of them. Then they step off, the engine pilot fanning their coattails. Ignorant of their close brush with death, they sometimes laugh at me.

These fellows who turn the engineer's hair gray by taking chances don't seem to know that it's impossible for me to stop the thirteen to fourteen-car "Century" in much less than one-third of a mile when I'm doing eighty miles an hour, even when I apply the emergency brake. Unless the engineer figures he has the time and

Top, motorist in a bad spot after failing to route fast train at left. Locomotive at right is standing still. Bottom, Wilson and Arcenas in locomotive cab

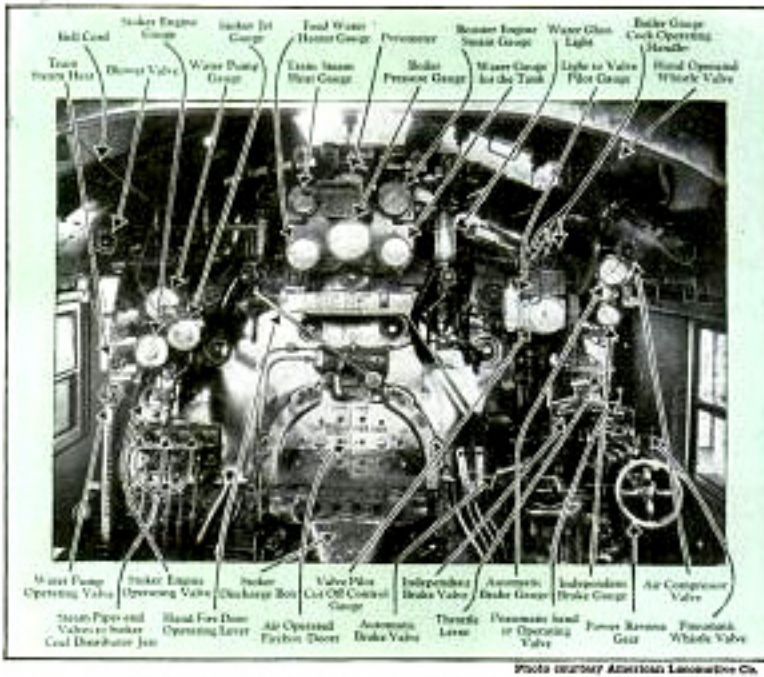

Photo courtesy American Locomotive Co.

stopping distance, and that he will save lives by doing it, application of the emergency brake would be futile. An emergency stop of a heavy passenger train costs the railroad from $1,200 to $1,500, depending upon the number of cars in the train. Full application of brakes flattens every wheel on the train, scraping off as much metal as would be worn away in a year's normal service. Added to the loss of that metal is the cost of labor for turning down each flat wheel in the shops before it can run again. Usually an emergency stop means that the train must be halted right at that point and its passengers, baggage and mail transferred to another train. Regulations forbid operation of a train with flat wheels.

Not so many years ago, the engineer's chief fear was that his locomotive would strike an automobile or a truck, particularly a truck loaded with explosives or in-

Top, unusual view of Twentieth Century locomotive cab, with essential controls and gauges identified. Bottom, contour scale drawing of Chicago-Toledo run on the New York Central

flammables. Today, he also dreads the motorist who runs into the side of his train. In the year ending June 30, 1937, forty-eight per cent of the people killed or injured in grade-crossing accidents in New York state received their injuries as a result of vehicles smashing into the sides of trains. The causes of this new problem might be that motorists approach crossings too fast to notice a train is there, particularly at night, and that drivers are careless.

Accidents are being reduced at crossings, through the spending of millions of dollars by the railroads to install under- or overpasses, thus eliminating crossings. But the railroads do not have the financial resources to do this work alone, because there are approximately 235,000 crossings in this country, an average of nearly one per mile of rail line. Approximately 25,000,000 motor vehicles make use of these crossings.

I've been driving an automobile since 1916 and have had only one close call at a crossing. Knowing the danger, I had been teaching my wife to watch for crossing signs. Not long after we left Fort Atkinson, Wis., she suddenly said, "Railroad crossing!" I didn't see it, but I slammed on the brakes. Just as I did a big freight locomotive rushed by right in front of me, coming from behind a building at the left. I twisted the wheel and sent the car into the ditch to keep from hitting the train.

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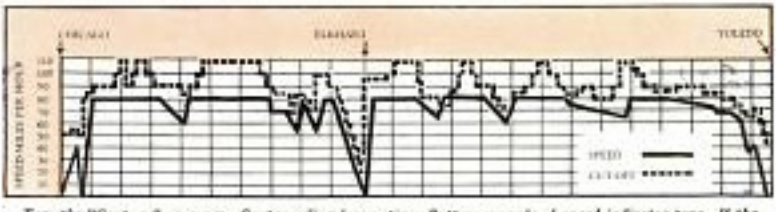

Top, the "Century" on curve. Center, oiling locomotive. Bottom, sample of speed indicator tape. If the speed and cut-off lines are fairly close together, engine operating efficiency is high

At the Throttle of the "Century"

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Had I been going fast, we might have had a serious accident. Now that I'm nearing seventy years of age, I've learned the danger of speed on the highway and most of my driving is under fifty. But in spite of that, I feel a lot safer in the cab of the "Century" when it is doing eighty than I do in my car at any speed.

Railroad equipment, particularly the locomotives, has improved wonderfully since I started working for the New York Central nearly fifty-three years ago. Then I was with the old Lake Shore and Michigan Southern, which later became a part of the New York Central. The last few years, especially, have brought a lot of progress.

In the early days the railroads lost a lot of time by having to take on coal frequently. Today, between Chicago and New York, three locomotives are used on the "Century." Each is coaled before it is hooked onto the train. The change of engines requires only about three minutes. This eliminates the jolting of passengers that would result from moving the train from one coal chute to another. It's a hard job to handle a heavy train at the coal chutes.

Taking on water today isn't a problem because we can scoop it up on the run from water pans placed between the rails. At sixty miles an hour, our locomotive can take on 5,000 gallons of water while running over a water pan 2,000 feet long. The pans are heated by steam in winter to keep the water from freezing. As soon as a locomotive passes, a pump starts refilling the pan.

One of the biggest contributions to railroad safety is the automatic block signal and automatic train-control system. It's a wonderful thing, that train stop. Running through a storm, if the fireman and I both should miss a signal, the train stop will do the job of setting the brakes. About eighty feet in front of the signal post is a magnetic element in the track. In the front end of the locomotive tank is a receiver. The magnet operates an actuating valve which unlatches the automatic brake and sets the train brakes, stopping the train. Then the fireman must get down on the ground and latch the automatic brake control before the locomotive can be moved.

Speaking of brakes, I remember an in-

cident in 1895 when I was first firing on a freight run. Our train was equipped with the first air brakes used on a freight on that line. We were coming downgrade with twenty-four cars of ore. Because too few of the cars were equipped with air brakes, and those all at the front of the train, the engineer was whistling every few seconds for the train crew to set the hand brakes on the cars. South of Ashtabula, Ohio, our tracks crossed those of the Nickel Plate railroad. Looking ahead I could see the target set against us. That meant that a Nickel Plate train was blocking the crossing. Our train kept rolling faster and faster because the crew didn't have time to set the brakes before we would reach the crossing. I got down on the gangway, ready to jump, and told the engineer he'd better do the same. We were pretty close to that crossing when the target changed suddenly and our train tore through at about forty miles an hour. The crossing watchman had heard our engineer whistling for brakes and had gotten the Nickel Plate crew to split their train in time for us to go through the crossing. We ran a couple of miles before we could get our train under control.

Once on a switch engine, the live pipe to the left injector let go and I had to dive out the window head first. If I had taken a deep breath of that hot steam, it would have burned my lungs.

But accidents are comparatively few. The new locomotives are built for greater endurance and higher speeds. The parts are heavier and manufactured of tested materials. Maintenance is much better than in the old days and this is especially true of lubrication. The boys in the roundhouse grease the engine, then take it out on the getting-ready track and go over the rods again to be sure the grease has reached every spot.

The new "Century" engines are much faster and able to take it. They are built for a top speed of 120 miles an hour, but operating regulations forbid speeds much greater than eighty. The weight per yard of rail has been increased from sixty to 127 pounds in order that trains may be operated at greater speeds with safety.

The first 20th Century pulled out on June 15, 1902. I was her fireman on the second run. Then our running time to New York was twenty hours. In 1905 the

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schedule was cut to eighteen hours. From then until 1933, the schedule varied between eighteen and twenty hours. That year it was cut to seventeen hours and forty-five minutes. The time now has been reduced to sixteen hours—and it's pretty sure to go lower as improvements and operating conditions warrant.

Every engineer has at least one pet crossing where he hangs onto the whistle. At Mishawaka, Ind., I never let go, because between Mishawaka and Elkhart there are several important highway crossings. My engine hit an automobile there in 1929. Fortunately no one was killed. It happened as we met a silk train going east. Just as that train's caboose cleared the crossing, the car shot across and right into our path. Since it came from the left, I never saw the automobile until after we hit it.

Many people ask me what they should do if their car stops on the railroad track and a train is coming. I think they should get out of the car immediately and try to push it off the track, instead of trying to start the engine. Then, if they can't get it off the track, they are in the clear, ready to jump to one side when the train gets too close. But my advice to all motorists and pedestrians is this:

"Stop, look—and wait for the train to go by."

Chisel and Plane Blade Clamp Grips Tools for Sharpening

Blades of chisels and planes are held rigidly by a rolling clamp for sharpening at any desired bevel, resulting in a saving of both time and honing. The degree of angle of the bevel is determined by the distance at which the edge is set from the clamp, and a knurled thumbscrew aids in making the desired adjustment. With the blade gripped firmly in the tool it is honed in the usual manner by a back-and-forth motion with pressure at the cutting edge, permitting the roller bearing to rest lightly at the rear of the oilstone. If necessary, the clamp may be operated likewise on a grindstone.