

EQUIPMENT IN TEST CAR

When a clapper was sounded and when brakes were put on, marks were automatically made on tape traveling at a uniform speed. The distance between these marks measured the time required to put on the brakes more accurately than any stop watch.

PSYCHOLOGY—HIGHWAY SAFETY

## Bureau of Standards Measures Time Taken to Put on Brakes

THE automobile of the future may have new equipment for accelerating, and the term "steb on the gas," may be relegated to the dusty archives of forgotten slang, if automobile manufacturers revise their designs as a result of investigations just made by H. H. Allen of the United States Bureau of Standards in Washington.

At the request of another department of the Government, the Bureau of Standards has been conducting experiments under the direction of Mr. Allen with a view to cutting down the time required by drivers to react to a stop signal and put on the brakes.

How long does it take you to take your foot off the accelerator and put on the brake? If you are as quick as the average of drivers recently tested at the United States Bureau of Standards here, it will take you about four-tenths of a second.

That may seem to you too short a time, out of the daily 24 hours, to be worth measuring, but the figure becomes more important when expressed in the distance your car can travel in that length of time. For a car going at 40 miles per hour can travel about 24 feet in four-tenths of a second. The

slowest individual required three-quarters of a second to apply the brakes; his car went 45 feet.

In the case of an emergency when it is essential to put on brakes in the shortest possible time, a driver often has much less than 45 feet between himself and disaster.

Tests were first made by the experts at the Bureau to measure the length of time required to apply brakes with the standard equipment of accelerator and foot brake. Then they made another series of tests in which the driver used a hand control throttle with the foot resting on the brake pedal. In this case the driver, when he received the signal to stop, had only to press down his foot, for it was already in position over the brake pedal.

A marked reduction in time was noted, and the improvement was greatest where it was the most needed; the slowest driver cut down his time the most. The fastest driver required only fourteen-hundredths of a second; the slowest 48-hundredths. The average improvement was about 40 per cent.

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METEOROLOGY


## Winter Begins Monday With Shortest Day

NEXT Monday, December 22, at 8:40 a. m., eastern standard time, winter will officially commence. At that moment the Sun, in its southward journey through the sky, will reach the Tropic of Capricorn in the sky, and will then start northwards again.

Because the Sun is so far south, it rises for people in northern countries late in the morning and sets early in the evening. Thus December 22 will be, for Americans, the year's shortest day. The Sun will rise, in latitude 40 degrees north, at 7:18 and will set at 4:38, so it will be above the horizon for only nine hours and twenty minutes. Just six months ago, on June 22, at the beginning of summer, the Sun was in the sky for 15 hours and one minute.

The winter solstice, astronomers term the celestial event that ushers in winter, marks the beginning of summer for people in the temperate regions of the southern hemisphere. In the Antarctic regions any stray explorers will now be enjoying the midnight Sun, with 24 full hours of daylight.

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