

ENTOMOLOGY

Tire Waves Cut Power

A colony of bees has been flown from Paris to New York to find out if the insects can really tell time or if they set their schedules by external factors such as sun position.

► **BEEES HAVE** a memory and a sense of time. They remember feeding places and return to them day after day, but only at given times each day.

How do the bees "tell time"? Do they measure the passage of time by external factors, such as the position of the sun, or do they possess a kind of internal metabolic "clock"?

To solve this question, 5,000 honeybees have been flown from Paris to New York to see if they dine on Paris time or Eastern Daylight Saving Time.

The bee colony was trained to take sugar water from a table in a Paris laboratory from 8:30 to 10:30 p.m. The bees were flown from there to New York City in approximately 19 hours on June 13, and were hustled off to a room in the American Museum of Natural History identical in all respects to their old home in Paris.

Scientists then watched around the clock to learn when the bees would come out to feed. Would it be from 3:30 to 5:30 p.m., corresponding to 8:30 to 10:30 Paris time, or at some new hour, perhaps 8:30 to 10:30 on the new time? If the bees maintain their old 24-hour schedule, an internal sense of time will be indicated. And if they change their feeding hours, then external factors must be looked for.

Running the experiment are two young German biologists, Dr. Max Renner and Dr.

Werner Loher, both associates of the world-famous bee authority, Dr. Karl von Frisch of the University of Munich. Dr. Loher came to the United States some time ago to set up the duplicate testing room, while Dr. Renner came over with the shipment of bees.

Drs. Theodore C. Schneirla and Lester Aronson of the Museum staff helped arrange experiment facilities here.

The first part of this experiment has already been finished, but the scientists are withholding the results until further work has been done. Following their observations on the bees' feeding time in New York, Drs. Renner and Loher will retrain the bee colony to come for their food at a different time. The bees will then be shipped back to Paris, where the observations will be repeated to double-check the New York findings.

Ordinarily, U. S. Department of Agriculture regulations forbid the importation of bee colonies into the United States, because of a parasitic mite infestation of the European honeybees. Permission for entry of this colony was granted, however, under the conditions that the bees be free of the mite and be kept under strict seal from the time they left France until they were in the closed testing room in the American Museum of Natural History.

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ENGINEERING

The Waves Cut Power

► **WAVES SET** up in tires of speeding race cars rob a significant amount of power from the vehicle.

The power loss occurs beyond a critical speed determined by the tire's circumferential tension and the density of tread per unit area. Waves are set up by action of the tire on the road.

These facts were shown by an investigation of tires for high-speed cars, including sports cars, reported at the Society of Automotive Engineers meeting in Atlantic City, N. J., by T. J. P. Joy, D. C. Hartley and D. M. Turner of the Avon India Rubber Company, Ltd.

Interest in sports cars has grown so fast in the past eight years that every car-producing nation is manufacturing such autos. The new auto slogan is "Safety Fast," they said.

They described how a car going at high speed skids off the road at a turn. The inside rear wheel is the first to slide, putting extra force on the other rear tire.

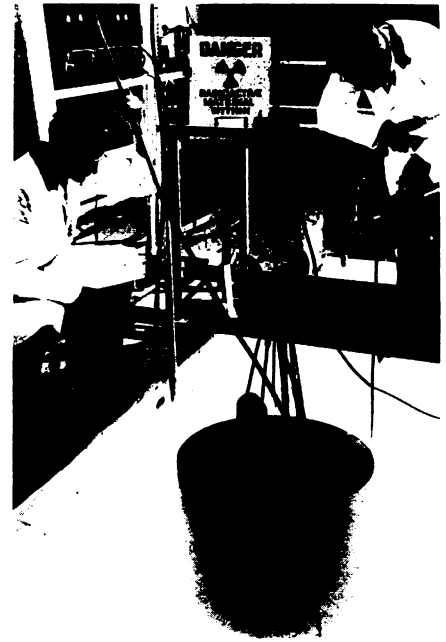
Normally, it cannot sustain this force and the whole rear end breaks away. The car spins around unless rapid reverse steering action is applied.

To reduce the hazard, the inside rear wheel should have the highest possible load. Two ways to achieve this, they said, are to lower the car's center of gravity or to reduce weight transference at the rear by increasing that at the front.

Raising the friction coefficient of the tire is also an effective way of increasing safe speed at a turn. If the coefficient is raised from 0.8 to 0.9, the speed around a 1,000-foot curve can be increased from 95 to 100 miles an hour, they found.

Tire noise was reduced to four categories: squeal, the screeching heard at a high speed turn; hum, coming from the impact of the tread pattern on the road; squelch, a squeal due to flattening of a curved tread on impact with the ground; and rumble, vibration of the casing due to road irregularities.

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HOT BUCKET—Four pounds of radioactive cobalt 60 are hoisted up in a five-ton shielding bucket from the water pit at the Brookhaven National Laboratory for shipment. Dr. Richard G. Bauman (right) of B. F. Goodrich watches Geiger counter while Richard N. Chapman of Brookhaven operates hoist control.

MEDICINE

Clues to Predicting and Stopping Premature Birth

► **CLUES TO** predicting premature birth long before it occurs and a possible way to prevent such births have been discovered by Drs. E. Stewart Taylor, Paul D. Bruns, Rudolph M. Anker and Vera E. Drose of the University of Colorado Medical Center, Denver.

Between seven percent and ten percent of all births are premature, according to estimates, and about one-fourth of all premature babies die.

A sex hormone deficiency and abnormal activity of the uterus, or womb, early in pregnancy are the signs that the Denver scientists believe show that a woman is going to have her baby prematurely.

Correcting the hormone deficiency in women showing these signs will, the scientists believe, prevent the premature births. However, this extension of the studies remains to be done.

The early clues to prematurity were found through womb activity measurements and analysis of the amount of sex hormones excreted by the same patients every two weeks from the twentieth week of pregnancy to delivery. They are believed the first such studies ever made. The research was supported by a grant from the Playtex Park Research Institute of Dover, Del.

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