ENGINEERING

Traffic Surveys Aided

➤ AN ELECTRONIC device, said to be the "most satisfactory method of making traffic surveys yet invented," has passed preliminary tests at the University of California at Los Angeles.

This device uses metallic detectors placed at three-foot intervals on the highway and connected to an electronic digital computer in the U. C. L. A. engineering department a mile away.

Sealed to the pavement with cover tape and rubber cement, the detectors appear as tar strips on the highway. As traversing cars pass over these strips they cause a contact between two elements and initiate an electric current. Speed of the vehicle is determined by the time interval it takes the front wheels to cover the distance between the two detectors.

From messages flashed by the electric current, the digital computer in the U. C. L. A. engineering laboratory sorts out the information and tallies it in the category desired.

Here is what the device will do: (1) record the speed of passing vehicles; (2) tell what lane they are in; (3) total the number of vehicles in a given lane in a given period of time; (4) record the speed distribution in a selected lane during any hour of the day; (5) furnish other significant data about traffic flow in a particular area.

For example, on one of Los Angeles' foggiest nights recently, when visibility was at the pea-soup stage, 15 automobiles were clocked at more than 60 miles an hour in the curb lane on Wilshire Boulevard.

Previous methods employing electric timers and photo-electric cells often proved unsatisfactory because several cars passing in direct line with these devices recorded as a single vehicle.

Members of the U. C. L. A. engineering staff who designed the instrument do not at present see the device as a "robot traffic cop", but principally as a faithful recorder for traffic surveys, a handy instrument for planners in city traffic bureaus.

Responsible for the development of the new traffic device are H. R. Kaiser and Robert Bromberg, research engineers, who are credited with the original design; D. L. Gerlough, who contributed refinements; and Robert Reis, who was largely responsible for designing the metallic detectors.

Science News Letter, January 28, 1950

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CHEMISTRY

Substitutes Salvaged From Waste Products

➤ YOU may soon be carrying home groceries in a paper sack made from discarded railroad ties if current research proves commercially practical. And you will be chewing spearmint gum flavored with orange rinds.

Other substitutes which chemists are trying to salvage from waste: peach and almond flavor and rose scent from citrus fruit skins, cinnamon flavor from oat hulls, non-poisonous stock feed from poisonous tung nuts, feed from wood chips, cardboard from stalks and paper from grass.

All of these conversions have been made in the laboratory, although commercial application awaits further tests or development, said Dr. William M. Murray, Jr., director of Southern Research Institute, Birmingham, Ala.

The possibilities of finding a use for old railroad ties are enormous, Dr. Murray told the winter meeting of the Southern Association of Science and Industry. Ties and poles discarded by the railroads each year amount to 3,000,000 tons of raw wood pulp. This equals one-seventh the total annual wood pulp needs of the country's paper industry, he said.

Although the paper bags and wrapping paper made from railroad ties are somewhat weaker than those made from new wood, he suggested that further study might find a way to raise the strength to the level of new wood paper. The ties used in the experiment were 22 years old.

Paper from grass would also greatly relieve the burden on our overtaxed wood pulp industry, he pointed out. After the grass, Sericea Lespideza, has been harvested for stock feed, the stalks usually remain in the field unused. Several types of paper have been made experimentally from these stalks.

Describing the conservation value of research into ways of salvaging unused or wasted products, Dr. Murray said that the function of an institute like the one he heads is to "take in its front door what the farmer has thrown out the back door and try to make something useful from it."

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INVENTION

New Jack for Tire Changes Eliminates Elbow Grease

➤ PART of the work of changing a flat tire will be eliminated by a newly patented jack which does not require the expenditure of elbow grease. The jack raises the car by use of the car's own exhaust gases.

The jack looks something like a deflated footstool with a rubber hose attached. The other end of the hose is fastened on to the exhaust pipe, the car's engine is started, and it thereupon lifts itself off the ground.

The jack was invented by John H. Cox, of Seville, Ohio, and Ralph L. Miller of Akron, who assigned the patent to the Firestone Tire and Rubber Company. It received patent number 2,495,092.

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Words in Science— METHYL-ETHYL

➤ THAT part of chemistry known as organic chemistry has the carbon atom as a skeleton. This carbon skeleton does much to determine the physical properties of the compound.

The methyl group is the name given to the combination of the carbon atom and three hydrogen atoms. Ethyl is the name assigned to two carbon atoms and five hydrogen atoms.

Thus in organic chemistry, the carbon-hydrogen combinations build one on another. And when the methyl group is combined with a certain atom, methyl alcohol results. Methyl alcohol is sometimes used as a rubbing compound. It is, however, poisonous to drink. Ethyl alcohol, on the other hand, is the intoxicating part of alcohol beverages.

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