ENGINEERING

Colored Highways Ahead

A BRIGHT DAY for motorists is foreseen in the near future, when colored highways may replace the monotonous grays and blacks that are traveled today.

Thermoplastics, made from petroleum gases and mixed with an aggregate such as rock and sand, can be produced in any color. The mixture is rolled and applied as a one-inch surface on pavement already laid. The colors are expected to make it easier to follow highway routes. Colored curbing also is planned to define clearly road boundaries to lessen the danger of running off on a soft shoulder, and to warn of intersections and other danger spots.

Tests on the newly developed materials, which employ the highly versatile plastics, polypropylene, polyethylene and polyisobutylene, are under way at the Esso Research and Engineering Company's research center in Linden, N. J., and are almost ready for full-scale experiments on heavily traveled highways and on airport landing areas.

The colored road coverings are expected to prove of great importance to aviation, as they not only identify different landing strips but will serve as a guide to private pilots who follow familiar landmarks, such as highways.

Resistance to oil is expected to make the new plastic material valuable to fueling and repair areas of airports, garages, gasoline service stations and other operations where oil-soaked surfaces are potentially dangerous.

In experiments, the paving materials were subjected to the Marshall Stability Test, where core-like samples were placed in a testing machine under 140 degrees Fahrenheit temperature and tested under various pressures, measured in pounds. For light or medium applications 500 pounds pressure is used; for heavy use, 750; for very heavy use, 1,000, and for airport applications, 1,800 pounds.

New formulations have reached stabilities from two to three times higher than these standards.

Under the Marshall test, a 1,000-pound rating equals from 100 to 120 pounds per square inch. A 20-ton truck exerts pressure of about 70 pounds per square inch.

Science News Letter, July 16, 1960

MEDICINE

Home Treatment for TB

A "HOME-TREATMENT" experimental program for patients with active tuberculosis has proved highly successful in Mississippi.

Seven years ago, 1,712 victims of active tuberculosis were unhospitalized in that state. Of this number, 90% received no care or treatment of any kind. The state's 783 beds for tubercular patients were almost completely occupied.

But by 1956, this backlog was cleared up. Additionally, nearly 85% of newly reported cases were being treated.

This was accomplished with "isoniazid, in combination with other drugs, and enthusiasm, administered in equal parts," Dr. Durward L. Blakey, Mississippi State Board of Health; and Public Health Service workers, Dr. Raymond Hofstra, Esther Gilbertson and Jewell G. Wyman, report in *Public Health Reports,* 75:507, 1960.

For the large number of patients who could not be hospitalized because no beds were available, the outpatient drug therapy program proved a new hope for restored health.

Local health departments, with the support of county and state health workers and the cooperation of private physicians, were responsible for making the program work.

Because of the poor financial condition of the state, funds needed for drugs had to be obtained locally. Whenever practical, patients were encouraged to contribute something toward the cost of the program. The authors believe these payments, however small, "had a good psychological effect on the patients, encouraging them to maintain treatment," as well as helping to ease the burden on the local health departments.

Two years after the program was initiated every county in Mississippi was participating. The home care program included patients who had been hospitalized and discharged.

Of this group, 63% were discharged with medical consent as no longer needing treatment. Those who entered the program without prior hospital care and were so discharged numbered only 29%. Hospitalization, therefore, is still recommended "whenever practical."

The study revealed, however, that the simple objectives of the program had been achieved: "to protect the health of the community by reducing the sources of infection and to improve the health of the patients through treatment."

Science News Letter, July 16, 1960

ELECTRONICS

Analyzer Combines Best Of Two Computers

A SCIENTIST at the National Bureau of Standards in Washington, D. C., has developed a "differential analyzer" that combines the best features of the two main types of computers, analogue and digital.

The proposed analyzer, developed by H. K. Skramstad of the Bureau's data processing systems laboratory, is expected to be used in simulating the problems met in designing missiles and aircraft. Combining features of analogue and digital computers provides greater precision in solving such problems than is possible with an analogue computer alone.

The new system has the advantages of high speed and continuous representation of variables obtained with analogue computers and the high precision and dynamic range obtained with digital computers.

Science News Letter, July 16, 1960

TECHNOLOGY

Person-to-Person Dialing Next Phone Convenience

DIRECT, AUTOMATIC, long-distance dialing of person-to-person calls promises to be the next advance in telephone communications. The results of New York to Poughkeepsie experiment, in which more than 97% of the personal calls were dialed directly with "enthusiastic acceptance by the customer," were reported by a representative of the New York Telephone Company at the American Institute of Electrical Engineers meeting in Atlantic City. Steady increases in telephone toll traffic prompted the experiment.

Science News Letter, July 16, 1960

OCEANOGRAPHY

Undersea Sounds Span 12,000 Miles

UNDERWATER SOUND WAVES from depth charges have been detected at a record distance of 12,000 miles, or virtually half way around the world.

The previous record was approximately 3,000 miles.

Recording of the shots fired from the research vessel, Vema, was reported by Columbia University Seismic and SOFAR station in Bermuda to Dr. Maurice Ewing, director of the Lamont Geological Observatory at Palisades, N. Y.

Acoustic waves from the shots, fired off southern Australia on March 21, reached the Bermuda station in approximately 223 minutes. They traveled through the water, following the sound channel axis near the surface in the south and dropping to depths of about 2,600 feet near the equator.

Science News Letter, July 16, 1960

METEOROLOGY

Reports on Weather Modification Research

THE NATIONAL SCIENCE FOUNDATION, Washington, D. C., has made its first annual report on weather modification research carried on under its direction. The report concludes that the past ten years of experiments attempting to determine if man's efforts can change the weather show the answer can be found only through further fundamental research in the atmospheric sciences.

"Practical results should not be anticipated until a store of new discoveries in the laboratory and in the field has accumulated," the report emphasizes.

Science News Letter, July 16, 1960