

ENGINEERING

Movies While You Ride On Tomorrow's Trains

► MOVIES while you travel will be commonplace on tomorrow's railroads, reported Charles W. Wright, vice-president and engineer of the Pullman Standard Car Manufacturing Company. Engineers and designers are giving more thought to passenger comfort during the waking hours on long trips, he stated.

"We have a new recreation car that is a conventional observation-lounge car by day, but at night it can be converted into a miniature theater and club, so that you can see movies or dance while you travel. It includes a refreshment bar, as well as tables and seats that fold back to provide dancing space. Observation chairs can be shifted to face the movie screen. In the dining cars, traditional rectangular tables have given way to diagonally placed tables with deep cushioned chairs and alcove divans," Mr. Wright stated, speaking as the guest on the CBS program "Adventures in Science" directed by Watson Davis.

The diagonally-placed tables in the diner will reduce aisle congestion and permit more efficient service, he pointed out.

For safety and comfort, Mr. Wright declared that tomorrow's trains will have intra-train telephone systems that will permit train crews to keep in constant touch with each other. Insulation, cushioning, and sound deadening will permit the control of temperatures within the cars, and eliminate noise and vibration. New electrically-controlled brakes will make smoother stopping possible in shorter distances. Soft springs and shock absorbers on the trucks of cars will give floating comfort ride.

Science News Letter, June 2, 1945

MEDICINE

Syphilis of Brain Helped By Penicillin Treatment

► DEMENTED patients and those suffering bouts of excruciating pain or unable to walk because of syphilis of the brain and nervous system may be helped by penicillin, it appears from a report by Dr. Douglas Goldman, of Cincinnati. (*Journal, American Medical Association, May 26*).

Penicillin alone and combined with fever treatment has been given to 22 such patients at Longwood State Hospital. In the group 18 had the mental disease,

dementia paralytica, two had locomotor ataxia and two suffered the excruciating pain of tabes.

All but two of the 18 with mental symptoms have improved. Some are "apparently recovering rapidly from their disease," Dr. Goldman reports.

Of this group, two patients died. They were practically dying, in a "state of pronounced mental and physical deterioration" before the treatment was started. Penicillin was given them not with any hope of saving them but as a test of the safety of the drug for patients suffering from syphilis of the brain.

Of the patients with tabes, one was a woman who suffered every 30 days with five- to 12-day bouts of pain so severe she wanted to kill herself. She has been free from pain for about three months and has changed from a distracted, depressed state to one of normal warmth and brightness. The other patient in this class has also "enjoyed remarkable relief from pain."

It is too soon to be sure how the patients with locomotor ataxia will get along but one has shown some definite improvement.

The results are good enough, Dr. Goldman says, to justify further study of this method of treating neurosyphilis.

Science News Letter, June 2, 1945

HORTICULTURE

Fluorescent Lamps Take Place of Greenhouse

► CUTTINGS of woody plants have been successfully rooted in basement rooms, with fluorescent lamps substituted for the daylight of conventional greenhouse practice, in experiments reported by three U. S. Department of Agriculture workers, Dr. V. T. Stoutemyer, Albert W. Close and F. L. O'Rourke. These experiments, they suggest in *Science* (May 25), point the way to considerable possible savings in commercial nursery practice, since both temperature and humidity are more easily and cheaply controlled in rooms with ordinary walls than in glass houses.

The three men worked with a wide variety of plants, including citrus, cinchona, hibiscus, bougainvillea, weigela and privet. Soil temperature was maintained at the desired level by means of lead-coated heating cables. Some of the plants responded best to continuous illumination; others gave better results when they had light for only 16 hours out of the 24. The needs of each species must be worked out individually.

Science News Letter, June 2, 1945

IN SCIENCE

AERONAUTICS

Four-Engine Flying Boat Is Largest British Plane

► THE LARGEST British airplane yet to take to the air is the 58-ton four-engined Shetland Flying Boat that could fly from London to Bombay, about 4,650 miles, non-stop at 184 miles an hour. It is larger and has a longer range than the American-built Martin "Mars," largest U. S. flying boat. The airplane is a double-deck ship with accommodations for 70 passengers and a crew of 11, and is fully air-conditioned. There are three main compartments as well as a promenade on the after upper deck, a fully equipped kitchen, and rest rooms.

The new giant of the sky, built by Short Brothers, is powered by four 2,500 horsepower Bristol Centaurus air-cooled, 18-cylinder engines. These powerful engines turn four-bladed propellers which have blades measuring 15 feet, 9 inches in length.

The wingspan of the Shetland is 150 feet, greater than that of a B-29 Superfortress, and it has an overall length of 110 feet. Fuel tanks carry more than 6,000 gallons of gasoline and 320 gallons of oil.

Science News Letter, June 2, 1945

CHEMISTRY

Anti-Knock Motor Fuel Uses Lead Substitutes

► ANTI-KNOCK motor fuels of high octane value can now be produced through the addition of compounds of heavy metals other than lead. U. S. patent 2,375,236 has been issued to Dr. Pharis Miller of Elizabeth, N. J., on a basal formula for the anti-knock compounds; he has assigned rights to the Standard Oil Development Company, by which he is employed.

One compound which Dr. Miller regards as especially successful is built around the relatively little known element rhodium; the molecule also contains the carbon monoxide and ammonium groups and either iodine or chlorine. For the rhodium, any of the following elements may be substituted: copper, thorium, lead, chromium, manganese, iron, nickel or cobalt.

Science News Letter, June 2, 1945

CE FIELDS

BOTANY-CHEMISTRY

Pine Tree Produces Useful New Chemical

► THE PINE tree produces a chemical to keep its heart sound. This chemical, which has the somewhat poetic name of pinosylvine, may also prove useful to humans in their struggle against disease germs, it appears from studies reported by Dr. K. O. Frykholm, of the Institute of Public Health, Stockholm, in *Nature*, British scientific journal.

Pinosylvine was discovered in 1939 by another scientist. It protects the tree's dead heart-wood against wood-decaying fungus and insects. The dead heart-wood is both the principal mechanical support of the tree and makes the best lumber. Chemically, pinosylvine is a derivative of stilbene and closely related to resorcine and its derivative, hexyl-resorcine.

This led Dr. Frykholm to explore further its anti-germ properties. He found that its power to stop the growth and kill one of the germs that cause food poisoning is from seven to 30 times as strong as that of phenol, or carbolic acid.

Pinosylvine and its monomethyl ether, Dr. Frykholm concludes from this and other tests, seem to have the strongest germ-killing power of any phenol substance found in nature and isolated. This suggests possible use as an antiseptic.

Its poisonous action, however, is greater than that of phenol. The poisoning symptoms are different, there being no convulsions.

Science News Letter, June 2, 1945

MILITARY SCIENCE

Ship-Based Mortars Blast Jap Troops in Pacific

► TOUGH, maneuverable, and a small target; mortars mounted on infantry landing craft range up and down enemy-held coastlines in the Pacific theater lobbing shells into areas which cannot be reached by ordinary artillery. The path of the mortar shell is a sharp arc, like the trail of a robot bomb. As one infantryman remarked, "You can shoot over a wall and hit the vines creeping up the other side."

The new mortar-carrying ships, after dropping their cargoes of infantrymen

on the beaches, throw up intense fire to fill the interval between the cessation of naval gunfire and the opening bursts of our land-based artillery. Observers on Iwo Jima reported that Yanks on the beachhead were supported in part by the hard-hitting mortar boats which rampaged along the coastlines blasting Japanese supply areas and troop concentrations and knocking out enemy artillery emplacements.

The idea for using ship-based mortars was developed by the Pacific Ocean Areas Chemical Warfare Service. A successful weapon in the European theater, the 4.2-inch chemical mortar is proving its worth again in these Pacific operations. It is actually a light, mobile cannon, designed for rapid high-angle fire of large capacity shells, its maximum range is generally less than 3,000 yards or about one and one-half miles.

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CHEMISTRY

Four Ways to Make Styrene From Petroleum Fractions

► STYRENE, which is combined with butadiene to make GR-S, most commonly used of synthetic rubbers, can be produced from petroleum fractions by a number of methods. Patents on four such methods have been issued to three chemists on the staff of Universal Oil Products Company, of Chicago, to which firm all rights have been assigned.

Dr. Gustav Egloff, well-known chemist who is director of research for Universal, received patent 2,376,532 and 2,376,533. His process starts with a mixture of benzene and ethylene, which combine in the presence of a catalyst to form ethyl benzene. The latter compound is put through a second catalyzing process with ethane, in which a dehydrogenation reaction completes the conversion into styrene.

Somewhat similar is the process on which patent 2,376,709 was issued to Dr. William J. Mattox, except that a mixture of xylene and ethyl benzene is used instead of the ethane-ethyl benzene mixture. A high-octane motor fuel is one by-product of this process.

In the method on which patent 2,376,549 was issued to Dr. Julian M. Mavity, both butadiene and styrene, the two ingredients of GR-S, are turned out simultaneously. In this process the essential materials are ethyl benzene and a petroleum fraction described only as "a normal C₄ hydrocarbon containing at least eight hydrogen atoms."

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PHYSIOLOGY

Movies Put Temperature Up, Do Not Relax Body

► HOLLYWOOD may be able to use a new scientific finding to predict the box-office success of various pictures. All that would be necessary would be to take the temperatures of members of preview audiences before and after seeing the film, Dr. N. Kleitman, of the University of Chicago, suggests. (*Science*, May 18)

Body temperature goes up from one-half to one degree Fahrenheit while attending motion pictures, Dr. Kleitman has found. The rise is enough to be called "highly significant."

Going to the movies is far from being relaxing in the physiological sense, this finding shows. The picture may give "escape from the humdrum reality of existence." However, even though the spectator is sitting, presumably relaxed in a comfortable seat, for two or more hours, the subject matter of the film makes his muscles tense to such an extent that his temperature goes up.

Dr. Kleitman became interested in the effect of motion pictures in the course of a long study of the daily body temperature cycle. He found that after attending a two- or three-hour motion picture show, the subject's temperature was higher than usual for that particular time of day.

A teen-aged girl who went to the movies every two or three weeks over a period of two years and a young lady in her early twenties who was a "movie addict" and went to 29 shows in two months were subjects of special study.

The teen-ager's "movie" temperature ranged between 99 and 100.15 degrees Fahrenheit. At the same time, about 4 p.m., on non-movie days, it ranged from 97.95 F. to 99.70 F. The young lady "movie addict" went to shows mostly in the evening. Her temperature rose about half a degree on movie nights, though when she saw a double feature, her temperature was lower after the second feature than after the first. Either the second feature was less effective than the first in raising the temperature or the normal fall in temperature late in the evening was too strong to be reversed.

"It remains to be seen," says Dr. Kleitman, "whether the collective change in the body temperature of a preview audience can be used to predict the box-office success of a film."

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