

technology notes

TRANSPORTATION

300-MPH Magnetic Train Proposed

A 300-mph train suspended above the ground by magnetic forces has been proposed by two scientists at Brookhaven National Laboratory, Upton, N. Y.

The high-speed train would contain superconducting loops which would act on aluminum wire tracks to create a magnetic repulsion between train and track. The train could be driven by turboprop engines, or by some type of magnetic propulsion, say the inventors, Drs. J. R. Powell and G. R. Danby in the November **MECHANICAL ENGINEERING**.

Small auxiliary wheels would support the train at station stops. Once the train started moving, the current flowing through the superconducting loops would induce a current in the track loops, and the magnetic repulsion between the two currents would lift the train off the ground. Lift-off speed would be about 20 mph.

Two tracks about 10 feet apart would keep the train from rolling. A separate track loop would be provided to keep the train from moving sideways: if it got a few inches off center a restoring force half as large as the train's weight would be induced.

On the economic side, the two inventors estimate that track material would cost less than \$200,000 a mile, and the superconductor for a 100-passenger train, the major cost, would come to \$200,000. This should make a magnetic train far cheaper than air travel, they estimate.

POLLUTION

Sensitive Gas Tracer System

An air pollution tracer system sensitive enough to pick up a gas in concentrations of one part per 100 trillion parts of air has been developed by the National Center for Air Pollution.

The tracer system can be used to map the way air pollutants are distributed in the atmosphere and measure the effectiveness of antipollution dispersion devices on tall smokestacks.

The system uses sulfur hexafluoride gas, which is usually absent from the atmosphere. The gas is released at a point where pollutants are emitted, and the air is sampled miles downwind to see how much of the tracer has been transported. This gives information on the transportation of the pollutants.

Development of the tracer system was under the direction of Dr. A. P. Altschuler and Lawrence E. Neimeyer. The National Center is part of the U.S. Public Health Service.

RADIOACTIVITY

Anti-Smuggling Device in Sweden

A radioactive detector is being used by Swedish customs authorities to spot abnormal shapes in autos where narcotics could be hidden.

Radiation from the isotope contained in the lead-lined detector is reflected off the auto body and measured by a receiver inside the instrument. If the radiation hits a foreign body hidden in a fender or fuel tank, for example, the detector shows it.

Although the instrument can't tell what a hidden object is, it does tell the searcher where to look. The device works best, says the Swedish International Press Bureau, when operated by "an experienced officer familiar with the construction of various motor vehicles."

PROCESSING

Fish Dust Eliminated

Sawdust is usually a negligible loss, but when the dust come from sawing frozen fish for fish sticks the waste means considerable cost.

A heat treatment developed by the British Ministry of Technology's Torrey Research Station in Aberdeen, Scotland, eliminates the sawdust problem. The fish slabs, about an inch and a half thick, are placed between heated platens and brought quickly to 12 degrees F. In that condition they can be chopped without waste.

Before the new technique was developed, the fish had to be warmed gradually for 48 hours, and losses occurred from soft fish flaking off from the edges.

AUTOMATIC HANDLING

Memory Belt Sorts Mail

A long conveyor belt with a built-in "shredded wire brain" is now speeding up mail sorting at the San Francisco Air Mail Facility in California.

Produced by Goodyear Tire and Rubber Co., the rubber and fabric belt contains millions of tiny pieces of fine wire. As each sack goes by, a human operator pushes a button corresponding to the sack's destination in the facility. A signal from the operator's console implants a magnetic address in the belt under the sack.

At each choice-point in the belt's route, automatic devices read each sack's address and send it on its proper course, until it reaches its destination. There a blade extends to scoop the sack off the belt, and the address is automatically erased.

Similar, but smaller, belts are in use at post offices in Memphis, Tenn., and New York City.

HOLOGRAMS

Laser Light Further Purified

A major limit in the size of objects that can be holographed has been the quality of laser light available for the process. Because some variation is usually present in the wavelength of the light emitted, its coherence tends to become too weak for good holograms of objects more than a foot in size.

A method of purifying argon laser light so that it is essentially all of one wavelength has made it possible to make holograms of much larger objects, according to RCA engineers Dr. Istvan Gorog and Dr. Fred W. Spong. The system substitutes an electronically-controlled three-mirror unit for the reflecting mirror ordinarily used at one end of the laser.

With the purified laser, says Dr. James Hillier of RCA Laboratories at Princeton, N.J., the limiting factor now is reduced to keeping the object free from vibration when it is being holographed.

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