

Helicopter Ferries

BY means of helicopters and other rotary wing airplanes which can rise and descend vertically a speedy "ferry" service between distant airports and busy metropolitan centers will be possible, C. E. McCollum of Transcontinental & Western Air, Inc., told the Institute of Aeronautical Sciences.

In carrying more than 1,500,000 passengers a year the 17 major airlines of the nation encounter a great waste of time in getting the passengers to and from airports. Mr. McCollum estimated that in a single year, an hour for each passenger is needed in city-to-airport travel, on the average. This means that in a single year, 173 years of time was spent in the tedious crawl through busy streets in sharp contrast to the swift airplane flight to or from the airport.

The fantastic visions of great roof-top airports atop skyscrapers have little economic justification, Mr. Collum feels.

With the advent of rotary wing planes, a ferry service is wholly practical and it is much cheaper to use small plots of land in the city—no bigger than a square block—for this purpose. With the practical development now of the vertical beam radio altimeter it would be practical even to make landings through dense fog down into the "gorges" between a great city's skyscrapers. The new altimeter, in a hovering helicopter, could give an accurate picture of buildings beneath just as a sea captain now "heaves the lead" to get soundings in a ship's channel.

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CHEMISTRY

Solid "Alcohol" Exhibited At Field Museum, Chicago

SOLID chunks of "alcohol" are on exhibition at the Field Museum of Natural History, Chicago. It isn't some new fangled chemical but the mineral stibnite, in sixteenth century Europe called "alcohol." This antimony sulfide, most important ore of antimony, was known to the Arabs as "kohl," from the Arabic for color or stain. The powdered mineral was used as a cosmetic to increase the apparent size of the eye by blackening the eyelids. "Al" is Arabic for "the" . . . hence "al-kohl" or alcohol.

As years passed, alcohol became a general term for all sublimed powders and later for all distillates. In the last century the use of the word became restricted to the class of organic compounds that contain the hydroxyl group.

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PUBLIC HEALTH—ENGINEERING

"Knockout" Windshields Urged To Reduce Injuries

"KNOCKOUT" windshields for automobiles to reduce the toll of head and neck injuries which doctors now encounter so frequently in motor car accidents are suggested by Dr. B. L. Knight of Cedar Rapids, Iowa. (*Journal, American Medical Association, Dec. 2.*)

Noting that "the most serious medical problem in the United States today is the motor accident," Dr. Knight suggests the construction of windshields which would fall outward, without breaking, when struck with a force of more than 50 pounds from the inside.

The idea is that in the quick stop of an accident the passenger's body and head would be thrown against the windshield and instead of being severely injured by impact with the rigidly-held and very strong safety glass, the blow would merely drive out the windshield when the force was more than 50 pounds.

Problems of designing such a wind-

shield which would not rattle or fall out of its own accord would be encountered, but they do not appear insurmountable.

Dr. Knight, who as coroner for Linn County, Iowa, is frequently called in on fatal highway accidents, has other suggestions for increasing safety. They include:

1. Bumpers entirely around the car, with a removable section to permit changing tires, which would prevent accidents in which the bumper of a car locks into the wheel of another and overturns the car.

2. Improved highway markings preferably right on the pavement in the line of vision.

3. Greater streamlining of the lower body of motor cars so that the fenders do not protrude.

4. Compulsory driver's tests after an accident to discover any driver abnormalities.

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PHYSICS

New Electrical Micrometer Measures .000,005 Inch

A NEW and valuable kind of electrical micrometer, which uses a special radio tube to measure distances as small as five millionths of an inch, has been developed at the U. S. Naval Research Laboratory in Washington.

Dr. Ross Gunn, physicist and superintendent of the mechanics and electricity division of the Laboratory, described the new instrument at the meeting of the American Society of Mechanical Engineers in Philadelphia.

The electrical micrometer is a radio tube consisting of an electron-emitting filament and two tiny plates, insulated from one another and jointly supported by a rod which goes into an elastic diaphragm fixed in the bulbous part of the radio tube.

Outside the tube, and attached to the diaphragm, is spot welded another small rod whose job it is to detect tiny displacements.

Slight displacements of this rod are communicated through the diaphragm into the plates of the tube which move very slightly from their normal positions. This motion brings one plate nearer to the filament and the other plate farther away, resulting in a decided difference in flow of electrical current within the tube.

Normally the current to the two plates balances and zero current is obtained. With the slight shift of plate distance current flows in an amount proportional to the displacement. This current is put through a micrometer and the deflection of the needle of this instrument is a measure of original microscopic displacements.

Dr. Gunn stressed the compactness and stability of the new device as well as its great versatility to a variety of measurements. The electrical micrometer can be used to measure displacements at

remote points and these displacements may be due to tension, compression or torsion.

By attaching a small mass to the external detecting arm of the tube it can be converted into an accelerometer. By the use of elastic bellows fluid pressures can be measured. By using large calibrated proving rings, its range of meas-

urement can be enlarged indefinitely and it has proved useful as an accessory to limit and tolerance gauges.

Because it is able to follow vibrations up to 200 cycles a second it can be attached to an oscillograph and thus produce a visual pattern comparable to the motions of the tiny detecting rod.

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MEDICINE

Pneumonia Control Speeded By New Diagnostic Method

LAATEST aid in the fight to save pneumonia-threatened lives, especially among children, is a new, speedy diagnostic technic which can shorten to six hours or less the time before starting effective treatment. Details of the new technic are reported by Dr. Franklin D. Poole and Miss Mildred D. Fousek, of the New Haven, Conn., Orphan Asylum and Yale University School of Medicine. (*Journal, American Medical Association, Nov. 18*)

Rapid typing of pneumonia germs found in the patient's sputum, in order to determine which type of anti-pneumonia serum should be used in treatment, has already been accomplished, but often in children and sometimes in adults delay still occurs because of difficulty in obtaining sputum for the test. The New Haven scientists have gotten around this difficulty by applying the usual speedy typing technic to material obtained by swabbing the patient's nose.

The method is valuable, it is pointed out, even though many pneumonia patients are now treated with the chemical, sulfapyridine, instead of with anti-pneumonia serum, because it is desirable for the doctor to know whether the pneumonia is caused by a pneumonia germ or by the streptococcus.

Small doses of sulfapyridine given for a short time in treatment of pneumonia in children are recommended by Drs. Charles Hendee Smith and Rosa Lee Nemir, of New York, in a report,

POPULATION

Biggest Migration in World Is Chinese Trek to West

40,000,000 People, Including More Than 30 Universities And Their Students, In Mass Escape From Invasion

IT IS impossible to realize, for those who have not seen, but China's vast wave of refugees moving West now totals 40,000,000.

Estimating this migration—which is the biggest transplanting of human beings in world history—at 40,000,000 is conservative. So declares Dr. David C. Graham, curator of the West China Union University Museum of Archaeology, who has returned to America from the part of China which is suddenly and dramatically invaded by farmers, merchants, teachers, millions of all classes fleeing from areas of Japanese invasion.

"A year ago," said Dr. Graham, "West China had received 30,000,000. Probably another 10,000,000 have come this year."

Despite lack of funds and other handicaps, the Chinese are amazingly resourceful at organizing their new boom area, Dr. Graham has observed. More than 30 universities driven out of East China are established in the West. Farmers from East China find themselves in the bread basket of their great country. Rainfall is heavy enough to make droughts rare. And farmers can plow and sow with less fear of flood, too, since when the Yangtze overflows in this hilly region, it does far less damage than rivers in the flat East. Many Chinese business men have come West bringing their factory hands and machinery to make a new start.

"The intelligentsia of China are thronging West with the other pioneers," says Dr. Graham. "Leaders who got their education in Columbia University and other American schools are establishing up-to-date schooling for the children. China is far-sightedly conserving

her skilled people. University graduates who volunteer to fight have been told that their duty is to teach soil conservation or whatever other special knowledge they have to give."

China's 400,000,000 people are determined to resist Japanese despotism, and given a ghost of a chance they will become a democratic nation, Dr. Graham is convinced. A potential democracy of so many millions in the Far East is a factor which the Western World might well consider seriously, he points out. China, if thrown back on Soviet Russia too long for aid and supplies, may drift toward communism, but the picture of democratic government is far more attractive to the Chinese than is that of communistic rule.

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