

AERONAUTICS

Plane's Swirling Trail Lasts More Than Minute

► AS IT cuts through the air, a plane leaves a trail of air whirlpools that swirl at approximately the same speed for as long as 35 seconds and are still active after a minute. Traveling eight-tenths the speed of sound, a plane would leave a one-minute trail of turbulence extending 10.4 miles at 10,000 feet.

Such vortices of air have proved dangerous to craft that enter them and trouble is sometimes encountered when one plane follows another in a bombing attack.

The turbulence would also presumably cause a missile approaching from the rear to go off course. These air whirlpools are not caused by either the propeller backwash or jet stream, but by the action of the plane's wings, experiments by the National Advisory Committee for Aeronautics indicate.

In the tests, reported by Christopher C. Kraft Jr., a small propeller-driven plane flying at about 150 miles an hour set up smoke-marked vortices. A jet flew at right angles into the charted revolving air. Instruments noted deviations from the true course. The power of the trail was measured only for intervals up to 60 seconds, but it was assumed that the swirling power would continue to dissipate slowly.

In another experiment, one jet followed behind another. The second pilot reported that it was like flying in severe turbulence and that rolling motions were largely uncontrollable.

The researcher pointed out that comparatively small planes were used in the tests and he would expect more powerful swirling in the trail of a bomber.

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PSYCHOLOGY

Tracing Letters Helps Failures in Reading

► CHILDREN WHO have extreme difficulty in learning to read may learn better with the aid of finger movements than they do by the usual visual methods.

This is suggested in research at the University of California at Los Angeles by Drs. Richard Roberts and James Coleman of the psychology department.

An experimental group of reading failures was compared with a group of normal readers in learning "nonsense syllables" by visual presentation alone and with a combination of looking at and tracing the letters. The two groups were matched as to age and sex, and members of both groups were of normal or better intelligence.

The reading failures were found to be significantly inferior to normal readers in visual perception. When tracing words with a finger was added to just looking at them, the reading failures learned the "nonsense syllables" much faster. Normal readers did

not improve with the addition of the kinesthetic method.

These findings lend support to the theory of the late Dr. Grace Fernald, former U.C.L.A. psychologist, who believed that most reading failures are deficient in visual perception and are primarily kinesthetic learners. Although these children initially learn best kinesthetically, their visual perception eventually develops so that they then learn readily by visual methods.

The researchers recommended that educational systems incorporate finger tracing methods for those children who learn better that way.

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SOCIOLOGY

Girls, Like Boys, Learn About Sex From Friends

► GIRLS, LIKE their brothers, get their first information on sex from friends of the same sex and not from parents, ministers or classroom instruction.

This fact was disclosed by a study made of 67 girls enrolled in a course on human growth and development at the University of Oklahoma. The study was conducted by Drs. Henry Angelino and Edmund V. Mech of the College of Education.

Next to girl friends, printed matter was the most common source of first sex instruction. Mother tells her daughter about menstruation and some of the other "facts of life." Father was mentioned by only two girls as providing instruction. School courses are a very rare source.

The girls did not blame their girl friends for giving them misinformation; it was the lack of information that troubled them. One girl commented:

"I had many misconceptions. I don't think anyone ever gave me the wrong ideas, but I was pretty vague on what they didn't tell me."

At least one girl urged that sex education be given in junior high school—and should be required.

Details of the study are reported in the *Journal of Psychology* (April).

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CHEMISTRY

Zinc Binds Vitamin to Enzyme for Alcohol Use

► DISCOVERY THAT the metal, zinc, binds the pellagra-preventing vitamin to an enzyme chemical is announced by Drs. Bert L. Vallee and Frederic L. Hoch of Harvard Medical School in Boston.

With the zinc "bridge," the vitamin and the enzyme, called alcohol dehydrogenase, form a complex essential to the metabolism and production of alcohols.

The alcohol dehydrogenase is found in yeast and in liver. It functions only in the presence of a co-enzyme which contains the vitamin, nicotinamide. The co-enzyme is called DPN, short for diphosphopyridine nucleotide.

Science News Letter, March 26, 1955

IN SCIEN

ANTHROPOLOGY

Sherlock Knew Bones In Spite of Boners

► SHERLOCK HOLMES, famous detective of fiction, displayed a very good knowledge of physical anthropology, Dr. Wilton Marion Krogman, professor of physical anthropology in the graduate school of medicine at the University of Pennsylvania, concludes on the basis of careful analysis of A. Conan Doyle's detective stories.

Although Holmes was guilty of some "boners" in his comments on bones, and was too much influenced by mistaken notions popular in his day, Dr. Krogman calls him "a most worthy colleague in anthropology."

Especially notable was Holmes' ability to estimate the height of a suspect from the length of his stride as shown by his footprints.

He also showed his knowledge of the physical characteristics of different peoples when he deduced correctly that certain diminutive footprints were those of an Andamanese because "the Hindoo proper has a long and narrow foot. The sandal-wearing Mohammedan has the great toe well separated from the others because the thong is commonly passed between."

Dr. Krogman's remarks on Sherlock Holmes as an anthropologist appear in *Scientific Monthly* (March).

Science News Letter, March 26, 1955

METEOROLOGY

Highest Wind Measured At Close to 300 MPH

► THE HIGHEST wind ever reliably measured—close to 300 miles an hour—swept over Philadelphia at 20,000 feet last Jan. 23, meteorologists at the U. S. Weather Bureau now believe.

The strong wind was part of the jet stream, a 300-mile-wide river of rushing air whose meanderings girdle the globe at about 30,000 feet. Discovered by pilots in high-flying bombers during World War II, the jet stream is now known to have a day-to-day influence on weather at the earth's surface.

Winds of 75 miles an hour or more are "hurricane velocity" on the earth's surface. The high wind over Philadelphia was first reported as 392 miles an hour. Although some weathermen believe that such tremendous speeds can occur, measurements made over Philadelphia, now thoroughly analyzed, show the wind actually had the much lower velocity of close to 300 miles an hour. The exact figure is still being argued, however.

Science News Letter, March 26, 1955

CE FIELDS

BOTANY

Red Maple Trees Pace Spring North

➤ RED ROBINS are popularly the first signs of spring, but red maple trees offer man a natural timetable for determining how far and how fast spring is traveling north.

The red maple is one of the first trees to wear its new flower-patterned spring frock. Experts use it as a milestick for pacing spring weather northward because it is one of the few trees that grows from Florida to Quebec.

Spring weather travels up the coast at about 100 miles per week from early March through May, and with allowance for altitude, nearness to large bodies of water and location in cities, the red maple blossoms forth on schedule.

Usually the red maple leaves in February or early March in Florida, in early April in Virginia and Maryland and in early May in southern New York and northern Ohio. A difference of two weeks' growth can often be noted within a distance of 15 miles, mainly a direct effect of altitude. Tree experts report that 500 feet in elevation can cause an appreciable difference in climate.

Along the seashore, trees and shrubs will leaf earlier than inland, while those trees in the city will be ahead of their country cousins. Flowering of trees in the city is aided by reflected heat from buildings and streets. Near large bodies of water, the heat of the water helps to speed the growth process.

Science News Letter, March 26, 1955

MEDICINE

West Coast Medical Center Opens Units

➤ THE FIRST major units of a \$50,000,000 plant for teaching and research in the health sciences on University of California campuses has been dedicated at San Francisco.

The facilities are the 15-story, 500-bed Herbert C. Moffitt Hospital and the 14-story Medical Sciences Building, two key units in the post-war rejuvenation of the plant at the University's Medical Center in San Francisco. The projects represent \$21,000,000 of a \$26,000,000 expansion at San Francisco. Major units of a building program almost as large at U.C.L.A., the Los Angeles campus of the University, will go into operation later this year.

Both buildings are designed primarily for teaching and research. The two units are joined, and both clinical and research laboratories complement each other.

The hospital contains ten surgeries, four equipped with cables for originating closed-circuit television for teaching purposes. The radiology department includes a million volt X-ray machine. There is a rooming-in arrangement in the obstetrics ward. One floor, constructed with funds from the U. S. Public Health Service, is devoted entirely to cancer research. Another is occupied entirely by clinical laboratories. There are humidity and constant temperature rooms and other special facilities.

The medical sciences building houses the schools of medicine and nursing and the colleges of dentistry and pharmacy.

A second unit of the medical sciences building, with more extensive basic science laboratories, will be constructed following the demolition later this year of an old dental-pharmacy building constructed before the turn of the century.

The new plant will make the medical center the largest and most comprehensive on the West Coast.

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TECHNOLOGY

First Industrial Research Reactor to Be Built

➤ THE FIRST nuclear reactor for industrial research will be built in Chicago by Armour Research Foundation of Illinois Institute of Technology after approval by the Atomic Energy Commission.

Industries are helping to finance the reactor and associated equipment, expected to cost half a million dollars. North American Aviation, Inc., will build the pile.

Fissionable material to fuel the pile will be obtained from the AEC on an extended loan basis. The reactor will be the "water boiler," using little more than two pounds of uranyl sulfate in water solution.

Research with the pile will not be competitive with military applications and will not fall under government security regulations. The reactor will not be used for research on reactors or for generating electrical power, but will produce short-lived radioisotopes useful in medical, industrial and scientific research.

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AGRICULTURE

Vegetable Seeds Are Plentiful This Year

➤ VEGETABLE SEEDS for spring planting will be plentiful for the home gardener this year.

The seed supply is the most abundant in the last four years, report more than 100 commercial seed growers. The 1954 crop of 216,300,000 pounds marks a 10% increase over 1953.

Increases in the 1954 seed production available for 1955 planting were registered by cauliflower, winter squash, non-sweet-corn, dwarf green beans, spinach, carrots, kale, onions and dwarf lima beans.

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AGRICULTURE

Attack of Armyworm Causes \$21,000,000 Loss

➤ ARMYWORMS MARCHED against the American farmer last year and ate their way through more than \$21,000,000 worth of grain crops.

Reports from 27 states showed that the heaviest insect infestations were in the areas east of the Mississippi River. Destructive outbreaks of the armyworm were also reported as severe in several Midwestern, North Central and Western states. In Minnesota, for example, it was reported that the insects destroyed 3,500,000 bushels of barley, 7,250,000 bushels of oats, almost 1,000,000 bushels of wheat and more than 1,250,000 bushels of corn.

In answer to a survey questionnaire sent out by the U. S. Department of Agriculture's plant pest control branch, insect-control men in the states said that the weather during 1954 was the prime factor responsible for development of the armyworm attacks.

At the same time, weather, natural enemies and controls were credited for halting the outbreaks in many states. A concentrated counterattack against the armyworms with insecticides saved American agriculture an estimated loss of \$60,000,000.

Science News Letter, March 26, 1955

MEDICINE

102 New Drugs Slated For U.S.P. This Year

➤ SO-CALLED MOLD remedies, or antibiotics, anti-histamines, hydrocortisone and a radioactive chemical used in diagnosis and treatment are among the 102 new drugs admitted to the U.S. Pharmacopeia, 15th revision, due this year.

The Pharmacopeia is a book which provides the standards for the most important medicines used in the United States and many Latin American countries.

Established in 1820, it is revised every five years by a national voluntary committee of medical and pharmaceutical experts. Its standards are enforced by the U.S. Food and Drug Administration and by many local health agencies.

Some of the 102 new drugs were unknown when the 14th revision of the Pharmacopeia went to press in 1950. Tetracycline is an example. Hydrocortisone, though known in 1950, was only a laboratory curiosity.

Making room for the more than 100 new drugs, 163 U.S.P. XIV articles were dropped, among them Digitalis Tincture. The former standard heart medicine has given way to digitoxin, its principal constituent and a more palatable drug for heart patients to take by mouth.

The standards for the new articles are expected to become effective between Nov. 1 and Dec. 31, 1955.

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