

AERONAUTICS

Air Speed Champions to Fly Six Miles High

AIRPLANES capable of flying at heights of over six miles, and capable of much higher speed than existing machines, are being constructed at the famous Junkerswerke at Dessau, Germany. Already the first airplane to be used for research in this work has been constructed with the assistance of the German Institute for Research in Air Communication and the scientific Notgemeinschaft.

The mysterious guns of the German army, bombarding Paris at a distance of 75 miles, were the first practical application of the decidedly lower resistance of the "stratosphere," that tenuous layer of the atmosphere lying above a height of six miles. The chief aim of the new machine is to reach high altitudes and to find paths which can be used as regular airplane trade routes. It is not built for high speed or long flights, since it is regarded as an experimental laboratory for the study of the special conditions prevailing in the stratosphere. High speed can easily be attained at these heights. Recording rockets and balloons have been previously used to explore the stratosphere.

The airplane is a Junkers metal deep-deck, single motored machine of wing breadth 60 feet and weight 9,000 pounds. A small compressor keeps the air pressure normal for the lungs within the cabin, which is double-walled and air-tight. Control of the motor and steering is accomplished by levers in the cabin working in air-tight shafts. The motor itself is of a special type and has an air pump to supply enough air from the thin air at these heights.

On the basis of experiments with this machine a new air pump will be designed for altitudes up to ten miles. A large installation of scientific instruments forms the equipment of the plane.

Science News Letter, June 6, 1931

PUBLIC HEALTH

Scarlet Fever and Measles Epidemics Reach Peaks

THE EPIDEMICS of scarlet fever and measles which have visited the country have reached their peaks, it appears from reports of state health officers to the U. S. Public Health Service. For the week ended May 23, there were 20,080 cases of measles and 4,727 cases

of scarlet fever. This is a drop of about a thousand cases for each disease over the previous week's totals. It is still too early, however, to foresee the end of the epidemics.

The measles epidemic has been general over the entire United States, while the scarlet fever outbreak appears to have occurred largely in the Atlantic and East North Central groups of states. The majority of cases of scarlet fever were reported from Massachusetts, New York, New Jersey, Pennsylvania, Illinois and Michigan.

The scarlet fever outbreak is of particular interest to health officers because this disease has been more prevalent this year than at any time for the last three years. An unusual feature of both epidemics is that they are occurring much later than the usual season for measles and scarlet fever outbreaks. These diseases are usually most prevalent in February, March and April, and generally have reached a low point by this time of the year.

Science News Letter, June 6, 1931

ANTHROPOLOGY

Present Harvard Men Taller Than Ancestors

TAKING THOUGHT may not add one cubit to your stature, but going to Harvard may have some such effect on the stature of your sons. At least, passing through three successive generations of American university life as exemplified at the oldest of American universities has the effect of filtering out and possibly intensifying a tendency for sons to be taller than their fathers and grandsires.

This is indicated by studies announced by a Harvard graduate student in anthropology, Gordon Townsend Bowles, of Tokyo, Japan, who worked under the direction of Prof. E. A. Hooton. Comparing records of the present student generation with those accumulated since 1870, Mr. Bowles was able to check up on heights, weights and other measurements of about two thousand father-son pairs. He found that there is a steady tendency toward greater height and increased width of shoulders, but less girth at the hips. The increases in length of bones seem to come mainly in the middle of the body: in the trunk, thighbones and upper arm bones. There is an increase, but a less notable one, in length of forearm bones and shinbones.

Science News Letter, June 6, 1931

IN SCIEN

MILITARY SCIENCE

Award Not Made In Mustard Gas Contest

THE PRIZE offered by the International Committee of the Red Cross at Geneva for a reagent to detect small amounts of deadly mustard gas in the air has not been awarded, it has just been announced. The jury of chemists found none of the submitted reagents satisfactory.

According to the terms of the contest, the reagent should have been able to detect with certainty less than one grain of the gas in about one quart of air (0.07 mg in 1 liter). The amount of the prize was 10,000 Swiss francs, about \$2,000. The contest closed last December and the jury has since then been considering the reagents submitted with their methods of use. These were known to the jury only by number, the names of the authors being kept separately.

All the methods and reagents were examined in detail. Nine were eliminated at the first examination. The remaining four were made the subject of control experiments. The results were not sufficiently conclusive and the jury decided not to make the award.

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GEOLOGY

Souvenir-Hunter Steals 32,000 Year Old Trophy

POLICE are looking for a man who has stolen a stalactite from the famous caves at Wookey Hole, Somerset. If it is not recovered there will be a delay of some 32,000 years before the decorations resume their correct appearance, for the missing stalactite is eight inches long, and it takes, roughly, 1,000 years for a quarter of an inch to grow.

Wookey Hole is probably the most famous and most interesting cavern in Britain, under the Mendip Hills some twenty miles from Bristol. Close by is the "Hyena's Den," where remarkable discoveries of prehistoric animals and men were made many years ago.

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CE FIELDS

METALLURGY

Magnetism Increases Hardness of Metals

THE HARDNESS of steel can be increased by rotating the specimen between the poles of a powerful magnet, E. G. Herbert has discovered at the University of Manchester and reported here to the Royal Society of London.

Steel, duralumin and even brass can show this peculiar behavior.

The process will probably be applied to the hardening of drills, cutters and dies.

Dr. Herbert had shown that previously metals hardened by working can be hardened further by magnetic treatment. He has now shown that age-hardening can be similarly increased by the use of magnetic forces.

Improvement of hardness up to nearly 50 per cent. has been found by this method, the effect being greater at higher temperatures.

Science News Letter, June 6, 1931

MEDICINE

Inoculation Found to be No Cure for Asthma

THAT INOCULATION is no cure for asthma would seem to be one of the conclusions to be drawn from the report of the Asthma Research Council's clinic at Guy's Hospital, London. This verdict is based on the study of more than 200 patients. It has been proved that the disease, which occurs with equal frequency in both sexes, and in which heredity plays an important part, is often associated with eczema, nettle-rash and hay-fever.

The bodily condition in which these diseases tend to occur is termed allergy, and a substance which produces one or another of these manifestations when brought into contact with the patient is called an "allergen." Cheese, eggs, fish and feathers were found to be the commonest offending substances. Unfortunately, in only about three per cent. of patients was relief of the asthma obtained by avoiding an allergen that gave

a positive skin reaction, that is to say, which produced a skin weal after scratching as in vaccination.

Asthmatics should avoid boiled milk. Rice, sago, cornflour, semolina, arrow-root, etc., should be boiled in water, and cold milk or cream with sugar or stewed fruit added when served. Powdered glucose administered night and morning on an empty stomach was found to cause a high percentage of improvement in early life.

Although no cure for asthma has yet been discovered, the observation of the occurrence of a complex nitrogenous substance of a proteose character in the kidney secretion of asthmatics holds out hope of progress.

Science News Letter, June 6, 1931

ENGINEERING

New Auto and Plane Fuel Proof Against Matches

A SAFETY fuel for automobiles and airplanes that is as incombustible as Diesel oil and yet as powerful and as productive of engine performance as good aviation gasoline was demonstrated before the sixth annual aircraft engineering research conference of the National Advisory Committee for Aeronautics, at Langley Field, Va.

The new liquid is being tested at the Langley Memorial Aeronautical Laboratory in a special single-cylinder engine. This new fuel, produced by one of the leading oil companies, by means of the new process of hydrogenation, has such a low flash point that a lighted match can be tossed into it without starting a fire.

It is expected to be important in preventing fires that now follow immediately upon crashes of gasoline-engined airplanes. The fuel is not yet on the market.

To use the new kind of fuel it is necessary to replace the conventional carburetor with an injection pump, but the explosive mixture within the engine cylinder is fired by electrical ignition rather than by compression as in the Diesel engine. With this new development it seems probable that the problem of providing future airplanes with less dangerous fuel may be met by an adaptation of present internal combustion engines rather than a complete change to the Diesel type.

The new fuel is yellow in color, contains less sulphur and does not gum as readily as ordinary gasoline.

Science News Letter, June 6, 1931

PSYCHIATRY

Psychoanalyze Children to Prevent Mental Disease

PSYCHOANALYSIS of children offers a greater hope for prevention of mental disease than any other procedure now known, Dr. L. Pierce Clark of New York told the American Psychopathological Association, which met in Boston last week.

Dr. Clark reported that he has used psychoanalysis in studying children who are mentally dull. In the slow minds of some of these children an infantile outlook on life persists, and the ego fails to develop normally, Dr. Clark finds. By psychoanalysis, the child's mental conflicts are traced to their origin, and then the child is set on the road to more normal personality development.

Use of the method with the feeble-minded children may prove valuable in providing a better understanding of normal children, the speaker stated, since all children pass through the same processes of mental development. In the feeble-minded child some of the very early patterns of personality development may be observed.

That children as well as adults may be treated for mental abnormalities by the psychoanalytic method was suggested by Sigmund Freud, father of psychoanalysis, but the field is still comparatively new and difficult, Dr. Clark said.

"Child analysis is no sure or easy road to prevent the neuroses and psychoses of later life," Dr. Clark warned. "But we do believe that further painstaking effort along these lines will do more toward fostering the preventive work of mental hygiene than any other procedure now available."

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PUBLIC HEALTH

Ten Cities Reported Free From Typhoid

TEN CITIES made the typhoid honor roll for 1930, the American Medical Association has reported as a result of its annual survey.

The ten with no deaths from typhoid fever during the year, are Bridgeport, Jacksonville, Kansas City, Kan., New Haven, Paterson, Peoria, South Bend, San Diego, Utica and Worcester.

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