

AERONAUTICS

Stall-Warning Devices

► **THE NEED** for stall-warning devices on light planes such as used in private flying is emphasized again by the National Advisory Committee for Aeronautics in a report which summarizes the devices now available.

Stall in aviation is a term in general use to indicate the condition that occurs when a plane becomes uncontrollable due to lack of speed or headway. Every plane has a certain flying speed at which the lift is sufficient to keep it safely along its path.

In rising to higher altitudes or dropping for a landing, its angle of attack, the angle between the chord of the plane and the relative wind, is apt to become such that the plane loses its lift. More accidents of private planes occurred from stalling than from any other cause up until the last quarter of 1951 when stall-spin accidents decreased.

The report, prepared at the NACA Aeronautical Laboratory, Langley Field, Va., by John A. Zalovcik, discusses a variety of stall-warning devices now available. The purpose of the paper is to describe the principles involved in several types of special stall-sensing devices and angle-of-attack sensing devices and point out some conditions under which difficulty may be experienced.

Stall-sensing devices usually operate on flow characteristics associated with the movement of the stagnation point or with flow separation on the wing. Those based on the movement of the stagnation point make use of the large change in pressure or the 180-degree change in flow direction as the stagnation point moves past a given position on the leading edge of the wing.

An angle-of-attack-sensing device measures the angle of local flow relative to an

arbitrary reference line. An instrument of this type may consist of a vane pivoted in such a way as to align itself with the local flow.

Both sensing devices must have means of transmitting the warning to the pilot. These may be based on sight, hearing or feel. The "feel" method sets up vibrations in a rudder-pedal shaker or a stick shaker which the pilot can distinguish from ordinary air-plane vibrations.

Science News Letter, July 5, 1952

MEDICINE

Bronchial Tubes Cleansed by Aerosol

► **GOOD RESULTS** with aerosol cleansing of bronchial tubes in patients with lung and bronchial diseases, including tuberculosis, are reported by Drs. Carl R. Limber, Howard G. Reiser, L. Chandler Roettig and George M. Curtis of Ohio State University, Columbus, in the *JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION* (June 28).

The aerosol, which the patients breathe through a nasal mask, contains trypsin. This is an enzyme, or ferment, which digests protein. When breathed into the bronchial tubes, it digests the thick sputum and mucus sufficiently so that patients can cough it up easily.

For a few hours after a treatment, patients cough more, but it is not the hard, dry, racking cough that formerly tired them. Then after this period of increased but easier coughing, they do not cough for a few hours, probably because all the material has been "flushed" out of the bronchial tubes. Patients sleep better, their appetites improve and they gain weight.

Question Box

ASTRONOMY

What planets other than earth have been found to have hydrogen in their atmospheres? p. 6.

How many eclipsing stars have been spotted beyond our own galaxy? p. 13.

ENGINEERING

How many times has the Empire State Building been struck by lightning in the last 10 years? p. 8.

FOREST PATHOLOGY

What new forest disease is threatening the nation's sweet gum trees? p. 8.

Photographs: Cover, New York Zoological Society; p. 3, Westinghouse Electric Corporation; p. 5, United States Line Company; p. 7, Westinghouse Air Brake Company.

LANGUAGE

What is Interlingua? p. 10.

NUTRITION

How can salt-free diets be made more tasty? p. 14.

VETERINARY MEDICINE

What may cause horses to go lame? p. 7.

How are mink coats now threatened? p. 12.

What country has more rabies than probably any other in the world? p. 13

In a few cases, patients with tuberculosis had negative sputums for several weeks after the bronchial cleansing treatment. The Ohio State doctors do not have any evidence yet that the treatment interferes with the growth of the tuberculosis germs. Sputums became positive again. But the cleansing results in a more normal state in the bronchial tubes which presumably is helpful.

The Ohio State doctors have given a total of 251 treatments to 33 patients with tuberculosis, bronchiectasis, atelectasis, pneumonia, pneumonitis and bronchitis.

Science News Letter, July 5, 1952

SCIENCE NEWS LETTER

VOL. 62 JULY 5, 1952 No. 1

The Weekly Summary of Current Science, published every Saturday by SCIENCE SERVICE, Inc. 1719 N St., N. W., Washington 6, D. C., NORTH 2255. Edited by WATSON DAVIS.

Subscription rates: 1 yr., \$5.50; 2 yrs. \$10.00; 3 yrs., \$14.50; single copy, 15 cents, more than six months old, 25 cents. No charge for foreign postage.

Change of address: Three weeks notice is required. When ordering a change please state exactly how magazine is now addressed. Your new address should include postal zone number if you have one.

Copyright, 1952, by Science Service, Inc. Reproduction of any portion of SCIENCE NEWS LETTER is strictly prohibited. Newspapers, magazines and other publications are invited to avail themselves of the numerous syndicate services issued by Science Service. Science Service also publishes CHEMISTRY (monthly) and THINGS of Science (monthly).

Printed in U. S. A. Entered as second class matter at the post office at Washington, D. C. under the act of March 3, 1879. Acceptance for mailing at the special rate of postage provided for by Sec. 34.40, P. L. and R., 1948 Edition, paragraph (d) (act of February 28, 1925; 39 U. S. Code 283), authorized February 28, 1950. Established in mimeographed form March 18, 1922. Title registered as trademark, U. S. and Canadian Patent Offices. Indexed in Readers' Guide to periodical literature, Abridged Guide, and the Engineering Index.

Member Audit Bureau of Circulation. Advertising Representatives: Howland and Howland, Inc., 393 7th Ave., N.Y.C., Pennsylvania 6-5566 and 360 N. Michigan Ave., Chicago. STATE 2-4822.

SCIENCE SERVICE

The Institution for the Popularization of Science organized 1921 as a non-profit corporation.

Board of Trustees—Nominated by the American Association for the Advancement of Science: Edwin G. Conklin, Princeton University; Karl Lark-Horowitz, Purdue University; Kirtley F. Mather, Harvard University. Nominated by the National Academy of Sciences: Harlow Shapley, Harvard College Observatory; R. A. Millikan, California Institute of Technology; Homer W. Smith, New York University. Nominated by the National Research Council: Ross G. Harrison, Yale University; Alexander Wetmore, Secretary, Smithsonian Institution; Duane Roller, Wabash College. Nominated by the Journalistic Profession: A. H. Kirchhofer, Buffalo Evening News; Neil H. Swanson, Baltimore Sun Papers; O. W. Riegel, Washington and Lee School of Journalism. Nominated by the E. W. Scripps Estate: Frank R. Ford, San Francisco News; John T. O'Rourke, Washington Daily News; Charles E. Scripps, E. W. Scripps Trust.

Officers—President: Harlow Shapley; Vice President and chairman of Executive Committee: Alexander Wetmore; Treasurer: O. W. Riegel; Secretary: Watson Davis.

Staff—Director: Watson Davis. Writers: Jane Stafford, A. C. Monahan, Marjorie Van de Water, Martha G. Morrow, Ann Ewing, Wadsworth Likely, Allen Long. Science Clubs of America: Joseph H. Kraus, Margaret E. Patterson. Photography: Fremont Davis. Sales and Advertising: Hallie Jenkins. Production: Priscilla Howe. In London: J. G. Feinberg.