

## ASTRONAUTICS

# Propose "Space Ferry"

TWO AIRCRAFT companies report joint development of a space ferry for carrying men and materials out to space stations.

Lockheed and Hughes Aircraft companies said the design has been proposed to Government agencies, and that it could be ready by 1965 or 1966.

In operation, it would consist of a pyramid-like package attached to the nose of a powerful, three-stage, automatically programmed booster rocket. The booster rocket would put the space ferry into orbit 300 to 500 miles above the earth.

At this point, the pyramid would begin unfolding until it had exposed 1,000 square feet of wing surface. It would then look like a huge arrowhead. Nestled between the two wings, like the body of a bee, would be a payload capsule carrying 14,000 pounds of construction materials, a pilot and three passengers.

By controlling a 7,500-pound thrust-throttleable engine and by using 12 small reaction rockets spaced on the wings, the pilot would maneuver the vehicle until con-

tact was made with the space station. He would be aided by radar and other navigational instruments.

Meanwhile on earth, a ground crew could be preparing another capsule to be carried up on the next "flight."

After completing its mission, the space ferry would then be piloted back toward the earth. It would enter the earth's atmosphere, withstand 2,500-degree-Fahrenheit temperatures during reentry, and land gently at speeds below "those of existing airlines," said Lockheed's vice president Burt C. Monesmith, and Hughes' vice president Roy E. Wendahl.

A new payload capsule then would be attached and the vehicle readied for its next flight. Flights would be routine enough to be timetabled, the men indicated.

The space ferry also could be used for tracking and inspecting unidentified objects in space, for "sweeping" derelicts from spacelanes and for scientific and training purposes.

Science News Letter, November 14, 1959

## ASTRONOMY

# Date Stellar Clusters

WHITE DWARF stars, which have densities so high a cubic inch of such a star might weigh up to 100 tons, indicate the ages of the clusters of stars in which they are found.

They tell ages because these rare stars are dying ones, the last visible stage in stellar evolution, Dr. Willem J. Luyten of the University of Minnesota reported.

He told a joint meeting, in Pittsburgh, of two local chapters of the Society of Sigma Xi that white dwarfs were discovered only about 40 years ago, and that their importance was becoming greater every year. He said finding such stars, which are no larger than a planet but with a mass

nearly that of the sun, caused a minor "revolution" in astronomical thinking.

According to all theories current at that time, Dr. Luyten pointed out, this kind of star simply could not exist. White dwarfs remained a mystery until the late Sir Arthur Eddington explained that they were matter in the raw, collapsed atoms.

Such stars provide a test for Einstein's theory of relativity, and allow the study of matter under conditions that cannot be duplicated on earth.

The University of Pittsburgh chapter and the Carnegie Institute of Technology chapter sponsored the joint meeting.

Science News Letter, November 14, 1959

## BIOCHEMISTRY

# Meter Tests Drunkenness

FASTER and more accurate drunk-driving tests are possible through the use of an instrument already widely used in the chemical, petroleum, and food industries.

The instrument is the vapor fractometer, based on an analytical technique known as gas chromatography. Dr. Melvin Haley, visiting professor of biochemistry at the University of Southern California and consulting toxicologist to San Bernardino and Riverside Counties, suggested using the device as a more positive test of intoxication.

"Operated under laboratory conditions by trained personnel," Dr. Haley said, "methods presently used give a fairly reliable indication of the quantity of alcohol in the

blood. But, as the techniques are now applied, there are simply too many opportunities for serious inaccuracies to creep into the results for these methods to be acceptable as legal evidence."

Law enforcement authorities, he said, are encountering increasing difficulty in getting convictions for drunk driving because defense attorneys can often successfully attack the validity of intoxication tests.

Dr. Haley claimed the gas chromatography technique can automatically deliver three detailed and highly accurate profiles of a blood sample in less time than present procedures require to obtain a single and therefore less reliable analysis.

The chromatography process involves nothing more than injecting samples of a person's blood, urine, or breath into the fractometer, he said.

Patrol officers would make the same simple field test they now use on a suspected driver and, if the results are positive, bring him to the police station where the sample would be taken. This would be delivered to the laboratory and a test made.

Running through three samples, he said, would take less than a half hour compared with more than an hour for one test.

The vapor fractometer is manufactured by Perkin-Elmer Corporation, Norwalk, Conn.

Science News Letter, November 14, 1959

## SCIENCE NEWS LETTER

VOL. 76 NOVEMBER 14, 1959 NO. 20

Edited by WATSON DAVIS

The Weekly Summary of Current Science, published every Saturday by SCIENCE SERVICE, Inc., 1719 N St., N.W., Washington 6, D. C., North 7-2255. Cable Address: SCIENSERVC.

Subscription rates: 1 yr., \$5.50; 2 yrs., \$10.00; 3 yrs., \$14.50; ten or more copies in one package to one address, 7½ cents per copy per week; 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 © 1959 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 syndicated services issued by Science Service. Science Service also publishes CHEMISTRY (eight times a year) and THINGS of Science (monthly).

Printed in U.S.A. Second class postage paid at Washington, D. C. Established in mimeograph form March 13, 1922. Title registered as trademark, U. S. and Canadian Patent Offices. Indexed in Reader's Guide to Periodical Literature, Abridged Guide, and the Engineering Index. Member Audit Bureau of Circulation.



### 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: William W. Rubey, U. S. Geological Survey; Wallace R. Brode, National Bureau of Standards; Douglas Whitaker, Rockefeller Institute for Medical Research. Nominated by the National Academy of Sciences: Harlow Shapley, Harvard College Observatory; Philip Bard, Johns Hopkins University; Henry Allen Moe, John Simon Guggenheim Memorial Foundation. Nominated by the National Research Council: Leonard Carmichael, Smithsonian Institution; John R. Dunning, Columbia University; Benjamin H. Willier, Johns Hopkins University. Nominated by the Journalistic Profession: Michael J. Ogden, Providence Journal-Bulletin; O. W. Riegel, Washington and Lee University; Lee Hills, Detroit Free Press. Nominated by the Scripps Estate: Edward J. Meeman, Memphis Press-Scimitar; Frank Ford, Washington, D. C.; Charles E. Scripps, Cincinnati, Ohio.

Officers—President: Leonard Carmichael; Vice President and Chairman of Executive Committee: Charles E. Scripps; Treasurer: Wallace R. Brode; Secretary: Watson Davis.

Staff—Director: Watson Davis. Writers: Helen Buechl, Ann Ewing, Richard Litell, Allen Long, Jane Marye, Benita Tall, Marjorie Van de Water. Science Youth Division: Joseph H. Kraus, Dorothy Schriver, Shirley Moore. Photography: Fremont Davis. Production: Priscilla Howe, Marcia Nelson. Syndicate Sales: Hallie Jenkins. Interlingua Division in New York: Alexander Gode, 80 E. 11th St., GRamercy 3-5410. Advertising Manager: Fred A. Moulton, METropolitan 8-2562.