



Science News-Letter

The Weekly Summary of Current Science

Reg. U. S. Pat. Off.

A Science Service Publication



Edited by **Watson Davis**
Vol. XII No. 328



10¢ a copy \$5 a year
July 23, 1927

AVIATION

Floating Islands for Transoceanic Air Routes



EDWARD R. ARMSTRONG, with a model of his floating "seadrome." Below is a model of the S. S. Majestic to the same scale.

By **GLADYS MOON JONES**

Soon the tourist and the business man will be doing a Lindbergh across the Atlantic.

What must come before the daring hops of Lindbergh, Chamberlin and Levine are transformed into a regular passenger, express and mail service so safe and reliable that you and I will patronize them?

To the developments of aviation that have come so speedily since the Wrights' first flights at Kitty Hawk, there must be added:

Landing fields on artificial floating islands anchored far at sea.

Multi-engined seaplanes of large carrying power.

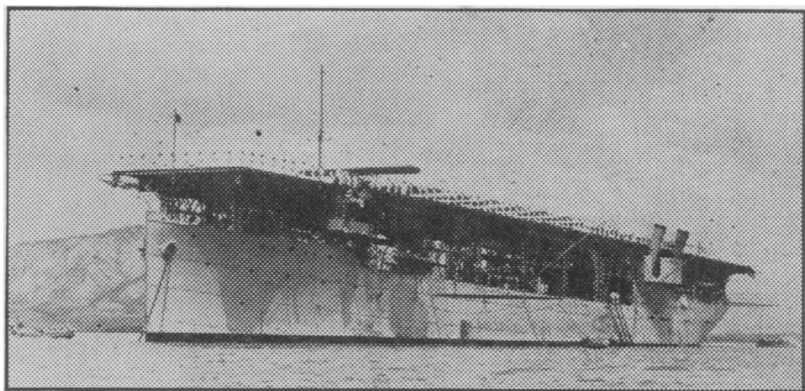
Seaplanes whose hulls will withstand the buffeting of a moderate storm when forced down to the ocean's surface.

Improved weather forecasting and reporting.

When the seaplanes are dotted with floating emergency landing fields; when flying from New York to Paris is as common as the aerial journey from London to Paris, then spending the week-end in Europe may become practicable as well as fashionable.

Engineers and air enthusiasts in the United States and other countries, who have been inventing and planning landing fields in the sea, are no longer looked upon as dreamers or worse. Transoceanic aeronautics is ready for seadromes, aviation experts believe. They visualize floating fields at intervals of four or five hundred miles, lighted at night, strung together by route buoys and light beacons and equipped with fog signals and directional radio that will make the airways safe. Transoceanic flying companies will carry us, our mail and our freight at no greater cost and at a much greater speed than by boat at the present time.

(Just turn the page)



AIRCRAFT CARRIER LANGLEY. The U. S. Navy's effort to solve the floating landing-field problem.



INDEX TO THIS ISSUE

Airports, Floating.....	49	Chemistry, Elementary Physical.....	61	Kendall, James.....	61	Seadrome, Floating.....	49
Air Speed Limited.....	63	Chemistry, General.....	61	McCracken, Anna.....	61	Seasickness, Fear and.....	55
Algonquian and Other Burials.....	61	Corona, First Photograph of.....	63	Michelson, A. A.....	61	Science of the Last Century.....	53
Anniversaries of Science.....	63	Sun's.....	63	Moths, Catching.....	52	Sparrows.....	59
Armstrong, Edward R.....	49	Davis, Stephen.....	61	Murder, The Psychology of.....	61	Speed in Air Limited.....	63
Arthur, John M.....	53	Electricity from Windmills.....	53	Nature Ramblings.....	59	Studies in Optics.....	61
Atlantic Cable Successfully Landed.....	63	Elementary Physical Chemistry.....	61	Nature Study.....	51	Sunstroke Oldest Disease.....	55
Baby's Personality Not Set.....	55	Europa, 1927.....	61	Optics, Studies in.....	61	Sweden Approves Blood Tests.....	55
Bauer, Louis H.....	63	Fear and Seasickness.....	55	Oxygen Discovered by Priestley.....	63	Taylor, Hugh S.....	61
Blood Tests, Sweden Approves.....	55	Felix, Edgar H.....	61	Paternity, Blood Tests to Settle.....	55	Templin, Olin.....	61
Boldyreff, W. N.....	55	Floating Islands.....	49	Questions of.....	55	Thinking, A Guide to.....	61
Brain May Be Perfect in Future.....	59	Foster, William Trufant.....	61	Personality of Young Children.....	55	Tilney, Frederick.....	59
Burials of the Algonquian and Other Tribes.....	61	General Chemistry.....	61	Planting Your Own Trees.....	51	Trees from Seeds, Growing.....	51
Business Without a Buyer.....	61	Gisbourne, F. N.....	63	Plant Growth Speeded.....	53	Transatlantic Air Routes.....	49
Butterflies, Watching Life of.....	52	Guide to Thinking.....	61	Priestley Discovered Oxygen.....	63	Wakefield, E. G.....	55
Cable, Landing of Atlantic.....	63	Hall, W. W.....	55	Psychology of Murder, The.....	61	Welch, Fay.....	52
Catchings, Waddill.....	61	Jewels of the Darkness.....	52	Radio Communication, The Law of.....	61	Windmill, Electricity from.....	53
		Judd, Charles.....	55	Radio in Sales Promotion.....	61	Science News-Letter, July 23, 1927	

Floating Airports

(Continued from page 49)

No, we are not dreaming to wake up and find the world the same slow, old jogtrotter. The mine-sweepers are already in commission to haul a seadrome, designed by Edward R. Armstrong of E. I. du Pont de Nemours Company of Wilmington, Del., 500 miles to sea. Private capital is behind it, and the Navy has been asked to station observers to watch it work.

First Seadrome Ready For Test

Ocean flyers will come down on the floating dock shortly if all present plans carry. This test seadrome, about 150 feet square, will be anchored where the water is about three miles deep, in the deepest "water hole" along the steamship lanes between North America and Europe. Future full-sized docks will be 1,200 feet long, have an area of about three acres and a displacement of about 15,000 tons. The upper deck will be about 100 feet above sea level. Great ballast weights will be placed far below the surface of the sea, where the wave action is negligible. Above through the open steel work the waves will carry through without affecting the landing deck, which remains level in stormy seas.

The seadrome will be anchored by steel cables built to stand a stress double the maximum they will actually experience. These cables must be more than 20,000 feet long in water "holes."

Small models of the Armstrong seadrome on a lake near the inventor's home proved feasible and were filmed for presentation to the Navy. They are said to be entirely practicable.

Another inventor, A. C. Heaphy of New York, began on his plan in 1918 and claims the basic patents on cellular plastic construction to be used in building floating airports. The prod-

(Continued on page 57)

News-Letter Features

Born over four years ago of the demand and interest of those individuals who had caught a glimpse of *Science Service's* news reports to newspapers, the SCIENCE NEWS-LETTER has since proved interesting to laymen, scientists, students, teachers and children.

Into the pages of the NEWS-LETTER are fed the cream of *Science Service's* output directed at the newspapers of the world. To this is added material especially prepared.

Turn the pages and note:

It is a *separable magazine*. You can clip or tear out any article without losing or damaging another article on the other side.

Each article is automatically *indexed* by the key word printed above its heading. Articles can thus be filed easily into any system of classification.

Each article is automatically *dated* by its last line.

The current *news* of science, reported for *Science Service* by its own staff and correspondents throughout the world is presented and commented upon in each issue.

Books are *reviewed in brief* as they are received from the publishers.

The classics of science and striking passages from current books, addresses and periodicals are carefully selected and published.

Important *anniversaries* of science are appropriately noted week by week in a special department.

Regular articles tell of the happenings in the *skies* and in the great *outdoors*.

Photographs aid in the telling of the week's science.

Great care is taken to keep its editorial content not only *interesting* but *accurate* as to fact and implication.

The Science News-Letter is copyrighted and is sold with the understanding that it for personal, school, club or library use only. Publication of any portion is strictly prohibited.



SCIENCE NEWS-LETTER, The Weekly Summary of Current Science. Published by Science Service, Inc., the Institution for the Popularization of Science organized under the auspices of the National Academy of Sciences, the National Research Council and the American Association for the Advancement of Science.

Publication Office, 1918 Harford Ave., Baltimore, Md. Editorial and Executive Office, 21st and B Sts., N. W., Washington, D. C. Address all communications to Washington, D. C.

Entered as second class matter October 1, 1926, at the postoffice at Baltimore, Md., under the act of March 3, 1879. Established in mimeograph form March 13, 1922. Title registered as trade-mark, U. S. Patent Office.

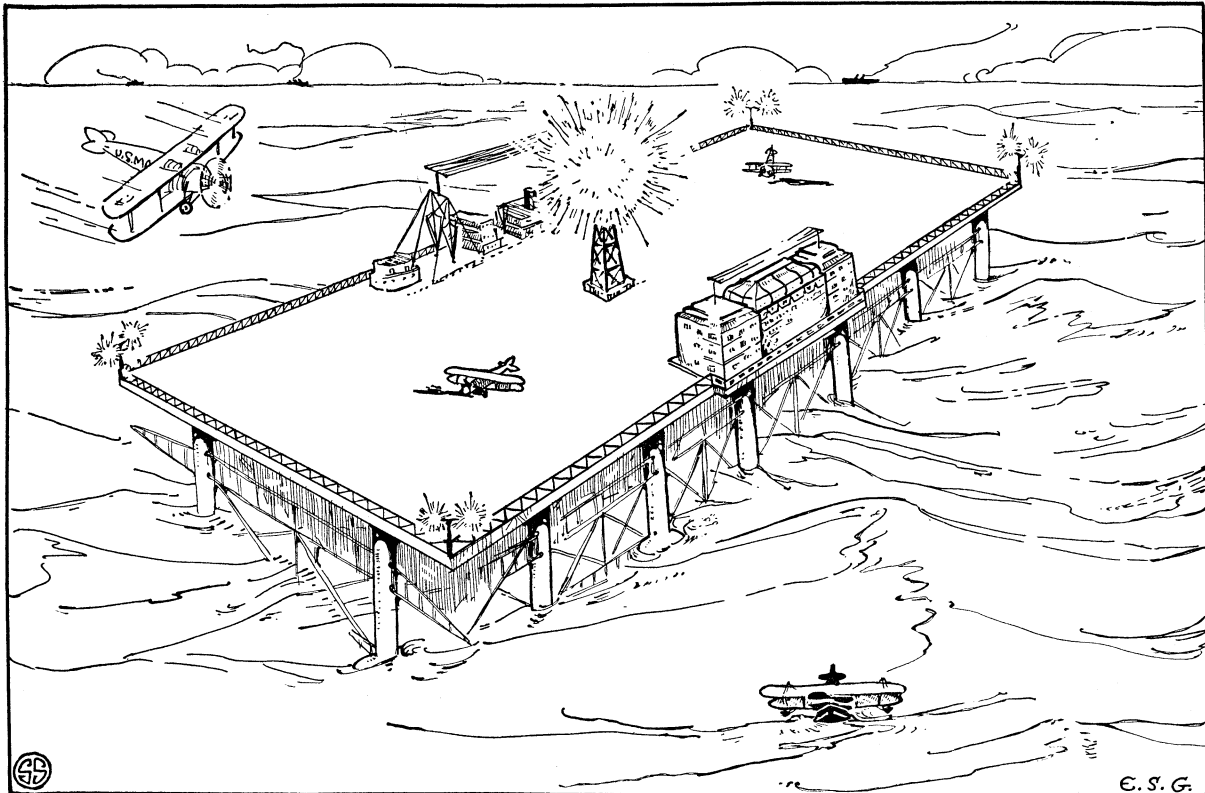
Subscription rate—\$5.00 a year postpaid. 10 cents a copy. Ten or more copies to same address, 6 cents a copy. Special reduced subscription rates are available to members of the American Association for the Advancement of Science.

Advertising rates furnished on application.

Copyright, 1927, by Science Service, Inc. Reproduction of any portion of the SCIENCE NEWS-LETTER is strictly prohibited since it is distributed for personal, school, club or library use only. Newspapers, magazines and other publications are invited to avail themselves of the numerous syndicate services issued by Science Service, details and samples of which will be gladly sent on request.

Staff of Science Service—Director, Edwin E. Slosson; Managing Editor, Watson Davis; Staff Writers, Frank Thone, James Stokley, Emily C. Davis, Marjorie MacDill; Sales and Advertising Manager, Hallie Jenkins.

Board of Trustees of Science Service—Representing the American Association for the Advancement of Science, J. McKeen Cattell, *Treasurer*, Editor, Science, Garrison, N. Y.; D. T. MacDougal, Director, Desert Laboratory, Tucson, Ariz.; M. I. Pupin, Professor of Electromechanics, Columbia University, New York City. Representing the National Academy of Sciences, John C. Merriam, President, Carnegie Institution of Washington; R. A. Millikan, Director, Norman Bridge Laboratory of Physics, California Institute of Technology, Pasadena, Calif.; Dr. David White, Chairman of the Division of Geology and Geography, National Research Council; Representing National Research Council, Vernon Kellogg, *Vice-President and Chairman of Executive Committee*, Permanent Secretary, National Research Council, Washington, D. C.; C. G. Abbot, Director, Astro-Physical Observatory, Smithsonian Institution, Washington, D. C.; Victor C. Vaughan, Professor Emeritus of Hygiene, University of Michigan. Representing Journalistic Profession, John H. Finley, Associate Editor, New York Times; Mark Sullivan, Writer, Washington, D. C.; Marlen E. Pew, Editor of Editor and Publisher, New York City; Representing E. W. Scripps Estate, W. E. Ritter, *President*, University of California; Robert P. Scripps, Scripps-Howard Newspapers, West Chester, Ohio; Thomas L. Sidlo, Cleveland, Ohio.



THE ARMSTRONG "SEADROME" as it might appear when anchored in midocean as a way station on trans-Atlantic air routes. A full sized, experimental seadrome is now under construction.

Floating Airports

(Continued from page 50)

uct is virtually floating rock, a formation consisting of a combination of rigid and watertight cells with cement, concrete or other plastic materials, in such a manner as to render the resultant mass, irrespective of its form, buoyant in water or other liquids.

Other Countries Planning Islands

Intra-empire routes are also the aim of Air Secretary Sir Samuel Hoare of England. The British idea of a mid-ocean landing place, according to plans before the air communications committee, is an island a quarter-mile wide and a half-mile long, with a 985-foot harbor cut in the understructure. It is planned to be built of reinforced concrete, capable of resisting the action of the water. Caissons, water ballasts and giant gyroscopes will insure equilibrium and flotation. A French engineer, Henri Defrasse, has a plan for a horseshoe-shaped island, providing a lagoon of calm water. He would also have engines and propellers to keep the island in place and swing it about instead of anchoring it. The Italian government has appropriated \$6,000,000 on some such experiment. The huge horseshoe type of surface island is said to be the Italian plan.

The Armstrong seadrome is the only one elevated above the water.

"The only way to treat a wave is to regard it as a lion and keep away from it," Mr. Armstrong told officers of the Navy when he came to Washington with the moving pictures of his model in action. Anything that breaks the wave action will be a wet place. The waves go right through the understructure of this double-decked island and the top floor remains level. For this reason, the inventor felt more confident than the Naval officers about the matter of anchoring. The arduous task of anchoring a bobbing ship in deep water is not the same problem.

"It is going to be done, and very soon by some one," continued Mr. Armstrong. "We propose to be the first to do it and intend doing it, no matter how foolish it looks."

Advantages of Ocean Depots

The greatest need of the aviator will be met in the sea by the establishment of meteorological stations reporting the weather over the seas. The weather map of the United States Weather Bureau now presents a great blank space in the Atlantic Ocean. From the Azores on the south to the Danish station in south Greenland there are usually no reports between Newfoundland and Ire-

land, America and the Europe. However, during the recent fever of trans-Atlantic flights ships in the Atlantic have reported to the Weather Bureau. On the map for June 4 and June 5, the days of Chamberlin's flight, the ocean area was as thickly covered with reports as the mainland. It showed what could be done from the Atlantic. It is possible to know the weather aloft by means of captive balloons and kites that carry instruments and by airplane observations. Layer maps, such as the United States Weather Bureau constructs, now would show the birdman conditions on eight levels. It is not the distance he fears, but the storms.

Before coming to the cost of floating islands we might consider further glories of airplane travel over water as compared to flying over land. Airmen agree that going over a trans-continental air route is harder than going over water. True, even the layman, or rather the earthworm, can see how the mountains, high-tension wires, buildings and pedestrians might get in the way. Furthermore, the maritime aviator can determine his level above the sea more readily than the overland flyer his above the surface. And when the weather is "thick" and the visibility low, the overwater pilot can hug the surface

(Just turn the page)

Floating Airports

(Continued from page 57)

and go with less worry than when over densely-populated areas.

Moreover, lighthouses provided for the surface ships will serve the air ship as well. Coastal charts published by the government also aid the maritime flyer. Interior air routes are just being mapped. Railroad maps are not acceptable, except as an expedient of necessity. The whole coast from Eastport to Brownsville and from Puget Sound to San Diego has been charted in form quite satisfactory for the seaplane pilot's needs.

Will Seadromes Pay?

Convinced of the advantage and safety of over-water flying, passengers will choose airplanes instead of boats for crossing oceans. When the trip will be only twenty-four hours instead of five days, surely a tenth of those who now travel first-class will choose the air route. And if that many do, it has been estimated the cost of the passage need be no higher than on the liner.

The cost of eight seadromes strung across the Atlantic, it has been estimated, will be a little less than \$30,000,000, which is \$6,000,000 less than the cost of three steamships like the Leviathan or Majestic. Airplanes could make more trips than steamships. An investment of \$1,600,000 in airplanes would equal in annual traffic-handling power nearly eight times as much as that amount put into steamships. The competition of the steamship will be less keen than that of the railroad because of this speed advantage.

Ships and Harbors for Flyer

Even those who doubt the practical value of mid-ocean airports can see the desirability, if not the actual necessity, of harbor airports. The Merchants' Association of New York is considering building a "Heaphy island" in upper New York Bay as an airport. A good land site has not been found near the heart of the city. This is the prevailing problem of the city and, as Boston and Baltimore have found landing fields near the harbors, the way has been pointed for other cities on the coasts and near interior waters.

Aviators are not only taking the air but going to sea; that is certain. The Lexington and Saratoga, aircraft carriers, are now being built by the Navy and are to be launched this summer. The Navy began last year to acquire equipment for these vessels. Each carrier will be 888 feet long and 105 feet wide. They will have

a speed of thirty-three and one-half knots an hour. Each ship will have airplane shop facilities, so that aircraft can be kept at sea indefinitely.

The United States has been trying all recent inventions having to do with taking the air fleet to sea. The success of the Langley, the test Navy aircraft carrier, has been the basis of the realization of the Navy's post-war slogan: "On the surface, under the surface and in the air." The Langley has proved that sixteen, even twenty-four, planes can take off one after the other from the deck of a ship. Trained pilots can land on this ship base, even when the vessel is tossing and rolling on the waves. The Navy Department maintains on the Atlantic coast a school for pilots, where, from a wooden platform, like the deck of a carrier, men are trained to land aircraft on flight decks of these modern ships.

The seadromes will serve commerce and peace. Whether they will promote international accord as commercial interests hope, or aid greater nationalism remains, like the problem of anchoring them in their place in the deep sea, to be seen.

Science News-Letter, July 23, 1927

Fewer people emigrated from Italy in 1926 than in 1925.

Castor oil is important in the making of artificial leather.

The common brown rat has spread until it now infests every state.

There are 66 kinds of birds that enjoy eating cotton boll weevils.

India takes 40 per cent. of the world's gold production each year.

Ready mixed concrete is being sold by firms in some industrial centers.

The paradise fish becomes pale when afraid and turns red when angry.

Eskimos in Baffin Land have lately been troubled by a new species of mosquito.

Kauri pine trees of New Zealand occasionally grow to be 20 feet in diameter.

Falls kill more people than battles, according to the National Safety Council.

A large forest of petrified wood has been found in an inaccessible valley of Texas.

MEMORANDUM

This blank space serves a dual purpose. It allows you to clip out the article on the reverse of this page without destroying any other article. It can also be used for notes and the recording of your own observations.