



## MADE BY LIGHTNING

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## AVIATION

## Daily Seaplane Service To Europe Forecast by Sikorsky

DAILY transatlantic trips, by seaplanes triple the size of today's largest, are forecast for "the immediate future" by Igor I. Sikorsky, noted aircraft designer.

Speaking before the meeting of the Society of Automotive Engineers, Mr. Sikorsky backed his prediction by citing the extremely rapid progress in seaplane design.

Here is the comparison between the Sikorsky "S-40," which set payload seaplane records in 1931, and the "S-42," now about to go into regular commercial service between Hawaii and California:

	S-40	S-42
Weight . . . . .	21,000 lbs.	19,764 lbs.
Gross weight . . . . .	34,000 lbs.	38,000 lbs.
Equipment . . . . .	1,000 lbs.	2,181 lbs.
Pay load . . . . .	3,200 lbs.	8,363 lbs.
Cruising speed . . . . .	115 m.p.h.	157 m.p.h.
Top speed . . . . .	137 m.p.h.	182 m.p.h.

The important part of the development, Mr. Sikorsky pointed out, is the increase of 5,163 pounds in pay load. Or, said another way, if equal pay loads are considered, that is, 7,500 pounds, the range of the S-40 is 479 miles while the range of the S-42 is 1,130 miles, an increase of 651 miles.

Even more striking for economical commercial flight is a comparison by what the aircraft engineers call the ton mile. If an airplane can lift a one-ton payload and cruise with it at 100 miles an hour for one hour, it is credited with a rating of 100 ton miles.

The Sikorsky S-40, on this basis, every flying hour receives credit for (1.65 tons x 115 miles) 189.75 ton-miles. The S-42 however, receives credit for (4.25 tons x 145 miles) 616.25 ton-miles.

On this comparison the new S-42 is over three times as efficient.

Discussing how the future of transatlantic flying lies in the use of larger seaplanes, Mr. Sikorsky said:

"Several conditions point to the usefulness of increased size of future flying boats as compared with land transports. In the latter case, the great frequency of departure is of value because of the relatively short distance to be covered, and it has been generally found that small ships can be used successfully. In the case of North Atlantic trans-oceanic flying boats, the frequency of departure is of less importance, as a tremendous saving in time is made, reducing perhaps the time involved from four or five days to 24 hours per trip. Needless to say, daily departures will be made.

"Eight professional men will be required for such 24-hour flights, not counting the stewards. Furthermore, the improved efficiency and seaworthiness with respect to the increased size of flying boats are indicative of the possibilities offered. Therefore it is probable that in the immediate future we will see flying boats of up to 100,000 pounds; and in a decade or so flying boats of several hundred tons will probably make their appearance."

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## GEOLOGY

## 23-Foot "Lightning Stone" Displayed at Chicago

A "LIGHTNING stone," or fulgurite, 23 feet long, has been placed on display in the geology museum of the University of Chicago. It consists of a hollow tube of rough glass, formed when a stroke of lightning hit a sand dune in the famous Lake Michigan dune area, fusing the sand momentarily into liquid which immediately hardened again into its present form.

Subsequently the wind blew the sand away, and the exposed slender tube of natural glass broke off piece by piece. The fragments were found a year ago by Prof. George S. Monk of the University physics department. The fifty or more pieces, from two to twelve inches in length, were all found in a limited area, about fifteen by thirty feet, in a pocket in the "blow-out" side of the dune.

Fitting the fragments together was a laborious task, but by persistence Assistant Curator Paul C. Miller finally got them all assembled and mounted for permanent display. Although longer fulgurites have been reported, the Chicago specimen is believed to be the longest and most complete specimen accessible to the general public.

The inside of the tube is smooth glass, but the outside is corrugated, with ridges running lengthwise, with a generally clinker-like appearance.

*Science News Letter, July 6, 1935*

Strawberries rank as an "excellent" source of Vitamin C.