

explosion center. Dust curdled into rain clouds and came down as mud balls. Gutters on the hotel roofs broke down with the weight of rock powder. A man trying to photograph the pit at close range was killed by a barrage of boulders. The eruption lasted two weeks and the great cauldron left was 3500 feet long and 1300 feet deep.

All the other activities of Kilauea have shown fresh black glassy lavas and so do the other Hawaiian volcanoes in most of their eruptions. Until last February the fire pit was full of boiling lava fountains. The succession of events since 1914 has been Outpouring of lava at 13,000 feet above the sea, then 8,000 feet, then 3,000 feet and finally this inpouring at sea level itself. It seems logical to conclude that such explosive eruption is a secondary matter occasioned by the plugging of the vent, the closing in of the underground waters, and the consequent development of enormous steam pressure. The interesting feature of this is that the water explanation accounts, not for ordinary lava activity, but only for the exceptional crises of explosion. Explosive eruption at a lava volcano is a secondary phenomenon, and primary volcanism may be fundamentally dependent on hydrogen and other deep gases.

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#### AMERICA'S FIRST AIR LINER SOON TO CROSS UNITED STATES

The ZR-3, America's first giant, passenger-carrying airship, now being prepared for its trans-oceanic flight from Friedrichshafen, Germany, to Lakehurst, New Jersey, may be sent across the continent soon after its delivery to the United States, according to tentative plans under consideration by the Navy Department. Mooring masts for the accomodation of the big aerial liner have been erected at Forth Worth, Texas, San Diego, California, and Camp Lewis, Washington.

Before starting this more protracted cruise, short trips will probably be made from Lakehurst to determine the exact differences in behavior in the air of the new commercial ship as compared with the Shenandoah.

The new ship is not a sister ship of the American-built Shenandoah, designed in 1916 as a military auxiliary. The ZR-3 is strictly a peace-time air liner with Pullman accomodations for twenty passengers and especially designed in 1921-22 to meet the requirements of greater safety and comfort demanded of a commercial craft. It will be used to test the commercial possibilities of lighter-than-air traffic.

Hydrogen gas will be used by the Germans in their flight across the Atlantic, but the ZR-3 will be converted for the use of helium after it is received by the Navy.

The new ship was built by the experts of the famous Zeppelin Company who have made 125 dirigibles. This is the first ship, however, which was specially designed for its great size. Previous big ships were merely expanded to their mammoth proportions from the designs for smaller ships.

The ZR-3 is larger and speedier than the Shenandoah although not so long. It measures 658 feet in length, whereas the Shenandoah measures 680 feet. Its diameter, however, is 91 feet as compared to 78 feet for the Shenandoah; making it somewhat stockier and giving it a greater gas capacity, 2,400,000 cubic feet as compared to 2,115,000 cubic feet.

The passenger ship is equipped with five twelve-cylinder 400 horsepower Meybach direct reversing motors which will drive it at a top speed of 75 miles an hour, whereas the five six-cylinder 250 horsepower Packard engines of the Shenandoah give it a top speed of 60 miles an hour. At 75 miles an hour, the ZR-3 can go 4,000 miles without refueling and at 60 miles an hour can go 6,000 miles. She carries a crew of 44 beside her twenty passengers. The Shenandoah has a crew of 31.

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#### INSULIN HELPS THIN BABIES RECOVER WEIGHT

Insulin injected into the blood stream of an undernourished infant will help it to utilize the sugar in the food given it, Dr. W. K. Marriot of St. Louis has reported to the American Medical Association.

A malnourished child needs more food in proportion to its weight than normal children but sometimes the malnourished child lacks the ability to take care of all the food it should get, so heroic methods to help it are resorted to. Glucose, the sugar of corn syrup, is injected into the veins along with considerable insulin. That the child makes good use of the food thus strangely taken in is indicated by the increase in weight. The weight gained is not later lost when the treatment is discontinued.

Dr. Marriot used insulin in these cases as a result of the observation that diabetic patients on insulin treatment often gain weight at a phenomenal rate even when their food intake is not excessive.

Dr. Marriot uses his insulin treatment only in the very worst cases of malnutrition. In some of his examples he felt that had it not been for the injection the infant would have died.

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#### "FAT" SPARK NO BENEFIT, SAYS BUREAU OF STANDARDS

The U. S. Bureau of Standards has just given another cherished belief of motorists an impartial shove toward the limbo of discarded notions. A "fat" spark gives no better ignition, no more power, no more "jazz" to motor performance than a "lean" one.

Their suspicions of the correctness of the accepted doctrine were aroused by experiments in Germany, where engines tested with various kinds of sparks failed to show any differences in power developed, so long as the spark was able to cause any ignition at all.

But an engine is a complicated mechanism, and there are many factors besides the quality of the spark that might affect the final result. The Bureau engineers therefore decided to use apparatus as simple as possible, which would at the same time permit them to see the explosion as it occurred and to take high-speed photographs of it.

They caged their gas mixtures in soap bubbles, and later in glass globes under pressure, and fired them by means of various types of electrodes, with "juice"