

Giant New Dirigible, ZR-1, Will Lift 60 Tons' Weight

New Zeppelin Type Machine Designed to Remedy Errors of Predecessors.

(By International News.)
LAKEHURST, N. J., Dec. 28.—A great rigid dirigible airship designed to remedy the errors of its predecessors in the face of the ZR-2, and to overcome the various complications of its skeleton outlines at the naval air station here in the interior of a giant hangar, is as long as an ocean liner and twice as broad.

The new ship, to be known as ZR-1, is the latest in the "Zeppelin" line, according to Commander H. D. Weyerbacher, who is supervising its construction, for lightness and even speed will be sacrificed to make the gigantic craft accident-proof.

It is to Germany and the Zeppelin airship that the navy is turning for the creation of its future fleet of aerial dreadnaughts. Even as the grand old riggers at work on the frame of ZR-1 is heard at Lakehurst workmen of the great Zeppelin works at Friedrichshafen, on Lake Constance, thousands of miles away, are laying the "keels" of a similar craft, which will be known as ZR-2. When completed both ships will be based on Lakehurst and will have a range of action of 4,000 miles.

Like Zep I-49.
ZR-1 is practically a reproduction of the successful Zeppelin L-49. Viewing the 650 feet of blue-tinted aluminum framework in the hangar at Lakehurst, one is struck with the thickness of the center of the body of the ship contrasted with the thin ribs of other ships of British construction.

The new aircraft is approximately the shape of a giant minnow, with a rounded "nose" and substantial section amidships, tapering off to a pointed conical tail.

Its framework represents a triumph of American engineering in solving the mystery of producing duralumin, the curious metal lighter than aluminum yet with almost the tensile strength of steel, which was long a secret of the German metallurgists. Experiments conducted by the navy department in conjunction with a large American aluminum plant have produced a duralumin of uniform composition that is stronger than that of the Germans.

Light, Strong Frame.

Structurally, ZR-1 is composed of a mass of small girders, made up of duralumin struts, which are fastened to certain types of structural toys for rigidity. There are triangular girders for the great circular ribs of the ship, and for the "longitudinal" ribs that connect them, forming the sides of the ship. In addition, there are box girders of square section, one of which is used most of the length of the very top of the big hull. When the ship is completed it will support a walk for the officers and crew communicating with the observation post forward and the tail rudders aft.

The ship is divided into 20 sections along its length, each of which will house one of the gas balloons which give the ship its lifting power. These balloons, already made of the finest goldbeater's skin, this material being used to avoid possibility of static electricity causing an explosion if they are torn.

Guard Against Fire.

In the past, where rubber covered by fabric on each side has been used, Commander Weyerbacher explains, the theory has been advanced that disastrous explosions of that type of bag were due to opposite charges of static electricity uniting to produce a spark which caused the explosion if they are torn.

Along the bottom of the hull of the airship, and inside it, run a long triangular passageway extending from the "nose" to a point near the tail.

Hatchways in this will communicate with the cars of the ship, which will be slung below the body, while vertical slides will provide ladders rise from the passageway through the body to the "cat-walk" on top, providing means of communication between the top and bottom.

Complex Controls.

Along the side of the corridor runs a mass of plane-wire controls, passing over a multitude of pulleys and connecting with the hundreds of valves, signals and pieces of apparatus throughout the ship.

Along from the side forming the "corridor" are the water ballast bags, each holding nearly a ton of water, used for trimming the ship, with great valves at the bottom that can empty them almost in an instant if the ship has to rise quickly.

The gasoline tanks are on either side of the corridor at various points. And here is where provision has been made against the fire danger that has cost so many lives in the past.

The tanks of the ZR-1 are set in vertical slides and locked into position. If fire breaks out and they are threatened, or if a squadron of attacking airplanes should make it imperative to show up in a jiffy, a simple pull of a control wire releases them and they fall earthward, relieving the ship of their great weight and the menace of gasoline explosion.

To Use Helium.

The fire danger will also be met in the new ship by the use of helium gas on test flights, 200,000 cubic feet, practically all available in this country, being required. As an added safety measure the external skin of fabric covering over the helium in the hull will have a heat-reflecting cloth inside, while the outside will be "doped" with aluminum to reflect the rays of the sun, thereby minimizing the expansion of the gas inside the ship.

The "main" of the airship will be in the control-car, slung under the bows. This will contain all the mechanism for the operation of the various parts and also the radio apparatus. The rear of the car will hold a 100-horsepower, six-cylinder Packard motor. Five other motors are provided, each in a little car. The first four will be placed two and two on either side of the ship some distance behind the control-car, the last one centrally under the tail. Two of the cars will have reversing propellers for maneuvering.

The armament of the ZR-1 will comprise eight machine guns in the

DIMENSIONS OF BIGGEST AIRSHIP.

Deadweight, 35 tons. Lift 60 tons. Useful lift, 25 tons.
Length, 650 feet.
Diameter, 75 feet.
Motors—Six 16-cylinder Packard engines, 200 horsepower.
Speed, 60 knots an hour.
Total horsepower, 1,200.
Gas capacity, 300,000 cubic feet.
Radius of action, 4,000 miles.
Armament—Eight machine guns, 1 two-pounder quick firer and bombs.

various cars, providing an all-around field of fire, and a two-pounder, high-angle gun mounted on the observation platform on top of the ship for sweeping the skies above.

Trucks For Landing.

Arrangements for docking are two-fold. For housing in the hangar special trucks have been laid upon which frames will run out of the shed. The ship, alighting outside the hangar, will be made fast to the trucks and then slowly hauled in.

But some distance away over the level sandy tract of the air station the very means of transport that symbolizes the future, when vast airports in every country will swarm with ships of the air. Rising 163 feet above the plain is a giant mock-up model for the ZR-1, to which the navy means to assign a name that symbolizes the future, when vast airports in every country will swarm with ships of the air. Rising 163 feet above the plain is a giant mock-up model for the ZR-1, to which the navy means to assign a name that symbolizes the future, when vast airports in every country will swarm with ships of the air.

A doorway in the "nose" of the ship will provide a means of entrance and exit for officers and crew. This will be a ramp leading to the ground will connect with openings in the bow of the airship through which fuel and water can be pumped, permitting the giant craft to replenish supplies without the necessity of "docking" in its hangar.

Elevator Provided.

A commodious elevator provides communication to the top of the tower. For night trips of the ship the searchlight is mounted on a platform to illuminate the vast flying field mounted at every vantage point.

The influence of Germany in this branch of naval aviation is seen in the presence at Lakehurst of Capt. A. H. Meyer, a veteran test pilot of Zeppelin works, who is on hand every day with a keen eye on every detail of the ship's construction, offering helpful suggestions frequently from his wealth of practical experience in the handling of the giant "rigids."

His will be the hand that will guide ZR-1 into the air on her test flight, which Commander Weyerbacher hopes will be next July.

Builders Confident.

"We are confident that the ship will fulfill our expectations," Commander Weyerbacher said in International News Service. "We have omitted no known way of making her absolutely safe. We are working with the greatest care to provide the rigid airship and to provide the navy with a powerful arm for locating an enemy fleet."

The value of the rigid airship for sea work has been pointed out in Admiral White's book. With a maximum battleship tonnage of 525,000 tons for the United States and Great Britain, 315,000 for Japan and about 170,000 for France and Italy.

The scrapping of the Anglo-Japanese alliance. The scrapping of about 70 battleships. Restrictions on submarine and gas warfare. The preservation of peace in the Pacific through the four power treaty.

BROADCASTERS TO DISCUSS AIR LAWS

First League Meet to be Held in Chicago Jan. 16 to Consider Rights.

CHICAGO, Dec. 28.—Consideration of the present confusion in the air will be the subject for discussion at the National Broadcasters' League meeting here on January 15. It will be the first gathering of the league since its organization in October.

Among questions to be considered will be whether copyrighted music, including grand opera, can be transmitted by radio throughout the United States without payment of fees to the owners of the copyright. The attitude of the league toward the radio bill introduced in congress by Wallace H. White also will be decided.

DRIVERS SHOULD KNOW THEIR REACTION TIME

BY LOUIS LUDLOW
WASHINGTON, Dec. 26.—"What is your reaction time?" "Do you know the value of your personal equation?"

The bureau of public roads of the department of agriculture suggests that these questions should be put to every applicant for a motor vehicle driver's license.

"Reaction time is the interval of time that elapses between the instant a sign or signal is seen and the necessary action started. A driver starts to pass another vehicle when suddenly a third vehicle appears, which may block his path. The driver must decide whether to pass the vehicle or drop back. If his reaction time is slow he may not realize the danger until too late to avert an accident."

"Every astronomer who observes that a star crosses a hair line in his telescope and presses a key so that the time may be electrically recorded, knows that he does not observe the fact until after the star has crossed the hair line. A correction has to be made which has been carefully determined and is called his personal equation. It varies with different people."

"Timers of a foot race with a split-second watch will frequently get different results for the time of the race."

The reaction time of some people cause many accidents. Does the public safety require that such people be denied drivers' licenses? The bureau of public roads is not yet ready to advocate such a policy, but considers it should be investigated as a possible safety measure."

Akron tire firm is conducting night classes for its workers. Bearings need constant lubrication.

Asbestos-Clad Photographer Unharm'd By Flames—But He Bursts Into Verse

NEW YORK, Dec. 28.—Bob Dorman, staff photographer for The News-Times and NEA Service, says Shadrach, Meshach and Abednego of Biblical fiery furnace fame, have nothing on him.

These three gentlemen were cast into flames by an iron king and emerged unscathed upon which the king reformed.

Dorman was cast into the flames by a diabolical editor. Dorman, too, emerged unscathed but the editor did not reform and is still as diabolical as ever.

The secret of Dorman's rescue is that he wore a specially constructed asbestos suit made by the John-Manville Co., New York.

Dorman was in the flames 15 minutes. He says he experienced no discomfort and proved it by inditing the following poetic lines on his typewriter as soon as he was released.

"Now here, air, is a suit of white, not only a Palm Beach delight, but you will also find it good 'gainst any fire of coal or wood; a suit like this, if it is not a suit, was worn back in the days of old when three brave men (or so we're told) into a pit of flames were thrown.

"Shadrach, Meshach and Abednego were thrown and down until this very day, their hap's known as a miracle. To you this secret I will tell; Perhaps 'twas just asbestos suits they donned with helmets, gloves and boots.

"Full many a man whom Indians' fire brought to his death in a flaming fire, had he been in a suit of asbestos make, would have been as a rod to make them quake, for any man in a suit like this, need never fear the flames' warm kiss. But here for you is just one warning, if you'd avoid a nice hot warming, stay not too long in the flames' embrace, shield well the whiskers on your face, for the suit holds heat and hair will burn, until you'll think you're done to a turn.

LIMIT ARMS MEET HAILED AS BIGGEST EVENT DURING 1922

New Year Expected to Bring Final Ratifications of Washington Meet Pacts.

WASHINGTON, Dec. 29.—(By U. P.)—The Washington arms conference, with its great international pacts for limitation of naval armaments stands out as the greatest achievement of the United States government in 1922.

The new year is expected to bring final ratifications of all the Washington conference treaties as the government is confident that France and Italy will not jeopardize all this peace preserving work by failing to approve the pacts.

The conference which adjourned early in February after a session of about three months drew up treaties which called for:

A 10 year naval holiday in battleship construction.
A maximum battleship tonnage of 35,000 tons for the United States and Great Britain, 21,500 for Japan and about 17,000 for France and Italy.

The scrapping of the Anglo-Japanese alliance. Restrictions on submarine and gas warfare. The preservation of peace in the Pacific through the four power treaty.

A series of treaties seeking to stabilize China and to make the principle of "The Open Door" a reality in the Far East.

At the end of 1922 there is a strong demand in congress for another armament parity to supplement the work of this year's conference. The house appropriations committee has inserted a provision in the naval appropriations bill requesting President Harding to call a conference to consider limitations on the construction of aircraft, submarines and smaller auxiliary vessels.

At the same time the Harding administration has come to the conclusion that the United States must intervene in Europe to prevent an economic collapse there and is now seeking the most practical way in congress by Wallace H. White also will be decided.

In the line of legislation, the enactment of the Fordney-McCumber tariff law, revising as it does all the

customs of the government, may be considered the greatest job performed by congress during the year. The law was passed late in September, after having been under debate for two years. Virtually all tariff duties were raised, and the bill is now breaking all records for customs receipts.

Other important legislation included: The act providing for the refunding of the war debt and the creation of the debt refunding commission. Provision for additional credits to the farmers. Creation of a federal fact finding coal commission as a result of the coal strike to investigate the mining industry.



BOB DORMAN, CLAD IN HIS ASBESTOS SUIT, AMID THE FLAMES OF THE "FIERY FURNACE." NOTE THE FLAMING NEWSPAPER IN HIS HAND.

important decision of the year probably was the one defining the rights of organized labor. In a case brought by the Colorado Coal Co. of Arkansas, as the result of strike riots in 1914, in which miners are alleged to have caused great damage to the mines, the court held that labor unions can be sued for damages, and that heads of the unions can be held responsible for any illegal acts of the union members, if the act resulted from orders issued by the leaders. The decision was generally regarded as a victory for strikers and organized labor considered it a blow to its rights.

In other important decisions, the supreme court declared unconstitutional the child labor law, upheld the packer control law, knocked out parts of the grain future trading acts, strengthened the prohibition law in several decisions and handed down decisions affecting scores of state laws.

The government has made big strides toward governmental economy during the year, cutting the federal budget for the next year down to about \$3,000,000,000, or more than \$600,000,000 under appropriations for the current year.

So far virtually no progress has been made in the refunding of the \$11,000,000 war debt to the United States. France has been unwilling to enter into any agreement regard-

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- Stop Lights, regular \$3.50 1.25
- Windshield Wipers, regular \$1.7595
- Parking Lamps, dandies 1.25
- Pump, a dandy 1.25
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- Spark Plugs, 4 for 1.00
- Fan Belts for Fords15
- Large Steering Wheels, regular \$5.00 2.95
- Ford Top and Back Curtains 6.50
- Ford Side Curtains, Saturday only 6.50

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Phone Main 1838.



Motor Row Scandal

By Neal Welch

Not so soft for us this week. Lloyd Greenan, the automobile insurer, told us that if Christmas came every week this would be a pretty good colyum. Just for that we intend to offer him one of the Christmas cigars we got.

HOW ABOUT SENDING ED MIFFLIN OUT TO MOUNT THEM?

Jack Taylor sent us a dandy set of Firestone tires for Christmas. Our only objection to them is that they are so small that the only wheels they will fit are those on a tea wagon and these wheels are built to use solid tires.

Bob Sullivan and John Shaw will start excavating this week for their new building at the corner of Monroe and Main sts. The first hunk of dirt will be taken out by Mr. Sullivan who will use the cross-section of a Lee tire, while Mr. Shaw sines the first 15 numbers of some good patriotic number.

After seeing that automobile away up in the air over at Bill Nichols' place we believe that some wonderful possibilities are opened up. Why not have automobiles hanging up in the air in all showrooms and then when a customer comes in you'll get a conversation something like this:

Customer: "Let me see something nice in a sedan."

Clerk turns crank and down comes a sedan.

Customer: "I don't believe I really like the sedan. Have you something neat but not gaudy in a roadster?"

Clerk puts sedan back on its pet shelf and brings down a roadster.

Customer: "Oh, did I say I wanted a roadster. I really meant to say a coupe."

Clerk (putting roadster back on its shelf and getting down a coupe).

Customer (looking over couple): "Well, after all there's nothing like the touring car, so I believe I'll look at that touring car hanging over there on that wall."

Customer (after looking over touring car): "I think we're going to lose a wheel."

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That almost wrecked the RADSA-TOR.

Then both climbed out and poor old Frank. Bought gasoline and filled the TANK.

And gathered up from road and god. The fragments of the broken SHIELD.

He fixed the engine tight and snug. But had to use a new SPARK PLUG.

Just then he slapped a mosquito. And dropped a wrench on the MAGNETTO.

They journeyed home with Frankie pushing. While Alice sobbed upon a CUSHION.

She'd forgive him not she vowed with scorn. Till Angel Gabriel blew his HORN.

OUR WISH TO THE CUSTOMERS FOR THE COMING YEAR. Full Tanks of gasoline. Fully charged batteries. Plenty of air in their tires. No punctures, blow-outs or engine troubles.

How'd you like to be in Chicago tonight?

AUTO PROBLEMS

What are the problems facing the automobile engineer?

This question sounds superfluous with the highly developed cars seen on the streets. But, take it from C. C. Harsh, vice president of the National Automobile Chamber of Commerce, there are still some radical developments to be considered in automobile research and design, before the motor vehicle can be declared perfect.

These he enumerates as follows: Development of strong, light metals; also steels and alloys with high tensile strength.

Designing of carburetors which will reduce fuel consumption and also successfully utilize low grade fuels.

Improvement of braking and spring devices.

Building of more easily manipulated transmission.

Advance in headlighting system which will minimize glare.

Simplification of construction generally.

Development of equivalent substitutes for existing materials.

LONDON—(By Mail to U. P.) An eight-year-old boy has just died from lockjaw caused by cutting his wrist on a corned beef can. The surgeon who attended him, stated at the inquest that the boy died three times. Twice he stopped breathing and twice animation was restored, but the third time was final.

Personal Service

A Wish For You and A Wish For Ourselves

We wish you a Happy, Prosperous year with an old-time sincerity. For ourselves, we wish we could get hundreds of new customers during the coming year. We have hundreds of them now, but we've been selling them GENERAL CORD tires, and General Cords last so long that we have to keep looking for new customers all the time in order to have somebody to sell tires to while our old customers are wearing out these good tires.

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