

### THE LEBAUDY AIRSHIP "LE JAUNE."

The essential characteristic of the "Lebaudy II." ("Le Jaune") as well as of the "Lebaudy I." is stability. The idea of making airships stable by means of aeroplanes, which is a characteristic of the Lebaudy craft, is by no means new. It has been mentioned in patents on several occasions, but it was only in the Lebaudy patent of May 8, 1903, that the means employed in the "Jaune" for making the airship stable were brought forward for the first time—means which have certainly contributed to the exceptional stability of this aerostat.

In this patent the Messrs. Lebaudy show the coexistence of two species of plane surfaces, the one a horizontal, to establish a horizontal or flat stability, and the other a perpendicular plane, to endow the airship with constancy in the vertical plane. Although both species of planes are mentioned together, the means of producing the horizontal stability are the ones upon which the greatest dependence is placed. As a matter of fact, the efficiency of these planes increases with the velocity of the ship. Several planes for attaining different positions have been fixed upon the long keel, which formed a sort of a feathered tail. The direction of these planes, and even their surfaces, may be changed, but not during flight; otherwise they would constitute merely a bundle of little rudders. Here is an example of the construction of these directing planes, destined to keep the ship upon an even keel. The make-up of the other planes is analogous. It must first be stated, however, that the basket is soldered to a steel cylinder, solidly braced and rendered non-breakable by interwoven steel wires, thus constituting a stiffening system of great strength. This cylindrical tube is of oval shape, having a diameter of 95 feet in one direction and 19.68 feet in the other. The directing plane, of which we shall now speak, is formed by a tube extending over a semi-oval, soldered upon the tube and made solid, in the same manner as the oval cylinder, by braces and steel wires. This plane is 95 feet long, with a height of 4.23 feet, affording a surface of 172.16 to 193.68 square feet. It is situated about 16.4 feet below the center of gravity of the balloon, which will permit us to estimate its efficiency. The prospective "Lebaudy," which will make ascensions next year, will have, however, both fixed and movable planes, adapted to both horizontal and vertical motion; moreover, the screw propellers will be provided with jointed wings. It must not be overlooked that the "Lebaudy II." is a trial ship, and that the pilot Juchmès must have at his disposal several means of procuring the requisite stability of his ship during flight, so that he may choose that which offers the greatest advantages.

The "Lebaudy II.," having no need of ballast, may without inconvenience make ascents of 6,500 feet, a circumstance that offers many considerable advantages. First of all, the pilot has more latitude in the choice of a more favorable current of air or in the avoidance of unfavorable currents. Again, from this height he can examine the surface beneath him, comprised within a circle having a radius of 74.5 miles. Still another good quality possessed by the "Jaune" is that of preserving its shape.

### Examination of Applicants for the Panama Canal.

On January 18, 1905, the United States Civil Service Commission will hold an examination to secure eligibles for vacancies. The positions on the Isthmus of Panama to be filled under the Isthmian Canal Commission are assistant civil engineer, instrument man, transit man, level man, rod man, chain man, helper.

Assistant civil engineers must not be younger than 25 nor older than 50. They will receive salaries ranging from \$200 to \$250 per month. Seven years' practical experience in civil engineering are necessary, not less than one year of which must have been on civil engineering construction work. A course in civil engineering will be taken as the equivalent to four years of this period.

The age limit of an instrument man is 25 to 50 years; the salary is \$175 per month.

The position of transit man carries with it a salary of \$150 per month. Applicants must not be less than 21 nor older than 50 years. Five years' practical experience in the use of instruments and surveying is necessary. A college graduate's course in civil engineering will be accepted as the equivalent to three years of the period stated.

A level man will receive from \$100 to \$125 per month. The age limit is from 21 to 45 years. The requirements are the same as for an instrument man, except that applicants will not be required to have had more than three years' practical experience in the use and care of instruments in surveying. Three years' study in a school of civil engineering will be accepted as the equivalent of two years of the required experience. After one year's satisfactory service in this grade, appointees will be eligible for promotion to transit man without further examination.

A rod man will receive from \$75 to \$83.33 per month.

The age limit is 18 to 40. Applicants over 20 years of age, however, will be preferred in appointment. At least one year's practical experience in similar work is necessary. Two years' study in a school of civil engineering, however, will be accepted as the equivalent of this experience.

The chain men must not be less than 18 or over 40 years of age. The requirements of the examination are the same as for rod men.

Helpers will receive \$50 per month. They must not be less than 18 or over 40 years. They will be examined in accordance with the instructions governing the examination of rod men.

The examinations for the various posts mentioned are open to all citizens of the United States who comply with the requirements. What these requirements are, are stated in application form No. 1312, which will be furnished gratuitously by the United States Civil Service Commission, Washington, D. C. Form No. 1237 gives a list of places where examinations will be held, and likewise the subjects in which examinations will be conducted.

### St. Louis Fair's Total.

The official report of the Director of Concessions and Admissions of the Louisiana Purchase Exposition, made public, shows that the total recorded admissions for the period of the Exposition, from April 30 to December 1, inclusive, was 19,694,855, of which 12,804,616 were paid and 6,890,239 were free.

The free admissions included from 20,000 to 30,000 workmen who were admitted daily for several weeks to complete the work of construction of buildings and installation of exhibits. In the recorded admissions Sundays are not taken into account, that day having no relationship to the official admission records of the Exposition.

The total admissions at the World's Columbian Exposition at Chicago were 27,539,041, of which 21,479,661 were paid.

### American Mosquito Extermination Society.

Under the new title, in place of "National," the second annual convention of the above-named society occurred in this city and Brooklyn, December 15 and 16 last, and a permanent Executive Council was chosen, consisting of the previous provisional council. The first meeting was held on the afternoon of the 15th at the New York Aquarium, where the process of mosquito hatching was shown by living examples, and the species of fish who swim near the surface and enjoy the mosquito for food. The director of the Aquarium kindly provided these exhibits. After a few remarks by the chairman and the reading of reports, the greetings of the society were extended to Major Ronald Ross, M.D., of Liverpool, England, recipient of the Nobel prize for the discovery of certain relations between special species of mosquitoes and malaria.

Mr. Frank Moss read an amusing paper on "The Criminal Indictment of the Mosquito." Suggestions as to the adoption of uniform State laws pertaining to mosquito extermination and State aid to boards of health were made and discussed.

The evening session was held in the art rooms of the Brooklyn Institute in Brooklyn. Dr. L. O. Howard, of Washington, D. C., was to preside, but was prevented in consequence of a call elsewhere. A paper by Col. W. C. Gorgas, M.D., on the "Sanitation of the Panama Canal Zone," so far as mosquito extermination relates to it, was submitted and read, containing many practical suggestions. "Diversities Among New York Mosquitoes," illustrated by numerous lantern slides, was the subject of an interesting address by Dr. E. Porter Felt, New York State Entomologist.

The third session began on the afternoon of December 16 in the Brooklyn Institute rooms, presided over by Dr. John D. Smith, of New Jersey.

Dr. Walter Wyman, Surgeon-General, and Dr. J. M. Roseneau, Director of the United States Washington Hygienic Laboratory, explained by means of striking lantern slides the "Methods of Examination and Dissection of Mosquitoes for Parasites."

Dr. Thomas Darlington, Health Commissioner, made an address on "What New York City is Doing and Might do Toward Mosquito Extermination."

The fourth session was held in the evening in this city in the hall of the American Institute on 44th Street, Vice-President Walter C. Kerr presiding. "The Mosquito Question," popularly and scientifically treated by Dr. Quitman Kohnke, president of the New Orleans, La., Board of Health, proved to be a very entertaining and instructive lecture. Living examples of the mosquito wigglers were projected on the screen, and the effect of oil and permanganate of potash as regards extermination illustrated. It was shown that potash had no effect at all, but that oil suffocated by stopping the air-breathing tube. Examples of the yellow-fever mosquito were shown, and the method of the transmission of the fever germ taken from one fever patient to the next victim, as well as the effect of the poison on the blood-corpuscles. The duties of boards of health were well explained, and the absolute

non-infection of yellow fever by contact was proved. Altogether, it was a thorough explanation of the causes of the extension of yellow fever. The paper will appear in full shortly in the SCIENTIFIC AMERICAN SUPPLEMENT.

Mr. Cornelius C. Vermeule, C.E., concluded the evening by an interesting paper on "The Relation of Mosquito to Extermination to Engineering and Public Improvements."

### Automobile Notes.

Following the example of the two English tests, M. Maurice Fournier is endeavoring to run an Oldsmobile runabout 4,000 miles in France. The start was made the 26th ultimo, and at the last report was progressing favorably.

Fifty miles in 48 minutes 39.15 seconds is the fastest long-distance track record that has ever been made. This time was made at Fresno, Cal., on the 13th inst., by Barney Oldfield on the Peerless 60-horse power "Green Dragon" racer, and it was 7 minutes 24.5 seconds faster than the record made by a Winton racer on October 19 last. In the course of the speed trial Oldfield reduced by 2 seconds his former record for 15 miles, thus making it 14:03, and placed the figures for 25 miles at 23:38.15, which was a reduction of 20.45 seconds.

The Fifth Annual Automobile Show will be held in Madison Square Garden, this city, from the 14th to the 21st of January. So great has been the demand for space this year by American exhibitors that most of the foreign cars have been crowded out, and these will be exhibited in the hall on the top floor of the Macy building during the same week. New York will consequently have two automobile shows of the finest American and European cars at the same time, and that it will be a busy week for the sightseer and prospective purchaser goes without saying.

Following the successful completion of a 3,000-mile tour made in Great Britain by an Oldsmobile runabout and touring car, Capt. Deasy, the agent for the Swiss Martini car in London, undertook a 4,000-mile reliability run. The distance was successfully covered in 22 days, and of the involuntary stops two of 8 and 9 minutes respectively were due to broken chain bolts; two others of 10 and 16 minutes were needed to thaw the lubricator; and one of 8 minutes to clean the carbureter jet. The longest stop was that lasting 11 hours and 25 minutes, during which the differential pinions were replaced. The car was "officially observed" by members of the Automobile Club, and its performance was certainly meritorious considering the time of the year.

In order to always assure the immediate lighting of the acetylene headlights in an automobile, as well as to do away with the troublesome generating apparatus for producing the gas, a seamless steel tank, heavily copper-plated and highly polished, and having brackets for readily attaching it to any machine, has been placed upon the market. The cylinder is 20 inches long by 6 in diameter and weighs 20 pounds. One head of the cylinder is sunken sufficiently to allow of a pressure gage being placed in the space thus obtained at that end, while the gas is piped to the burners from the other end of the tank. This reservoir may be filled with 50 cubic feet of compressed acetylene gas at a cost of \$2, and it will supply two lamps fitted with one-half-foot burners (the size generally used with 8-inch reflectors) 50 hours.

An international reliability trial will be held in France from February 18 to 25. A total distance of 1,400 kilometers (869.4 miles) will be covered in stages of 100 kilometers each, two of these stages of 62.1 miles being run off daily. Each day's run will be from Versailles into the country and back again. Entries for the test close February 1. Two hundred points per stage will be allotted for regularity; 250 points will be given for speed on hills per ton-kilometer; 50 points for quickness in starting the motor; while for stops for mechanical trouble of any kind or for the replenishment of water or fuel, 100 points per stop will be deducted, and 50 points per stop for tire trouble. The hill-climbing and brake-trial tests will be sprung on the contestants unawares, so that they will have no preparation. All cars must carry their full load of passengers. Points will also be given as follows: For comfort and elegance of the car and arrangements for protection against rain, 400; for accessibility of parts, 200; for ease and speed in applying the brakes and for their holding powers, 300; for springs, 100; for protection of mechanism from mud, 80; for ease of turning and absence of noise in changing speed; for flexibility of engine; for absence of vibration when running or stationary; for absence of smoke; and for position of muffler—50 points each. A maximum of 200 points will be awarded in each class to the lowest priced vehicle. The first three classes include cars not exceeding 1,000, 8,000, and 12,000 francs, and the fourth all cars above 12,000. No vehicle which does not cover the full 1,400 kilometers will receive an award.