BIBLIOGRAPHY OF AERONAUTICS

1920–1921

NATIONAL ADVISORY COMMITTEE FOR AERONAUTICS

WASHINGTON
GOVERNMENT PRINTING OFFICE
1925
BIBLIOGRAPHY
OF
AERONAUTICS

1920–1921

NATIONAL ADVISORY COMMITTEE FOR AERONAUTICS

REFERENCE SERVICE BRANCH
NASA SCIENTIFIC AND TECHNICAL
INFORMATION FACILITY
POST OFFICE BOX 33
COLLEGE PARK, MARYLAND

WASHINGTON
GOVERNMENT PRINTING OFFICE
1925
ADDITIONAL COPIES
OF THIS PUBLICATION MAY BE PROCURED FROM
THE SUPERINTENDENT OF DOCUMENTS
GOVERNMENT PRINTING OFFICE
WASHINGTON, D. C.
AT
35 CENTS PER COPY
BIBLIOGRAPHY OF AERONAUTICS
1920–1921

By PAUL BROCKETT
Smithsonian Institution
INTRODUCTION.

This work covers the literature published from January 1, 1920, to December 31, 1921, and continues the work of the Smithsonian Institution issued as Volume 55 of the Smithsonian Miscellaneous Collections, which covered the material published prior to June 30, 1909, and the work of the National Advisory Committee for Aeronautics as published in the Bibliography of Aeronautics for the years 1909 to 1916 and 1917 to 1919.

As in the Smithsonian volume and in the Bibliography of Aeronautics for the years 1909 to 1916 and 1917 to 1919, citations of the publications of all nations have been included in the languages in which these publications originally appeared. The arrangement is in dictionary form with author and subject entry and one alphabetical arrangement. Detail in the matter of subject reference has been omitted on account of the cost of presentation, but an attempt has been made to give sufficient cross reference for research in special lines.

The National Advisory Committee for Aeronautics will next present a bibliography for the year 1922.

JOSEPH S. AMES,
Chairman Executive Committee
National Advisory Committee for Aeronautics.

DECEMBER 9, 1924.
ABBREVIATIONS.


Amer. Mach .................................... American Machinist, New York.


Automobile-Automotive Ind ................ The Automobile and Automotive Industries, New York.


La Conqu. l’Air ............................. La Conquête de l’Air, Brussels.

Pop. Mech .................................... Popular Mechanics, Chicago.


ABBREVIATIONS.

Riv. Ital. Aeron..................................Rivista Italiana Aeronautica.
Techn. Berichte..........................Technische Berichte, Charlottenburg.
BIBLIOGRAPHY OF AERONAUTICS

1920-1921, INCLUSIVE

By Paul Brockett

A.

A. B. C. A. B. C. aero engines.

—— A. B. C. engine data.

“A MERCHANT.” The stresses in the undercarriage of an aeroplane.

ABERLEN. Naar aanleiding van de waterstaatstegroting.
Vliegtijl, 5. Jaarg., No. 23 (5 nov. 1921), Amsterdam, pp. 310-312.

ABEL, GEORG. Die ärztlichen Sicherheitsmassnahmen beim Personenluftverkehr.

ABELL, C. F. Airship engines.

—— Airship machinery, past experience and future requirements.


ABERDEEN. See Bombing: Bombing at Aberdeen.

ACAMPORA, LUIGI. The study of a steam turbine for airplanes.
Aviation, Vol. 9, No. 8 (Nov. 8, 1920), New York, pp. 261-262.


ACCELEROMETER. Notes on the theory of the accelerometer.

National Advisory Committee for Aeronautics.

—— The theory of the accelerometer.


ACCESSORIES. Aero accessories at Olympia.

ACCIDENTS. Accidents.

—— Accidents by air and rail.

—— Accidents in commercial aviation.
ACCIDENTS. Aerial stunts and public safety.
  — An analysis of aircraft accidents.
  — Aviation becoming safer.
  — Casualties in the air service.
  — Catástrofe aérea en el Perú.
    Tohtli, año 5, Núm. 3 (oct. 1920), México, p. 134.
  — The cause of some unexplained accidents.
  — Desastre aéreo en Inglaterra.
    Tohtli, año 5, Núm. 4 (nov.-dic. 1920), México, p. 217
  — Mortality statistics of the air.
  — To render travel safe by air.
  — A table of accidents.
  — Three fatal accidents.
  — Die Ursache des Bitterfelder Ballonunücks.
  — Les victimes de la double catastrophe du 7 septembre 1920.
    Suisse Aérienne, 2e année, No. 20 (30 oct. 1920), Berne, pp. 305, ill.
  — See Verneuil: L’auto inflammation . . .

ACELAND, P. D. Aircraft in the east.
  — Communications in the east. Their expansion by means of aircraft.
  — Trans-Continental flying.

ACETYLENE. See Flying boats: Acetylene-welded flying boat carries 10 tons.

ACOSTA. See Pulitzer race: The second annual Pulitzer race at Omaha. Won by Acosta on the Curtiss-Navy racer.

ACROBATICS. L’acrobatie aérienne.
    Suisse Aérienne, 2e année, No. 17 (10 sept. 1920), Berne, pp. 250-251.

ADDEMS. The Addems compressed-air model.
    Aerial Age, Vol. 13, No. 13 (June 6, 1921), New York, p. 305, ill.

ADLER, E. E. Routine operations on judgment day.
ADRIATIC. Airplane communication services in the Adriatic.

ADVERTISING. How it will pay to advertise in the air.
— The possibilities of aerial advertising.

ADVISORY Committee for Aeronautics.
— Advisory Committee report for 1919-20.
— Aeronautics. Technical report of the Advisory Committee for Aeronautics for the year 1915-16 (with appendices).
The appendices, 93 in number, include papers on aerodynamics, models, wings, parts, stability, propellers, design, construction, engines, seaplanes, fabrics, dopes, varnishes, instruments, etc.
— The final report of the National Advisory Committee.
— The Report of the Advisory Committee for Aeronautics.
The appendices, 43 in number, include papers on aerodynamics, experiments on models of aeroplanes, bodies and controls, parts, struts, wires, stability, and airscrews.
— Technical report of the Advisory Committee for Aeronautics for the year 1916-17 (with appendices). Vol. II.
The appendices, 49 in number, include papers on aeroplane design, engines, radiators, magnetos, construction, seaplane floats, fabrics, dopes, varnishes, hydrogen, instruments, and meteorology.
Includes 39 technical reports and memoranda dealing with aerodynamics, wind channels, models, wings, tests on biplanes and triplanes, aeroplane bodies, fins, rudders, struts, and parts.
Includes 43 technical reports and memoranda dealing with airscrews, bodies, engine gearing, shafts, helicopters, aeroplanes, etc.
This volume consists of 50 technical reports and memoranda dealing with seaplanes, fabrics, and instruments. The main subdivisions are: Strength of construction—(1) the stresses in loaded aeroplane structures; (2) the use of soap films for stress computation; (3) experiments on timber: Seaplane floats and flying-boat hulls, aeroplane fabrics, aluminum alloy sheet for aeroplane wings, permeability of fabrics and dopes to hydrogen, meteorology, etc.
BIBLIOGRAPHY OF AERONAUTICS, 1920–1921.

Advisory Committee for Aeronautics. See Glazebrook, Richard T.: Some points of importance in the work of the Advisory Committee for Aeronautics.


Advisory Committee on Civil Aviation. Government assistance for the development of civil aviation.

Flight, Vol. 12, No. 27 (July 1, 1920), London, pp. 685–690.

Aerial cruiser.


Aerial derby. Aerial derby.


— Around the world aerial derby.


— Blaze air course round the world. Nations all aid commission circling globe to prepare route for the first aerial derby.

Navigator, Vol. 1, No. 21 (July 10, 1920), Pensacola, Fla., pp. 1, 4, 8.

— Committee organizing first aerial derby around the world receive cordial reception in France.

Aerial Age, Vol. 11, No. 14 (June 14, 1920), New York, pp. 469–470.

— Le derby aérien autour du monde.

Suisse Aérienne, 2e année, Nos. 9–10, (mai 1920), Berne, pp. 138–142. ill.

— First aerial derby around the world.


— Rout mapped for long aerial derby.


— Special commission organizing the first aerial derby around the world under the rules of the Federation Aéronautique Internationale.

Bulletins 1–10, (each published in different country), 1919–1920, paged separately.

— World aerial derby plans progressing.


— World welcomes commission organizing first aerial derby around the world.


Aerial League of America. The Aerial League of America's stupendous campaign to popularize aeronautics, establish airports, and extend the aerial mail service by organizing a unit in every community, university, and organization.

Aerial Age, Vol. 12, No. 5 (Oct. 11, 1920), New York, pp. 143–146.


— $5,000 contest for designs for aeroplanes capable of carrying twenty, fifty, one hundred, one hundred and fifty, and two hundred tons of useful load planned by the Aerial League of America.


— $1,000 "Aviette" challenge trophy offered by Aerial League of America to popularize new sport.

Aerial Age, Vol. 11, No. 10 (May 17, 1920), New York, p. 325.


Flying, Vol. 9, No. 8 (Sept. 1920), New York, pp. 528–529.
No. 1 autographed typewritten copy.

— World-wide league to promote flying.
Literary Digest, Vol. 67 (Oct. 9, 1920), New York, p. 82.

AERIAL patrol. Capturing bandits on the wing.

— La police aérienne en Amérique.
La Conqu. l'air, 3 troubled année, No. 4 (15 fevr. 1920), Bruxelles, pp. 46, ill.

AERIAL routes. America's first model airway map.

— Les transports aériens entre Paris et Londres.

AERIAL transport. The state of aerial transport.

AERIAL Transport Corporation. Air transport plans complete.


AE-2.01. The "Ae-2.01" chaser biplane.

AERO-CLUB de Belgique. Le XX° anniversaire de l'foundation de l'Aéro-Club de Belgique.


— Bulletin officiel de l’aéro club de France

L'Aérophile, 29° année, Nos. 11-12 (1°-15 juin 1921), Paris, pp. 150-182, ill.

— La fête de l'Aéro-Club.
Vie Aérienne, 5° année, No. 1 (5 août 1920), Paris, p. 11, ill.

— La fête du 10 juillet au Parc de l'Aéro-Club.

— Grand prix de l'Aéro-Club de France. [100,000 francs.]

AERO Club of America. A. C. A. members form committee to fight schemers' ruse to get control of club.
Aerial Age, Vol. 11, No. 22 (Aug. 9, 1920), New York, pp. 733-734.

— Aero Club and Flying Club merge.

— Court of Appeals and Federal decisions support contentions in A. C. A. case.
Aerial Age, Vol. 12, Nos. 5-6 (Oct. 11-18, 1920), New York, pp. 154-155, 166.

— Courts asked for injunction to help Aero Club maintain its national leadership.
BIBLIOGRAPHY OF AERONAUTICS, 1920-1921.

Aero Club of America. Evidence of conspiracy to destroy Aero Club of America submitted to the Supreme Court of New York.

—— Evidence of vicious conspiracy to destroy Aero Club of America submitted to the Supreme Court.

—— Purposes of irregular meeting of A. C. A., called for August 16, violate New York State laws.
Aerial Age, Vol. 11, No. 23 (Aug. 16, 1920), New York, pp. 765-767, 784.

—— “Uphold the law, foster aeronautic activities” keynote of meeting of the Aero Club of America.
Aerial Age, Vol. 11, No. 26 (Sept. 6, 1920), New York, pp. 863-864, 871, 874.

—— See Prizes: Applications for sanction made to A. C. A. for three aerial contests with over $100,000 in prizes.
Aero-Club von Deutschland. Gesetze betr. die Luftfahrt.
Bd. II. Berlin, Gustav Braunbeck.

Aero clubs. Active aero clubs.

Aero 201. A new single-seater scout.

Aerodrome. Aerodrome list amendments.

—— Les aérodromes de l’état pour l’aviation civile.
Aérospatiale, 3e année, No. 22 (mars 1921), Paris, pp. 125-126.

—— Aerodromes for civil use.

—— Flying clubs and municipal aerodromes.

—— On safety, comfort, and economy—II.

—— Radio marker for aerodromes.

Aerodynamic balance. See Zahm, Albert Francis: Bifilar windbalance.


Aerodynamic laboratories. Aerotechnical institute of St. Cyr, new apparatus for testing mechanical conditions governing the flight of airplanes.

—— The new aerodynamic laboratory at St. Cyr.
Aviation, Vol. 9, No. 4 (Sept. 15, 1920), New York, p. 120, ill.

Aerodynamics. Aerodynamische Eigenschaften dicker Profile.
BIBLIOGRAPHY OF AERONAUTICS, 1920–1921.

AERODYNAMICS. Aerodynamics.


- Experimental aerodynamic data.
  Aerial Age, Vol. 13, No. 16 (June 27, 1921), New York, p. 374.

- New lifting element.

- Report of the committee on aerodynamics.

- See Alayrac: Un livre . . . .

- See Bairstow, Leonard: Applied aerodynamics.

- See Bothezat, Georges de: Sur le rendement d’un tunnel aérodynamique.

- See Caldwell, F. W., and E. N. Fales: Wind-tunnel studies in aerodynamic phenomena at high speed.


- See Fales, E. N.: Le tunnel de MacCook Field.

- See Gates, S. B.: The full scale determination of the pitching moment of a biplane.

- See Goldenberg, V.: Les données expérimentales de l’aérodynamique.

- See Guidoni, A.: Aerodynamics at very high speed.


- See Mallock, A.: Eddies and the diffusion of momentum.


- See Munk, Max Michael: The drag of Zeppelin airships.

- See Munk, Max Michael: The minimum induced drag of aerofoils.

- See Munk, Max Michael: Some new aerodynamical relations.

- See National Advisory Committee for Aeronautics: Aerodynamic characteristics of aerofoils.


- See Norton, Frederick Harwood, and Edmund Turney Allen: Control in circling flight.

- See Norton, Frederick Harwood: Practical stability and controllability of airplanes.

- See Norton, Frederick Harwood: The pressure distribution over the horizontal tail surfaces of an airplane.


- See Pigeaud: Toegepaste aerodynamica.

- See Prandtl, L.: Standardization and aerodynamics.
AERODYNAMICS. See Rayleigh: On the suggested analogy between the conduction of heat and momentum during the turbulent motion of a fluid.

See Relf, E. F., and C. H. Powell: Tests on smooth and stranded wires inclined to the wind direction, and a comparison of results on stranded wires in air and water.

See Robin, Ch.: L'aviom-laboratoire.

See St. Cyr: Aerotechnical Institute of St. Cyr.

See Taylor, G. I.: Observations and speculations on the nature of turbulent motion.

See Taylor, G. I.: Pressure distribution round a cylinder.


AERODYNAMISCHER Versuchsanstalt zu Göttingen. Ergebnisse . . . 

AEROFOILs. Absolute coefficients and the graphical representation of aerofoil characteristics.

Aerial Age, Vol. 13, No. 19 (July 18, 1921), New York, pp. 441-443.

Aerofin development.

Aerial Age, Vol. 13, No. 6 (Apr. 18, 1921), New York, p. 123.

Properties of aerofoil sections.

Aerial Age, Vol. 13, No. 11 (May 23, 1921), New York, p. 246.

The theory of aerofoils.


See Bothezat, George de: An introduction to the study of the laws of air resistance of aerofoils.

See Clark: Two new Clark aerofoils.

See Diehl, Walter S.: The variation of aerofoil lift and drag coefficients with changes in size and speed.

See Gerhardt, W. F.: The resistance of aerofoils.

See Lachmann: The Lachmann aerofoil.

See Munk, Max Michael: The minimum induced drag of aerofoils.

See National Advisory Committee for Aeronautics: Aerodynamic characteristics of aerofoils—II.

See Norton, Frederick Harwood: The aerodynamic properties of thick aerofoils suitable for internal bracing.

See Thom, Alexander: The correction of aerofoil characteristics for scale effect.

See Wragg: "Wragg" adjustable compound aerofoil.

AEROGRAPHY. See McAdie, Alexander: The principles of aerography.


See Schools: Meteorology and aerology schools.
BIBLIOGRAPHY OF AERONAUTICS, 1920–1921.

AEROMARINE. The aeromarine air yacht.

— Aeromarine airways show safe operation.
Aviation, Vol. 11, No. 22 (Nov. 28, 1921), New York, pp. 622–623, ill.

— Aeromarine flying boat.

— Aeromarine flying boats at the New York Aero Show.

— Aeromarine flying yacht is christened. Largest American type of seaplane for commercial purposes makes maiden flight.

— An aeromarine limousine flying boat.

— Aeromarine Model 40 hull test.

— Aeromarine pioneering.

— An aeromarine record.

— Test of aeromarine model 40 wing structure.
Aviation, Vol. 9, No. 9 (Nov. 15, 1920), New York, pp. 291–294, ill.


See Zimmermann, Paul G.: The Aeromarine Model 40 flying boat.

AEROMARINE Plane and Motor Company. The log of an aeromarine; a modern adventure in pathfinding.
New York, The Schilling Press (Inc.), 1920, pp. 34, ill.

AERONAUTICAL Chamber of Commerce of America. Organization.

AERONAUTICAL Digest. Official bulletin of the World’s Board of Aeronautical Commissioners.

AERONAUTICAL directory of the world.
London, Pub. for the proprietors by the Aeroplane & General Publishing Co. (Ltd.), 1920—

AERONAUTICAL Research Committee. The effect of the lag of the downwash on the longitudinal stability of an aeroplane and on the rotary derivative Mq.
Reports and Memoranda, No. 718 (Feb. 1921), London, His Majesty’s Stationery Office.

— Future of the Aeronautical Research Committee.

— The internal-combustion turbine.
Engine Sub-Committee Reports, No. 54 (Sept. 1920), London.


— Note on the comparison of metals as aeroplane structural materials.

— The report of the Aeronautical Research Committee.

— Reports and memoranda:—697. The attachment of wooden airscrew blades to metal centers.

— Reports and memoranda:—710. Summary of the present state of knowledge with regard to stability and control of aeroplanes.

— Reports of the Aeronautical Research Committee for the year 1920-21.
Supplements. Committee reports on: Aerodynamics, engines, meteorology, fire prevention, materials and chemistry, fabrics and dopes, accidents.

See Great Britain: Advisory Committee reports.

AERONAUTICS. L’aeronautique au parlement.

— Making some progress in aeronautics.

— The review of the year [1919].


AÉROPHILE. Notre vingtième année.

AEROPLANES. Comparison of the flying qualities of single and twin engine aeroplanes.

— Light aeroplanes built with veneer.
Aerial Age, Vol. 13, No. 19 (July 18, 1921), New York, p. 449.

— On ten years of “The Aeroplane.”
The Aeroplane, Vol. 20, No. 23 (June 8, 1921), London, pp. 517-518.

— Report of the scale effect subcommittee on the relation between model tests and the full-scale performance of aeroplanes.

AEROSTATIC pressure. See McAdie, A.: Gravity and aerostatic pressure on fast ships and airplanes.

AEROSTATION. Adelantos de la aerostación.
Aire, Mar y Tierra, año 2, Núm. 14 (mayo 1920), Madrid, p. 273.

See Ansermier, L.: L’Aérostation militaire à travers les âges.

AFRICA. Attempts to fly the length of Africa halted by ants.

Paris, Librairie Aéronautique, 1921, pp. 100, ill.

— Líneas aéreas en África.
Aire, Mar y Tierra, año 2, Núm. 19 (oct. 1920), Madrid, p. 596.

— La ruta aérea transafricana: el itinerario de El Cairo al cabo de Buena Esperanza.
Aire, Mar y Tierra, año 2, Núm. 10 (enero 1920), Madrid p. 32.

See Avions: L’emploi des avions en Afrique pour les recherches d’ordre scientifique.

See Effendi: East African aeroplane work.

See Engines: High-compression engines and the African air lines.


See Walmsey, Leo: Flying and sport in East Africa.

AGNEW, P. G. See Dickinson, Hobert Cutler, F. B. Silsbee, and Agnew: Methods for testing spark plugs.


See Raiding outlaw cotton fields by airplane. Literary Digest, Vol. 69 (Dec. 20, 1919), New York, p. 28, ill.

See Taylor, Bennett Ross: Agricultural possibilities of aviation fields.


AILERONS. See Irving, H. B.: Design of aeroplane control surfaces with special references to wing ailerons.


AIR Board. See Canada.


BIBLIOGRAPHY OF AERONAUTICS, 1920–1921.


The Air Conference. The operation of civil aircraft.


The forthcoming Air Conference.


The next Air Conference.


Proceedings of the Air Conference, 1920, with appendices . . .


Great Britain, Parliamentary Papers by Command, Cmd. 1157.

See An ex-pilot: Post impressions of the Air Conference.

See Civil aviation: The Air Conference. The operation of civil aircraft.

See Insurance: Aircraft insurance and the Air Conference.


See Waddon: The Air Conference visit to Waddon.

Air defense. Senators urge nation to save millions by increasing air defense over sea.


Air drive. See Propellers: Air drive for motor cars.

Air estimates. The air estimates discussion.


Air estimates for 1921.


The air estimates, 1921–22.


The air estimates, 1921–22.—II.


On the air estimates.


Air force. Auxiliary aids to the air force.


United air force—pro and con.


See Dryden, H. L.: Air forces on circular cylinders, axes normal to the wind, with special reference to dynamical similarity.

Air liner. See J L–6: The log of an aluminum air liner in first passenger flight, New York to Chicago; the J L–6 German metal monoplane beats the Twentieth Century Limited by 12 hours.

Air lines. Air lines of to-day. Time-tables of the various services.


Air mail service. United States air mail service. Pilots’ directions New York-San Francisco route. Distances, landmarks, compass course, emergency and regular landing fields, with service and communication facilities at principal points on route.

BIBLIOGRAPHY OF AERONAUTICS, 1920–1921.

Air mail service. See Mail: Air mail service.

Air Ministry. Air Ministry acquire short "Silver Streak."

---

The Air Ministry and Government control of aviation.

---

The Air Ministry and the airship schemes.

---

The Air Ministry appropriation account, 1919-20.

---

The Air Ministry competition at Martlesham. A brief log of the progress made.

---

The Air Ministry competition at Martlesham. Several tests still to be made by large machines.

---

The Air Ministry competition at Martlesham. Some notes on the machines entered.

---


---

Air Ministry competition, 1920. Table of data regarding amphibians, arranged alphabetically.

---

The Air Ministry competition results.

---

Air Ministry competitions, 1920.

---

Air Ministry competitions, 1920. Table of data regarding the large and small aeroplanes, arranged alphabetically in each class.

---

Air Ministry competitions, 1920. The official list of awards.

---

Air Ministry conference.

---

The Air Ministry exhibits.

---

Air Ministry expenditures.

---

Air Ministry notice to ground engineers.

---

Air Ministry notices.
Flight, Nos. 629, 641, 643, Vol. 13, Nos. 1, 14, 16 (Jan. 6, Apr. 7, 21, 1921), London, pp. 8, 249, 278.
AIR Ministry. The Air Ministry seaplane (amphibian) competition.

Air Ministry subsidies for civil aviation.

Air Ministry tests of new machines.

The cross-channel air services. Subsidy revised and extended.

The future of the Air Ministry.

Meteorological Office, Air Ministry. Advisory Committee on Atmospheric Pollution. Report on observations in the year ending Mar. 31, 1921. Forming the seventh report of the committee for the investigation of atmospheric pollution.
London, His Majesty's Stationery Office, 1922, M. O. 249, pp. 31, diagrs.

The new régime at the Air Ministry.


On the "Times" and the Air Ministry.


The subsidy regulations.

See Air conference: The forthcoming air conference.

See Great Britain: British Ministry announces plan for airship development.

See Great Britain: Progress of civil aviation.

See Richardson, Lewis F.: Cracker balloons for signaling temperature.

See Richardson, Lewis F.: Lizard balloons for signaling; the ratio of pressure to temperature.

See Safety tank: The Air Ministry safety tank competition.


Air ordinances. See Laws and regulations.

Air resistance. See Jacob, L.: La résistance de l'air et l'expérience. Les conséquences.

Air routes. From New York to Nome and Siberia by air.
Literary Digest, Vol. 66 (Sept. 11, 1920), New York, pp. 92-96.

See Commercial aeronautics.

See Commercial aeronautics: Mapping air-routes for commercial flying.

See Hicks, C.: Empire building by air: Cairo to the Cape.

See Lighthouses: La balise lumineux des routes aériennes pour la navigation nocturne.

Air Service. Air Service, air force, and air power.

— Air Service estimates.

— Air Service liaison regulations.

— Air Service promotions.
Aviation, Vol. 10, No. 7 (Feb. 14, 1921), New York, pp. 269-272.

— Air Service requests $60,000,000. Estimate for 1922 includes $22,700,000 for aircraft and accessories and $1,000,000 for reserve training centers.

— Annual report of the Director of the Air Service.

— The civil operations branch of the Air Service.

— Decorations awarded the Army Air Service.

— Directory of Air Service activity.
Aviation, Vol. 10, No. 24 (June 13, 1921), New York, pp. 751-752.

— Draftsmen for the Air Service.

— Final report of the chief of Air Service, A. E. F., to the commander in chief, American Expeditionary Forces.

— First semiannual report of the civil affairs division of the Army Air Service.
Aerial Age, Vol. 12, Nos. 22-23 (Feb. 7-14, 1921), New York, pp. 565, 586-587.

Dayton, Ohio, February 1921, pp. 250, ill.

— Methods in observation practiced with Fifth Corps, First American Army, on the fronts.

— Operating equipment for U. S. Army observation balloons; tension meters, maneuvering blocks, maneuvering spiders, danger cones and clamps, valve-testing device, sand bags; prepared in the office of the chief of Air Service, November, 1920.

— Progress of the Air Service.

— Reorganization of the Air Service at reduced strength.

— Report of Director of Air Service. Letter from the Acting Secretary of War transmitting a report compiled in the office of the Director of the Air Service in compliance with House Resolution 100.

— Resumption of recruiting for Air Service.  

— Sale of United States army surplus aeronautical equipment; engines, spare engine parts, planes, spare plane parts, sea sleds, hangar frames, aviators' helmets, propellers, spark plugs, instruments, miscellaneous equipment . . . Material disposal and salvage division, Air Service, War Department.  

— Science and research in the air service.  
Gives funds available for research and amounts allotted.

— A single Air Service.  
Aerial Age, Vol. 13, No. 2 (Mar. 21, 1921), New York, p. 27.  

— $60,000,000 requested of Congress by Air Service.  

— What a going Air Service entails.  

— Work of Medical Division, Air Service.  
Aviation, Vol. 8, No. 7 (May 1, 1920), New York, pp. 282-283.

Air Service Engineering School, Dayton.  Requirements for admission to Air Service Engineering School at Dayton.  
Aerial Age, Vol. 13, Nos. 5-6 (Apr. 11-18, 1921), New York, pp. 107-108, 130-131.


Air strength.  Air strength of the great powers.  

Air ton.  The cost of air-ton miles.  

Air traffic.  Does air traffic pay?  

Air transport.  The requirements and difficulties of air transport.  

— See Olympia: Air transport and efficiency. Two interesting papers read at Olympia.

Airco.  Airco 18 aeroplane.  

— Performance of Airco 16-Napier "Lion."  

— See Aircraft Manufacturing Co.: The Airco 16 on trial.  
— See Aircraft Manufacturing Co.: Some new Airco machines.

Aircraft.  Aircraft or battleships?  

— Aircraft and disarmament.  
Aviation, Vol. 11, No. 11 (Sept. 12, 1921), New York, p. 315.

— Aircraft and insects.  
BIBLIOGRAPHY OF AERONAUTICS, 1920–1921.

AIRCRAFT. Aircraft in war and peace.

— The aircraft problem.

— The structural design of aircraft.

AIRCRAFT Disposal Co. The Aircraft Disposal Co.'s exhibit.

— The Aircraft Disposals Co. (Ltd.), Regent House, Kingsway, London, W. C.

— Injunction against the Aircraft Disposal Co.

AIRCRAFT Manufacturing Co. The Airco 16 on trial.

— Some new Airco machines.


AIRCRAFT. A distinctive design: The Airliner.
Aviation, Vol. 11, No. 1 (July 4, 1921), New York, p. 15, ill.

— Future Zeppelin activities.

— Post-war aviation in Germany.

— Tests of the Airliner.
Aviation, Vol. 11, No. 8 (Aug. 22, 1921), New York, p. 225, ill.

AIRCRAFT Engineering Co. Incorporation of Airliner Engineering Co.

AIRCRAFT. Airplanes—applied design.
Engineering Division, Air Service Technical Orders Nos. 7 and 8 (Apr., Sept. 1919), Dayton, Ohio, pp. 9-13, 9-24, figs.

— Airplanes new to fliers and laymen. Lower in cost, far more comfortable and easier to operate than heretofore.

— Airplanes that are different.

— Amerikanisches zweimotoren Verkehrslflugzeug.

— Der deutsche Luftverkehr.

— Vom italienischen Luftverkehr.

— Life of an airplane.

— Mastery of the skies.

— Die neuesten französischen Verkehrslflugzeuge.
BIBLIOGRAPHY OF AERONAUTICS, 1920--1921.

AIRPLANES. Our latest aerial creations.
— "Pacific Hawk."
The Ace, Vol. 1, No. 12 (July 1920), Los Angeles, p. 22, diagr.
— The pursuit plane of the future.
— Résumé of foreign data.
Engineering Division Air Service, Technical Orders No. 8 (Sept. 1919), Dayton, Ohio, pp. 83-90, figs.
— Single engined cabin airplanes discussed.
Aviation, Vol. 11, No. 17 (Oct. 24, 1921), New York, p. 489.
— Some interesting new machines.
— The streamline airplane.
— Technical features of the new aircraft models.
— Transoceanic airplane; multiple engines and transmission gears as aids to continuous flight.
— The versatile aeroplane.
Aerial Age, Vol. 14, No. 3 (Sept. 26, 1921), New York, pp. 51-52.

AIRPORT service. Standard charges for airport service.

AIRSCREWS. Report on the fracture of a propeller shaft submitted by the Air Department of the Admiralty.
— See Bairstow, L., A. Fage, and H. E. Collins: The relation between the efficiency of a propeller and its speed of rotation.
— See Fage, A.: An experimental investigation into the accuracy of the airscrew dynamometer at the National Physical Laboratory.
— See Fage, A., and H. E. Collins: An investigation of the magnitude of the inflow velocity of the air in the immediate vicinity of an airscrew, with a view to an improvement in the accuracy of prediction from aerofoil data of the performance of an airscrew.
— See Fage, A., and H. E. Collins: An investigation of the mutual interference of airscrews and bodies of the “pusher” type.
— See Fage, A., and H. E. Collins: An investigation of the strength of two airscrews for F. E. 2B.
— See Fage, A., and H. E. Collins: Tests on five model airscrews and an experimental investigation of the interferences between these airscrews and a model of the end of the whirling arm at the Royal Aircraft Factory.
— See Propellers.
— See Relf, E. F.: Test of a propeller with its axis of rotation at right angles to the wind direction.
AIRSHIP MODELS. See Pannell, J. R., and R. Jones: Experiments on a model of the German rigid airship L-33.


AIRSHIP SHEDS. See Jones, R., and H. Levy: A study of the flow of air in the neighborhood of an airship shed and screens and the forces and the moments brought into play.

— See Woodford, F. G., and G. N. Fell: The variation in the wind above and airship shed, due to the presence of the shed.

AIRSHIPS. The airship crisis.
The Aeroplane, Vol. 20, No. 22 (June 1, 1921), London, p. 512.

— The airship problem.

— Airship sheds and their erection.

— Airships and steamships.
Engineer, Vol. 131, No. 3415 (June 10, 1921), London, pp. 621-622.

— Airships and the Navy.

— Airships in long distance transport.
Aviation, Vol. 11, No. 4 (July 25, 1921), New York, pp. 99-100.

— Are present types of airships a commercial proposition?
Aerial Age, Vol. 12, No. 26 (Mar. 7, 1921), New York, p. 661.

— Ausichten der Luftfahrtindustrie in China.

— A comparison of British airships.

— Concerning the airships.

— A criticism of the airship communications report.

— Disposal of airships. Terms of government offer.

— The fate of the airships.

— For the salvation of the airships.

— The future of airships.
Flight, No. 649, Vol. 13, No. 22 (June 2, 1921), London, pp. 367-370, ill.

— The future of British airships.

— The German airships L-64 and L-71.
Aerial Age, Vol. 12, No. 20 (Jan. 24, 1921), New York, p. 518.

— The largest British-built airship.

— The mooring of airships.
AIRSHIPS. A new rigid airship.


— Notes on the operation of nonrigid airships.


— Ocean airships.


— On airships and international imbecility.


— On the airship question.


— On traveling by airship.


— The present state of airship development.


— Problems of aeroplanes and airships.


— Reprieve for the airships.

Flight, No. 655, Vol. 13, No. 28 (July 14, 1921), London, pp. 466-467.

— Rigid airships.

Aerial Age, Vol. 13, Nos. 6 and 8 (Apr. 18 and May 2, 1921), New York, pp. 134 and 182.

— Scrapping the airships.

The Aeroplane, Vol. 21, No. 3 (July 20, 1921), London, p. 62.

— Unsolved difficulties of the airship.


— What airships can do.


— World's airships—1914 to 1920.

Aut. Ind., Vol. 42 (Feb. 5, 1930), New York, pp. 412-413.

— See Air Ministry: The Air Ministry and the airship schemes.

— See Burgess, Charles P.: Bending moments, envelope, and cable stress in non-rigid airships.

— See Butcher, F. L. C.: Airship mooring and handling.

— See Germany: German views on airships.

— See Grey, Charles Grey: Why Great Britain has no airships.

— See Italy: New Italian airship.

— See Lewitt, E. H.: Circumferential wiring of rigids.

— See Lewitt, E. H.: The hull of the rigid airship.

— See Lewitt, E. H.: Temperature stresses in the rigid airship.


— See Metiviev: Frenchman's proposed airship in the civil war.

— See Munk, Max Michael: The drag of Zeppelin airships.

— See Nobile, Umberto: Semirigid versus rigid airships.

— See Scott, G. H.: Airship piloting.

— See Scott, G. H.: The present state of airship development.

— See Summer, P. H.: A stabilizing raft for mooring airships over the sea.
Airships. See Whale, George: The mooring and handling of airships on the ground.

— See Whale, George: The Zeppelin airships, L-64 and L-71.

Airship mooring masts. See Grisell Prize: Airships and architects.

Airway. America's first airway.

— Flying, Vol. 10, No. 2 (Mar. 1921), New York, pp. 63-64, map.

— America's first model airway.

Aviation, Vol. 10, No. 9 (Feb. 28, 1921), New York, pp. 267, 270, map.

— How to establish an airway.


Aische; A. du Bois d'. Deux braves: Artigaut et Legrain.

Vie Aérienne, No. 167 (22 Janv. 1920), Paris, pp. 914-915, ill.

Akron-Detroit. First dirigible passenger line Akron-Detroit.


Alabama. See Bombing: Bombing tests of the U. S. S. Alabama.

— See Fullam, W. F.: Admiral Fullam on the Alabama tests.

Alaska. Alaska flying expedition.


— Alaska flying expedition on its way.

Aircraft Journal, Vol. 7, No. 4 (July 26, 1920), New York, pp. 3-6, ill.

— Alaskan air pioneers.

Aerial Age, Vol. 12, No. 8 (Nov. 1, 1920), New York, p. 221.

— The Alaskan flying expedition.


— The Alaskan flying expedition. A remarkable achievement for the Army air service.

Flying, Vol. 9, No. 10 (Nov. 1920), New York, pp. 626-630, ill., map.

— Alaskan flying expedition completes flight.


— Army-plane flight to Nome successful.


— Regreso de la expedición aérea a Alaska.


— Return of the Alaskan expedition.

Aerial Age, Vol. 12, No. 9 (Nov. 8, 1920), New York, pp. 251-252, ill.


— See Military aeronautics: Army flight to Alaska.

— See Street, St. Clair: The Alaskan flying expedition.

— See Tinker, Clifford A.: Flying to Alaska. In many ways the most remarkable flight ever undertaken.

— See Tinker, Clifford A.: To Nome and back.

Alayrac. Un livre: résumé des principaux travaux exécutés pendant la guerre au laboratoire aérodynamique Eiffel.

L'Aéronautique, 1ère année, No. 9 ( Fév. 1920), Paris, pp. 405-406.

— Mouvement du centre de gravité d’un solide symétrique par rapport a un plan vertical se déplaçant dans un milieu résistant.


Motion in resisting medium.
ALBATROS. The Albatros commercial machine. The "L-57."

The Albatros L-57.
Aerial Age, Vol. 12, No. 17 (Jan. 3, 1921), New York, p. 446.

Das Albatros-Verkehrsflugzeug Typ L-57.

The Albatros W-10 flying boat.

A new Albatros monoplane.

See Flanders, L. Howard: The flight of the Albatros.
See Friedensburg, Walter: Albatros gegen U-boat.
See Hildesheim, Erik: Albatros aircraft.
See Kostiwal, Hans: Der österreichische Albatros . . .

ALBERTI, FELIX F. Die Landungssicherung.
Luftweg, Nr. 17-18 (5. Mai 1921), Berlin, p. 137.

ALBINI, NAPOLEONE. Letteratura tecnica e mentalità industriale.
L’ Aeronautica, Anno 3, Num. 1 (marzo 1920), Roma, pp. 4-5.

ALCOGAS. Alcogas as aviation fuel compared with export grade gasoline.

See Gage, V. R., S. W. Sparrow, and D. R. Harper, 3d: Comparison of alcogas
aviation fuel with export aviation gasoline.
See Gage, V. R., S. W. Sparrow, and D. R. Harper: Comparison of alcogas
aviation fuel with petrol.
See Gage, V. R., S. W. Sparrow, and D. R. Harper: Comparative power
properties of alcogas and aviation gasoline.


ALLEN, E. G. Has the airplane bomb a case against armored ships?
U. S. Air Service, Vol. 5, No. 4 (May 1921), New York, pp. 8-10, diagr.

A tip for the aircraft manufacturer and the prospective operations of
commercial aircraft transportation companies.
Aerial Age, Vol. 13, No. 13 (June 6, 1921), New York, pp. 297-298.

ALLEN, EDMUND TURNEY. See Norton, Frederick Harwood, and Edmund Turney
Allen: Accelerations in flight.

See Norton, Frederick Harwood, and Edmund Turney Allen: Control in circling
flight.

ALLEN, S., and T. R. TRUAX. Glues used in airplane parts.
Fifth annual report of National Advisory Committee for Aeronautics, Washington, 1920,
Printing Office, 1920, pp. 28, ill.

ALLIED and associated powers, 1914 . . . Convention for the regulation of aerial

ALLOYS. See P. R. Corona Metal: A new yellow metal.
BIBLIOGRAPHY OF AERONAUTICS, 1920–1921.


ALPS. Le réseau aérien international et les Alpes.
Suisse Aérienne, 3e année, 1921, No. 21, Berne, pp. 315–318, ill.

—See Lewis, George M. D.: First American piloted airplane to cross the Alps.

ALTITUDE. Air “submarines” expected to sound the depths far beyond the clouds.

—Air submarines to sound the depths beyond the clouds.

—Altitude record for pilot and 3 passengers.

—Calibration of barographs used in airplane altitude measurements.

—Determination of altitude records.

—Flight at high altitudes.
Aerial Age, Vol. 12, No. 19 (Jan. 17, 1921), New York, p. 489.

—From kite flying to breaking the altitude record.
Literary Digest, Vol. 65 (June 19, 1920), New York, pp. 86–89.

—High-altitude winds mean high speeds.

—High flying to be made safe.

—Höhenrekord ohne Fluggast; Höhenrekord mit einem Fluggast.

—How altitude records are estimated.

—The possibilities of flying high.
The Navigator, Vol. 1, No. 10 (Apr. 10, 1920), Pensacola, Fla., p. 3.

—Preparation of plane and motor for altitude flight.
Aerial Age, Vol. 13, No. 5 (Oct. 11, 1920), New York, p. 142, ill.

—Seven and half miles high in mock flight.

—6,000 feet, eight minutes, sets high record.

—Staying alive seven miles up.
Literary Digest, Vol. 65 (May 1, 1920), New York, pp. 110–111.

—The value of high-altitude flying.

—La vie et les voyages aux grandes altitudes.

—Le vol aux hautes altitudes.
Suisse Aérienne, 2e année, No. 16 (25 août 1920), Berne, pp. 242.

—Les voyages en aéroplane à haute altitude.

—What it’s like seven miles up in the clouds.
ALTITUDE. Will man soar to unknown heights?
Illustrated World, Vol. 33 (July 1920), Chicago, pp. 806-807, ill.
— Winged submarines for high-altitude flying.
Scient. Amer. Monthly, Vol. 2 (July 1920), New York, p. 3.
— See Clark, V. E.: Maintaining airplane engine power at great altitudes.
— See Clark, V. E.: New York to San Francisco in nine hours made possible when engine efficiency is maintained at high altitudes.
— See Coffin, J. G.: Attainment of high levels in the atmosphere; reply to A. McAdie.
— See Commercial aeronautics: Aerial passenger travel at high altitudes.
— See DH: Climb of service type DH tested at Langley.
— See Engines: Extract of British report on variation of engine horsepower with altitude.
— See Engines: The variation of horsepower with altitude.
— See Germany: The German B. M. W. high-altitude engines.
— See Guglielminetti: Les hautes altitudes et l'organisme humain.
— See Guglielminetti: More about high flying.
— See Guglielminetti: La vie et les voyages aux très hautes altitudes; cabines closes, à pression constante, pour ballons et avions.
— See Gundry, P. G.: The effect of temperature and altitude of aerodrome in the taking off of aeroplanes.
— See Hersey, Mayo D., Franklin L. Hunt, and Herbert N. Eaton: The altitude effect on air speed indicators.
— See Howard, R.: Seeking the seven-mile ceiling.
— See Kirsch: Les records de hauteur. Kirsch et le record de hauteur.
— See König, Georg: Indizierte Steigvermögen statt Leistungsbelastung.
— See McAdie, A.: Attainment of high levels in the atmosphere.
— See MacReady, John A.: Airplane reaches altitude of 7,75 miles.
— See MacReady, John A.: MacReady's altitude flight.
— See MacReady, John A.: New altitude record, 40,800 feet.
— See Mallock, A.: Best altitude for aerial scouting at sea.
— See Martinot-Lagarde: Fonctionnement des moteurs en atmosphère raréfiée.
— See Parachutes: Drops 19,800 feet from an airplane. San Antonio aviator sets new world record for parachute jump.
— See Rateau, A.: Considérations sur le vol aux très grandes altitudes.
— See Richardson, H. C.: Factors involved in high airplane speed at great altitude.
— See Schroeder, R. W.: Major Schroeder's altitude flight.
— See Schroeder, R. W.: Major Schroeder's record altitude flight.
— See Schroeder, R. W.: Major Schroeder's true altitude 33,000 feet.
— See Schroeder, R. W.: Schroeder is none worse for big drop.
ALTITUDE. See Schroeder, R. W.: Wind blows 220 miles hourly at an altitude of 30,000 feet, Major R. W. Schroeder says.


— See Stettbacher, E.: Sonnenlicht und Himmelsblau in grossen Höhen.


— See Swan, Charles Atkin: Some physical and psychical effects of altitude.

— See Villey, Jean.: Les moteurs d’avion; hautes altitudes.

— See Villey, Jean.: Sur les vols aux hautes altitudes.


ALULA. The “Alula” — a new high-lift wing.


— The “Alula” demonstration.


— The Alula high-lift wing.


— The “Alula” wing. A suggested application.


— The “Alula” wing demonstrated.


— First demonstration of the Alula wing.

Aviation, Vol. 11, No. 23 (Dec. 5, 1921), New York, p. 662, ill.

— A new high-lift wing.

Aerial Age, Vol. 11, No. 25 (Aug. 16, 1920), New York, p. 774, ill.

— A novelty in aeroplane wings.


— See Wings: Goods by air. The meaning of the Alula wing.

ALUMINUM. Aluminum and its alloys.


— Aluminum and its alloys applied to aircraft construction.


— Aluminum alloys.


— Die autogene Schweissung des Aluminiums.


— The composition of aluminum alloys.

Aerial Age, Vol. 13, No. 8 (May 2, 1921), New York, p. 155.

— Het eerste aluminium luchtschip.

Avia, Se jaarg., No. 7 (15 mai 1920), Rotterdam, p. 79.

— A real aluminum solder at last.


— See Hildesheim, Erik: The Zeppelin-Lindau all-aluminum biplanes.

— See Jeffries, Zay: Aluminum alloys.

44439—25—3
26 BIBLIOGRAPHY OF AERONAUTICS, 1920–1921.

ALUMINUM. See JL-6: The log of an aluminum air liner in first passenger flight, New York to Chicago, the JL-6 German metal monoplane beats the Twentieth Century Limited by 12 hours.

See Knauss, A. C.: Efficiency of aluminum leaf on airplane propellers.

See Merica, Paul D.: Aluminum and its light alloys.

See Pannell, E. V.: Aluminum in airship construction.

AMAND, G. Le service aérien Paris-Londres.


AMANS. L'aérovoilier Nimfuehr.

Suisse Aérienne, 2e année, No. 17 (10 sep. 1920), Berne, pp. 253.

Poussées et puissances de pales tournantes inégalement tordues.


Sur la grande écart en aviation.

La Conq. l'air, 3e année, no. 1 (1er janv. 1920), Bruxelles, pp. 13–14.

AMBIANCES. Aerial ambulances.

Aerial Age, Vol. 12, No. 26 (Mar. 7, 1921), New York, p. 662.

See Military aeronautics: Ambulance plane tested.

AMERICA. American and foreign aircraft.


Amerika und seine Flugzeugindustrie.


Der amerikanische Landesbeirat für Luftfahrt.


Continuation of article in Hefte. 23–24, 1920, p. 345.

“Even the name is American.” The passing of the old “Hisso.”

The Ace, Vol. 2, No. 6 (Jan. 1921), Los Angeles, p. 10, ill.

See Orcy, L, d': Dawn of American commercial aviation.

AMERICAN airways. Plans of the American airways.


Aerial Age, Vol. 12, No. 24 (Feb. 21, 1921), New York, p. 607.

Report of special committee on the law of aviation. Charles A. Boston, Chairman.

[New York, 1921], pp. 33.

Special Committee on the Law of Aviation. First preliminary report to the executive committee (with annexed list of publications). Charles A. Boston, chairman.

[New York, 1921], pp. 40.


Paris, pp. 24, ill.


Paris, 1918, pp. 80.

— The American Legion flying meet. Aviation, Vol. 11, No. 20 (Nov. 14, 1921), New York, pp. 564-565, ill.


Navy specifications for two-place amphibian planes. Aviation, Vol. 8, No. 9 (June 1, 1920), New York, p. 362.


— See G., C. G.: On the amphibian competition.


Anderson, G. V. See Dickinson, H. C., W. S. James, and G. V. Anderson: Variation of horsepower with altitude and compression ratio.

— See Dickinson, H. C., W. S. James, and C. V. Anderson: Variation of horsepower with temperature.


Aneroid. See Hersey, M. D.: Aneroid investigations in Germany.


Angle of incidence. L'incidence variable et son application pratique. Suisse Aérienne, 2e année, No. 11 (10 juin 1920), Berne, pp. 156, ill.


Animal flight. See Oheimchen, Étienne: Nos maîtres les oiseaux, étude sur le vol. animal et la récupération de l'énergie dans les fluides.


Ansaldo. The Ansaldo A-300 C. Aviation, Vol. 10, No. 1 (Jan. 3, 1921), New York, pp. 11-12, ill.


— The Ansaldo limousine. Aerial Age, Vol. 13, No. 12 (May 30, 1921), New York, pp. 275, ill


Anschoitz. See Gradenwitz, Alfred: German gyrogauges. The Anschoitz aircraft horizon.


— Le meeting aéronautique d'Anvers. L'Aéronautique, 2e année, No. 15 (août 1920), Paris, pp. 119-120, ill.
ANTWERP.  Le meeting aeronautique de la VIIe Olympiade à Anvers.  
L'Avrophilo, 28e année, Nos. 5/6 (1er-15 mar. 1920), Paris, pp. 80-81.

--- See Germany: German aeronautical material at Antwerp.

ANZANI engine. The mounting of Anzani radial engines.  
Aerial Age, Vol. 11, No. 13 (June 7, 1920), New York, p. 435, ill.

APAX. The Apax plug cleaner.  
Flight, No. 630, Vol. 13, No. 3 (Jan. 20, 1921), London, p. 49, ill.

APOLDA. Apolda und der Luftverkehr.  
Aer. Flugv., Nr. 9 (Sept. 1921), Berlin, pp. 357-358, ill.

APPARETUS. See L'appareil respiratoire automatique.

L'APPAREIL respiratoire automatique.  
Suisse Aérienne, 2e année, Nos. 9-10 (mai 1920), Bernes, pp. 134-135., ill.

ARCHDEACON, ERNEST. L'avion autostable Sallard.  
L'Avrophilo, 28e année, Nos. 9-10 (1er-15 mai 1920), Paris, pp. 144-145.

ARCHITECTURE. The Society of Architects and aeronautical architecture.  

ARGENTINA. Argentine Army air service.  
Aerial Age, Vol. 12, No. 25 (Feb. 28, 1921), New York, p. 640.

ARGENTINA. Argentine aviation feats.  

Arms Test. Armament test of single-seater pursuit-airplane ordnance-engineering-corporation type D. (Report of test No. 1.)  


ARMSTRONG-SIDDELEY Motor-Car Co., Ltd., Coventry. See Great Britain: Modern British engines.


— Leaping the snow-clad peaks of the West and photographing our only active volcano. U. S. Air Service, Vol. 4, No. 3 (Oct. 1920), New York, pp. 12-14, ill.

ARONDEL. See Blanchet, Georges: Aviateurs Contemporains. Arondel.

AROUZE, MARCEL. Une tournée en Espagne. Vie Aérienne, No. 177 (1er avril 1920), Paris, pp. 1078-1079, ill.

ARRUIL, JUAN SOTO. El cadete observador Augusto X. Langner. Tobilli, año 5, Núm. 1 (agosto 1920), Mexico, pp. 15-17, ill.


ARTILLERY, antiaircraft. El servicio de la artillería antiaérea en los Estados Unidos. Tobilli, año 5, Núm. 2 (sept. 1920), Mexico, pp. 38-40, ill.

ASHBOLT. The Imperial airship service. Mr. Ashbolt’s suggestion. Aeronautics, Vol. 21, n. s., No. 403 (July 7, 1921), London, pp. 13-14.


— See Fage, A., and J. D. Coales: Experiments with two aerofoils of high aspect ratio.

— See Korvin-Kroukovsky, B. V.: Correction of the aerofoil characteristics for aspect ratio.
Aspect ratio. See Lift: The effect of aspect ratio on lift.

Associazione italiana di aerotecnica. Parte ufficiale.
L'Aeronautica, anno 3, Num. 5-6 (luglio-agosto 1920), Roma, pp. 240-248.

Aston, F. W. Fabric and dope, with special reference to deterioration of strength and tautness.
Aerial Age, Vol. 12, No. 2 (Sept. 20, 1920), New York, pp. 50-51.


— Report on some strength tests of aeroplane fabric exposed to weather and their relation to sunlight intensity.

Aston, Wilfrid Gordon. Wind wagons.

Astra Torres. The Astra Torres airship.


Atkins, W. R. G. Variations of temperature and humidity with altitude; notes on the wind and other meteorological observations made at Aboukir.

— See Barr, Guy; W. J. S. Naunton, and W. R. G. Atkins: Tests on dopes and varnishes for aeroplane wings.

— See Barr, Guy, and W. R. G. Atkins: On the influence of acidity in the solvent.


Atlantic. Aerial circuit of Atlantic proposed.
Aerial Age, Vol. 10, No. 18 (Feb. 16, 1920), New York, p. 656.

— The first Atlantic flight.

— Trans-Atlantic airship transportation.
Aviation, Vol. 9, No. 7 (Nov. 1, 1920), New York, p. 224.


— See Damblanc, Louis: Brest-New York en vingt heures.

— See Meteorology: Atlantic weather conditions.

— See R-38: The coming trans-Atlantic voyage of "R-38."

— See Richardson, Holden Chester: Some lessons of the trans-Atlantic flight.


Atlantic City. Aeroplanes and motors exhibited at Atlantic City.
Aerial Age, Vol. 11, Nos. 11-12 (May 24-May 31, 1920), New York, pp. 339, 401, ill.

— Plane may not fly above boardwalk.
The Navigator, Vol. 1, No. 18 (June 12, 1920), Pensacola, Fla., p. 1.

— Twenty international and national aerial contests to be discussed at Atlantic City, May 20 to May 30.
Air Power, Vol. 6, No. 5 (May 1920), New York, p. 147.

— See Third Pan-American Aeronautic Congress: Notable gathering attends opening of Third Pan-American Aeronautic Congress at Atlantic City.
Atlantic Fleet. The Atlantic Fleet and aircraft.

Atmosphere. L'aéroplane à la conquête de la haute atmosphère.
— See Bilham, E. G.: The structure of the atmosphere over Benson (Oxon) on 3d March 1920.
— See Bjerknes, Vilhelm: The structure of the atmosphere when rain is falling.
— See Brunt, D.: Internal friction in the atmosphere.
— See Eblé, L.: Variabilité de la composition de l'atmosphère.
— See Fulsher, G. S.: Electrostatic effects on airships.
— See Meteorology: Use of aeroplanes for studying the atmosphere.
— See Richardson, Lewis F.: Some measurements of atmospheric turbulence.
— See Richardson, Lewis F.: The supply of energy from and to atmospheric eddies.
— See Meteorology.

Austin, Charles B. My attempted flight from Panama to Washington, D. C.

Austin, W. J. D. The Austin life boat.
Aerial Age, Vol. 13, No. 15 (June 20, 1921), New York, p. 350.
Aviation, Vol. 11, No. 12 (Sept. 19, 1921), New York, p. 337, diagr.

Austin Motor Co. A visit to the Austin works.

Australia. An air force for Australia.
— Australia creates an air council and air board.
— The Australian flight.
— The Australian pioneers at the Cecil.
— Aviation in Australia.
Flying, Vol. 10, No. 4 (May 1921), New York, pp. 131-132.
— Civil aviation in Australia.
— Honouring the England-Australia air pioneers. Sir Ross Smith and Sir Keith Smith.
— Lesson of the flight to Australia.
The Navigator, Vol. 1, No. 6 (Mar. 20, 1920), Pensacola, Fla., p. 4.
— On advancing Australia.
The Aeroplane, Vol. 21, No. 7 (Aug. 17, 1921), London, pp. 144-144, ill.
— The possibilities of aviation in Australia.
AUSTRALIA. Sir Ross and Sir Keith Smith return to England.
— See Commercial aeronautics: By air from London to Australia.
— See Commercial aeronautics: England to Australia flight.
— See Smith, Ross: Captain Smith wins 11,500-mile London-Australia flight.
— See Taylor, Ross: Australian meteorology.

AUSTRIA. See Hildesheim, Erik: More German and Austrian aircraft.
— See Hildesheim, Erik: Some Austrian aircraft.

AUTOMATIC pilot. See Aveline: The Aveline “automatic pilot.”
— See Pilot: An automatic pilot.

AUTOMOBILE engineer. The Automobile Engineer; a technical journal devoted to the theory and practice of automobile and aircraft construction.


AUTOSTABLE. See Sallard: The “Autostable” Sallard.

AVELINE. The Aveline automatic airplane control.
— The Aveline automatic pilot.
Flight, No. 632, Vol. 13, No. 5 (Feb. 3, 1921), London, pp. 73-75, ill.
— Der Aveline-Fluglagenregler.
— The Aveline stabiliser.

AVIA. The Avia B. H. (exp.) 35-horsepower monoplane.

AVIATIK. See Hildesheim, Erik: Aviatik aeroplanes.

AVIATION. Aviation after the war.
— Disagreement over aviation.
— A few facts about aviation progress.
— The future of aviation.
Aerial Age, Vol. 14, No. 6 (Oct. 17, 1921), New York, p. 123.
— Review of aviation in 1920.
Aerial Age, Vol. 12, No. 18 (Jan. 10, 1921), New York, pp. 459, 470.

AVIATORS. Aviators lead dangerous lives.
— Observation, selection, and assignment.
— Why navigating personnel should be officers.
Aircraft Journal, Vol. 7; No. 7 (Aug. 16, 1920), New York, pp. 3-4.

AVIETTE. La concours de l’aviette.
Aviette Legay.
— See Peugeot prize: L’essor de l’“Aviette.” Le prix Peugeot gagné par Poulain.

AVIONETTE. See Buckwald, H. M.: The Pischoff avionette.

AVIONS. En avion commercial au-dessus des Alpes bernoises.
Suisse Aérienne, 3e année, No. 14, 1921, Berne, pp. 204-205, ill.
— L’avion de demain.
— Un avion de guerre.
— Avión que se desprende de las alas.
Aire, Mary Tierra, año 2, Núm. 13 (abril 1920), Madrid, pp. 210-213.
— Les avions ininflammables.
— Deux avions de vitesse pure.
— L’emploi des avions en Afrique pour les recherches d’ordre scientifique.
Suisse Aérienne, 2e année, No. 16 (25 août 1920), Berne, pp. 240.
— Un nouveau type d’avion pour l’aviation italienne.
Suisse Aérienne, 2e année, No. 22 (30 nov. 1920), Berne, pp. 335-336., ill.
— See Besson.
— See Blériot.
— See Boccacio, Paul: Essais statiques des avions.
— See Bouché, Henri: La coupe Deutsch.
— See Bréguet, Louis: Les avions Louis Bréguet.
— See Caudron.
— See Couturier, Roger: L’avion métallique en Allemagne.
— See Couturier, Roger: Quelques nouveaux types d’avions.
— See Dollfus, Charles: Sur quelques postes de commande des gouvernails d’avions.
— See Dorand: Comparaison entre les avions monoplan et biplans.
— See Ernoul.
— See Farman.
— See Frantzen, L. P.: Les parachutes d’avions.
— See Fréchet, Charles. L’avion-torpilleur.
— See Grimault, P.: Le vent sous l’aile.
— See Hanriot.
— See Henri-Paul.
— See Hirschauer, L.: De la valeur de l’avion comme engin de transport.
Avions. See Lallier, Roger: Le confort en avion.

See Latécoere.
See Levasseur.
See Lioré et Olivier.
See Marchis, L.: Les avions actuels et le Salon de L'aéronautique.
See Morane-Saulnier.
See Nieuport-Delage.
See Pichon.
See Plantey: Les avions sanitaires.
See Potez, Henry.
See Sánchez-Besa.
See Société d'Emboutissage et de Constructions Mécaniques.
See Spad-Herbemont.
See Tampier.
See Volmerange, A.: L'avion sans pilote.
See Wibault, Michel.


Avro. The Avro "Antarctic" two-seater baby seaplane.


The Avro "Baby" sport biplane.


Avro triplane, type 547.

Aerial Age, Vol. 11, No. 5 (Apr. 12, 1920), New York, pp. 152-153, ill.

Avro-Verkehrslflugzeug Typ 547.


Der neue Avro-"Antarctic"-See-Zweisitzer.


A new Avro triplane.


Two-seater Avro "Baby" biplane.


Two-seater Avro "Baby" biplane, type 543.


Two-seater Avro Baby, type 543.


Das Zweimotoren-Flugzeug "Avro-Manchester, Mark II."


See Triplanes: A standardized triplane.
BIBLIOGRAPHY OF AERONAUTICS, 1920–1921.

B.

B., H. Au salon aéronautique de Londres.

— Les avions.
L'Aéronautique, 2e année, No. 15 (août 1920), Paris, pp. 98–107, ill.

— Héros disparus.

— "La grosse affaire."

— Liquidons les stocks, si nous pouvons ... mais liquidons a tout prix la question des stocks.

— Le sens d'un tour de force.

— Le tourisme aérien.
L'Aéronautique, 1e année, No. 10 (mars 1920), Paris, pp. 440.

B., R. To Paris by air.

B. M. W. The B. M. W. aero engines.

— See Germany: The German B. M. W. high-altitude engines.


— Neuere See-Verkehrsflugzeuge.

— Schwimmerflugzeug und Flugboot.
Luftweg, Jahrg. 4, Heft 42–43 (4. Nov. 1920), Berlin, pp. 2–9, ill.

— Seeflugverkehr über die Ostsee.

Babb, C. Harding. Patrol of Oregon forests by DeHaviland during fire season of 1920.
Flying, Vol. 9, No. 11 (Dec. 1920), New York, p. 695, ill.

BaCo. The BaCo skylark.
Aviation, Vol. 10, No. 20 (May 16, 1921), New York, pp. 626–628, ill.

Bacon, David Leonard. The advantages and limitations of model testing in wind tunnels.

— Langley Field wind tunnel apparatus.

— Preliminary experiments to determine scale and slip stream effects on a 1/24th size model of a JN4H biplane.

— See Norton, Frederick Harwood, and D. L. Bacon: The optical wing-aligning device of the Langley Field tunnel.
Bacon, David Leonard. See Norton, Frederick Harwood: The pressure distribution over the horizontal tail surface of an airplane.


Bader, Hans Georg. Einführung in die Dynamik der Flugzeuge mit besonderer Berücksichtigung der mechanischen Ähnlichkeit.

Berlin, 1915, pp. 36.

Dissertation—Technische Hochschule zu Dresden.

— Die Entwicklung des Verkehrsluftfahrzeuges.

Berlin, Gustav Braunbeck, 1920, ill.


— Grundlagen der Flugtechnik, Berechnen und Entwerfen von Flugzeugen.

Leipzig, G. Teubner, 1920, pp. 194, ill.


Baerumker, A. Aufgaben, Ziele, Organisation der Luftfahrtvereine.


— Der Kriegsluftfahrer im Vereinsleben.


— Luftbild und Vermessung.


— Männer der Luftfahrt—VII: Oberleutnant Ernst Udet.


— Zum Jahreswechsel.


Bagby, English. The psychological effects of oxygen deprivation.


— Psychopathology under low oxygen tension.


Bagnall-Wild, R. K. Some notes on aircraft steels and their inspection.

Flight, Vol. 12, No. 45 (Nov. 4 1920), London, pp. 1157-1158.

Bailey, F. J. Airplanes in mine rescue work.

Coal Age, Vol. 17 (June 17, 1920), New York, pp. 1254-1255.


Bailey, G. C. The complete airman.

London, Methuen and Co., 1920, pp. 289, ill.

New York, Van Nostrand, 1921, pp. 280, ill.


BAIRSTOW, LEONARD. Applied aerodynamics.
London and New York, Longmans, Green and Co., 1920, pp. xii, 566, diagr.
Aeronautical Research.

BAIRSTOW, LEONARD, and E. F. RELF. Multiple-engined aeroplanes.

BAIRSTOW, LEONARD, E. F. RELF, and C. H. POWELL. Notes on the performance of aeroplanes based on a reduction of the observations made at the Central Flying School during the acceptance tests of aeroplanes.

BAIRSTOW, LEONARD, and J. D. COALES. Notes relating to the aerodynamics of aeroplane design.

BAIRSTOW, LEONARD, and A. FAGE. Oscillations of the tail plane and body of an aeroplane in flight.

BAIRSTOW, LEONARD, R. H. FOWLER, and D. R. HARTREE. The pressure distribution on the head of a shell moving at high velocities.

BAIRSTOW, LEONARD, and E. F. RELF. Proposals for experiments on aeroplanes in flight.

BAIRSTOW, LEONARD, A. FAGE, and H. E. COLLINS. The relation between the efficiency of a propeller and its speed of rotation.


BAIRSTOW, LEONARD, and R. JONES. The stability of an aeroplane which has springs in its control surface connections.

BAIRSTOW, LEONARD, E. F. RELF, and R. JONES. The stability of kite balloons: Mathematical investigation.

Tests on a model kite balloon.


BAKELITE. Bakelite for aeroplane propellers.
Aeronautics, Vol. 20, n. s., No. 381 (Feb. 3, 1921), London, p. 84.

BAKER, CECIL. Night flying.

BAKER, G. S., and G. H. BOTTOMLEY. Experiments with models of seaplane floats, 8th series.

— Experiments with models of seaplane floats. Eleventh series. Parts I and II.

— Experiments with models of seaplane floats. 12th series.

— Experiments with models of seaplane floats. Thirteenth series.

Baker, G. S. Flying boat hulls.

— Flying boats—the form and dimensions of their hull.

— Some notes on floats for seaplanes of the single float type. Fourteenth series.

Flying, Vol. 9, No. 6 (July 1920), New York, pp. 385, 402.

Baker, Newton T. Secretary Baker commends Air Service report.


Balaban, Karl. Einiges ii ber das Materialprüfweisen in Flugzeugfabriken.

— Ueber die Festigkeit gelochter Zugbleche.
Flug, Jahrg. 1920, Nr. 5 (Mal), Wien, pp. 50-51, ill.


— See Hunter, Robert J.: Cultivating the balance sense: A prelude to cloud flying.


— See Kerber, L. V., and W. F. Gerhardt: A method for determining the angular setting of a tail plane to give balance at any given condition.

— See Norton, F. V.: Design of recording wind tunnel balances.


Baldit, Albert. Études élémentaires de météorologie pratique.
Paris, Gauthier-Villars et Cie., 1921, pp. vii-347, ill.

— Sur certains cas de diminution de la vitesse du vent avec l'altitude.

Baldwin cannon. Time study of the movement of the firing mechanism of the 37-mm. automatic Baldwin cannon (Cannon report No. 11).

Balfour, D. Sewage treatment at English aerodromes.

Ball, Albert. Memorial to Captain Ball, V. C.
BIBLIOGRAPHY OF AERONAUTICS, 1920–1921.

BALL bearings. Skefsko ball bearings.

BALLAST. See Barr, Guy: On obtaining ballast on an airship during flight by means of water from the motor exhaust.

BALLEYGNIER, ANDRÉ. Le cadastre.
La Nature, 48th année, 2e Sem., No. 2413 (3 july 1920), Paris, pp. 7-15, ill.

BALLAST. See Barr, Guy: On obtaining ballast on an airship during flight by means of water from the motor exhaust.

BALLAST. See Barr, Guy: On obtaining ballast on an airship during flight by means of water from the motor exhaust.

Balloons. Les ballons captifs et les planeurs (cerfs-volants) au front belge.
La Conq. l'air, 3e année, No. 1 (1er janv. 1920), Bruxelles, p. 12, ill.

---

Balloon for all. A cheap and easy apparatus.

---

Balloons instead of C. A. C. observation posts.
Aviation, Vol. 10, No. 4 (Jan. 24, 1921), New York, pp. 113-114, ill.

---

The beacons of the front line.

---

Eine Ballonfahrt im Hochgebirge.
Suisse Aérienne, 3e année, No. 10, 1921, Berne, pp. 137-140, ill.

---

False lift in free ballooning.

---

Nurse balloons.
Aviation, Vol. 8, No. 11 (July 1, 1920), New York, p. 431, ill.

---

Riding the air in a balloon without a basket.

---

See Boyle, James F.: Dilatatable balloons.

---


---

See Chollet, Léon: Les treuils de ballon captif.

---


---

See Liefmann, Robert: Drei Ballonfahrten nach Frankreich.

---


---

See Petschow, v.: Vom Freiballonssport.

---

See Sumner, P. H.: The principle of the captive balloon. With reference to its application for the mooring of airships.

---


Balloon gases. Plus de gaz; de l'air rarifié.
Suisse Aérienne, 3e année, No. 15-16, 1921, Berne, p. 231.

BALTIC. Aircraft work in the Baltic.

Baltimore. See Photography: Aerial photography of Baltimore.

BAMBER. Het eerste Nederlandsche verkeersvliegtuigt naar Engeland.
Vliegveld, 4de Jaarg., No. 21 (9 oct. 1920), 's-Gravenhage, pp. 355-357, ill.

BAMBERG. New aviator's compass, the Bamberg telecompass.
Automotive Industries, Vol. 43 (Nov. 25, 1920), New York, p. 1058.

---

See Compass: New aviator's compass, the Bamberg telecompass.

BANE. Colonel Bane on aircraft development.
Aviation, Vol. 10, No. 12 (Mar. 21, 1921), New York, pp. 360-362, ill.
BANK, Thurman H. Illustrations of McCook Field.


BANKS, William. Aviation in Canada.
Aircraft Journal, Vol. 6, No. 19 (May 10, 1920), New York, pp. 3-4, ill.

BARACCA, Francesco. L’aeronauta Francesco Baracca.
Rome, 1920, port.

BARATTA, V. Risoluzione grafica di alcuni problemi su palloni frenati.

BARRILLON et DUGIT. Appareil simple permettant d’obtenir la mesure de la dérive à bord d’un aéronef.

BARRILLON. L’échelle rectiligne à divisions équidistantes appliquée à la mesure et à la division des angles et les appareils de mesure à sensibilité constante.
Aéronautique, 3e année, No. 22 (mars 1922), Paris, p. 120.

London, G. Bell and Sons, 1920, pp. 315.

BARKER, F. W. Invention in aeronautics.

BARNARD, W. N. U. S. Army school of military aeronautics at Cornell University.

BARNES, John K. The vindication of Squier and Deeds. What really happened to the billion-dollar aircraft appropriation.
World’s Work, Vol. 42, No. 3 (July 1921), New York, pp. 300-306, diagrs.

BARNES, P. J. Bombs by post.

BARNHART. The Barnhart twin No. 15 “Wampus-Kat.”
Aerial Age, Vol. 13, No. 26 (Sept. 5, 1921), New York, pp. 616-617, ill.
Aviation, Vol. 11, No. 11 (Sept. 12,1921), New York, pp. 309-311, ill.

BARNWELL, F. S. Aeroplane design.

— Aeroplane design. Some present and future possibilities.

— Captain Barnwell on the technical aspects of aviation.

— Pioneers of British aviation—XXIX: Captain F. S. Barnwell, O. B. E., A. F. C.
BIBLIOGRAPHY OF AERONAUTICS, 1920–1921.


BAROMETR. Mercurial barometer for airships.
Aviation, Vol. 11, No. 20 (Nov. 14, 1921), New York, p. 572.


See Altitude: Calibration of barographs used in airplane altitude measurements.


The liability to ignition of balloon fabrics. Aviation, Vol. 8, No. 11 (July 1, 1920), New York, pp. 435-436.


BIBLIOGRAPHY OF AERONAUTICS, 1920–1921. 43


Bascule. Air mail uses bascule door hangar. Aviation, Vol. 10, No. 21 (May 23, 1921), New York, pp. 666–667, ill.


— See Stout monoplane: The Stout “Batwing” monoplane.


BAUMANN, ALEXANDER. Die Entwicklung der Riesenflugzeuge und ihre Bedeutung für den Luftverkehr.

— Die Entwicklung des deutschen Riesenflugzeugbaues während des Krieges.
Zeitschrift Vereines Deutscher Ingenieure, Bd. 63, 64, Nrs. 4, 5, 6 (Dec. 1919, Jan. 24, 31,

— Die Kosten der Luftreise.

MÄNNER DER LUFTFAHRT—XIV.

— Progress made in the construction of giant airplanes in Germany during the war.
National Advisory Committee for Aeronautics, Technical Notes, No. 29, Washington, 1920,
pp. 11.

Résumé translated from the German by Paris Office, N. A. C. A.

— Untersuchung der Querstabilität und Seitenstabilität auf graphischem Weg.

— Das Verkehrsflugzeug.
Flug, Sondernummer (Dez. 1920), Wien, pp. 66-71.

BAUMHUAER, A. G. v. Berkel marine eendekker, type W. B.
Vliegveld, 5. Jaarg., No. 7 (26. maart 1921), Amsterdam, pp. 98-100, Ill.

— Ontwerp verkeersvlugvliegvoert voor overzeeverbindingen.

BAXENDALE, A. S. Flying and its outlook from a postal telegraph point of view.

BAYER, A. Die Umstellung der deutschen Flugzeugindustrie.

BAZETT, HENRY CUTLER. See Great Britain. Privy Council. Medical Research
Council: The medical problems of flying . . .

BEACH. The Beach helicopter.

BEACH, STANLEY YALE. Soaring and gliding experiments in Germany.
Aviation, Vol. 11, No. 1 (July 4, 1921), New York, pp. 13-14, Ill.

BEAMS. Deflection of beams on nonuniform section.
Aerial Age, Vol. 13, No. 23 (Aug. 15, 1921), New York, pp. 543-546.

BEAR, R. M. See Zahm, Albert Francis, and R. M. Bear: Ground-plane influence
on aeroplane wings.

BEARDMORE. Beardmore peace-time aircraft.


BEARDMORE Aero Engine (Ltd.). See Great Britain: Modern British engines.

BEARINGS. See Norton, Frederick Harwood . . . The efficiency of small bearings in
instruments of the type used in aircraft.

BEATTY, I. J. Lincoln motor production plan.
Factory, Vol. 24 (Feb. 15-Apr. 15, May 15-June 1, July 1, 1920), Chicago, pp. 440-442, 623-626,
63-76, 967-970, 1144-1147, 1547-1549, 1705-1707.

BEAUCHAMP-PROCTOR, ANDREW W. Death of Flight Lieutenant Beauchamp-Proctor.
BIBLIOGRAPHY OF AERONAUTICS, 1920–1921.


— Ligeros apuntes sobre el empleo de los hidroplanos para la vigilancia y defensa de las costas en nuestra república. Tohtlit, año 5. Núm. 2 (sept. 1920), México, p. 37.


Bee farmer. See Agriculture: Bee farmer uses airplane.


— See Commercial aeronautics: England-Belgium air service.

— See Questier, E. V.: Air transport in Belgium.


— See Nutting, William Washburn: The “HD-4.” A 70-miler with remarkable possibilities developed at Dr. Graham Bell’s laboratories on the Bras d’Or Lakes.


Bellanca. Bellanca announces five-seater. Aerial &s, Vol. 12, No. 24 (Feb. 21, 1921), New York, p. 613, ill.

Bellenger and Hartz. Commander Bellinger and Colonel Hartz ask Senate investigation of conspiracy against them. Flying, Vol. 9, No. 6 (July 1920), New York, pp. 398-399.

BIBLIOGRAPHY OF AERONAUTICS, 1920–1921.

Bello, Carlos. La fotografía y la aviación.
Tohtli, año 5, Núm. 2 (sept. 1920), México, p. 65.

BENCKE, ALBERT. Die wirtschaftliche und technische Stellung der französischen Flugzeugindustrie.

BENDEMANN, F. Die Flugzeugprübanstalt der deutschen Versuchsanstalt für Luftfahrt und über den Lufschraubenantrieb für Eisenbahnfahrzeuge.

BENN BROTHERS. Solving the transport problem. Benn Brothers institute a new service: A weekly journal and a freight exchange.

BENN, ERNEST J. P. American efficiency: Can we stand against it?
— Business as usual.
— The consumers' fourteen points.
— The cost of costing systems.
— The end of the E. P. D.
— Labour at the cross roads.
Aeronautics, Vol. 20, n. s., No. 383 (Feb. 17, 1921), London, p. 120.
— The outlook for 1921.
— The reduction of wages.
— The revolution in America.
— Work without labour.
Aeronautics, Vol. 21, n. s., No. 404 (July 14, 1921), London, p. 25.

BENN, WEDGWOOD. Scope of the R. A. F.

BENNEWITZ, KURT. Airplane flight instruments.
Aviation, Vol. 9, No. 11 (Nov. 29, 1920), New York, pp. 346-348, diagr.

— See Tinker, Clifford Albion: Admiral Benson and the merchant marine.

BENTIVEgni, RICHARD v. Die Grundlagen des Luftverkehrs.
Flug, Sondernummer (Dez. 1920), Wien, pp. 43-49.
— Luftverkehr und Riesenflugzeuge.
— Riesenflugzeuge.
BIBLIOGRAPHY OF AERONAUTICS, 1920-1921.

Bentivegni, Richard V. Das Signalwesen im nächtlichen Luftverkehr.

— Zur wirtschaftlichen Entwicklung des Luftverkehrs.


— See Hildesheim, Erik: New series Vee type German Benz aero engines.

— See Hildesheim, Erik: Recent Benz aero engines.

— See Manifolds: Tests on Liberty, Benz, and Mercedes engine manifolds.

Benzine tank.
Ein amtliches Zeugnis über Humannbenzinbehälter.

Benzol.
Benzol for air engines.

— See Fuel: Benzol as an engine fuel.

— See Rabets, E. W.: Power characteristics of 20 per cent benzol mixture.

Berard. Onoranze a Berardi.
L'Aeronautica, anno 3, Num. 1 (marzo 1920), Roma, pp. 53-56, ill.

Béréharel, E. Les matériaux de constructions mécaniques et aéronautiques.
Reviewed in: Aéronautique, 3e année, No. 31 (dec. 1921), Paris, p. 536.

Tome II: Généralités sur les moteurs d'aviation. Les moteurs rotatifs.

Berg. Der österreichische Berg-Einzieher.

Bergeaux, Raoul. Une simple mission spéciale et quelques mois d'Orient.
Vie Aérienne, No. 164 (1er Janv. 1920), Paris, pp. 848-849; No. 165, p. 876; No. 166, p. 908; No. 175, p. 1042.

Berger, F. Les toiles.
Suisse Aérienne, 3e année, 1921, No. 10, Berne, p. 146.

Berger, Josef Viktor. Glossen zum Luftverkehr.

— Ingenieur Adolf Kraut.

— Die Nachführsche Segelflugmaschine.

— Wien, das Herz des europäischen Luftverkehrs.

— Wien im Luftverkehr.
Flug, Sondernummern (Dez. 1920), Wien, pp. 23-29, ill.

Berkel. Der neue höllandische See-Eindecker von "van Berkle patent."

Berline Spad-Herbemont. See Lémonon, E.-H.: Les avions nouveaux en France,
La Berline Spad-Herbemont S-33. Moteur Salmon 50 HP., 6 places.

Berliner. The new Berliner helicopter.
Aviation, Vol. 10, No. 13 (Mar. 28, 1921), New York, p. 203, ill.

Flug, Jahrg. 1920, Nr. 5 (Maio), Wien, pp. 48-49, ill.
BERMUDAS. Flying in the Bermudas.

BERNARD, J. L., and L. E. WHITTEMORE. Radio communication with postal aeroplanes.

BERNARD, J. L., and L. W. WATSON. Radio communication with postal aeroplanes.


BERSON, A. Die neuen Bestimmungen der F. A. I. für Rekordflüge.
Luftweg, Nr. 8-9 (4. März 1920), Berlin, p. 11.

BIBLIOGRAPHY OF AERONAUTICS, 1920–1921.


BINILAR. See Zahm, Albert Francis: Bifilar windbalance.


— See Starters: Bijur aero engine starter.

— See Starters: Bijur automatic starter.


— Sulla misura delle reazioni dell' aria nel volo acrobatico e in aria agitata. L'Aeronautica, anno 3, Num. 1 (marzo 1920), Roma, pp. 48–51, Ill.

Biplanes. See Bryant, L. W., and C. N. Jones. Biplane effect on R. A. F., 15-wing section.


BIRCMWSHAW, L. L. See Barr, Guy, and L. L. Bircumshaw: Notes on cellulose acetate.


— Planes are faster even than pigeons. The Navigator, Vol. 1, No. 5 (Mar. 13, 1920), Pensacola, Fla., p. 8.


Bird flight. See Bollee, Leon: The soaring flight of birds.
— See Burroughs, John: Flight of birds.
— See Clough, G. E.: Mystery of the soaring hawk.
— See Flanders, L. Howard: The flight of the albatross.
— See Landon, W. G.: That hawk again.
— See Lillienthal, Gustav: Der Segelflug der Vögel.
— See Perry, T. O.: Paradoxical wind wheels and soaring birds.
— See Warner, E. P.: Way of a bird in the air.
— See Wildeblood, H. S.: Soaring birds.


— See Wings: Commercial utility wing. An interesting Blackburn development.

Blackburn Aeroplane and Motor Co. (Ltd.). See Great Britain: Modern British aircraft.
Blake, E. Selected studies in elementary physics; a handbook for the wireless student and amateur.

Blake, W. T. ("Wing Adjutant"). Preparation of aerodromes.

--- Wind, weather, and civil flying.

Blanchard, Maurice. Étude sur les coques d'hydravions.
L'Aérophile, 28th année, Nos. 7-8 (1er-15 avril 1920), Paris, pp. 91-104, ill.


--- Aviateurs contemporains. André Wateau.

--- Aviateurs contemporains. Arondel.

--- Aviateurs contemporains. Guy de Montjou.
L'Aérophile, 29th année, Nos. 7-8 (1er-15 avril 1921), Paris, p. 97, port.

L'Aérophile, 29th année, Nos. 9-10 (1er-15 mai 1921), Paris, pp. 129-130, port.

--- Aviateurs contemporains, René Fonck.
L'Aérophile, 29th année, Nos. 11-12 (1er-15 juin 1921), Paris, pp. 161-162, port.


--- Ceux qui disparaissent Alfred Leblanc.

--- Un éclatant succès pour la technique française: l'avion à surface, courbure et incidence variables.

--- Gustave Delage.
L'Aérophile, 29th année, Nos. 5-6 (1er-15 mars 1921), Paris, pp. 65-66, port.

--- La VIIe exposition de la locomotion aérienne. L'organisateur du Salon André Granet.

--- Le Liore-Olivier bi-moteur militaire.
L'Aérophile, 29th année, Nos. 7-8 (1er-15 avril 1920), Paris, p. 119, ill.

--- Nos nouvelles aviatrices.
L'Aérophile, 29th année, Nos. 7-8 (1er-15 avril 1920), Paris, p. 118, ill.

--- La première exploitation des lignes Méditerranéennes. "L'Aéronavale."
L'Aérophile, 29th année, Nos. 5-6 (1er-15 mar. 1920), Paris, pp. 78-79.

Stuttgart, Union deutsche Verlagsgesellschaft, 1921, 99 ill.

Bleiningcr, Albert V. Preparation and composition of ceramic bodies for spark plug insulators.

Blériot. The Blériot mammoth.
Aviation, Vol. 8, No. 1 (Feb. 1, 1920), New York, p. 12, ill.

--- Les nouveaux avions de "Blériot-Aéronautique" . . .
Aéronautique, 3e année, No. 30 (nov. 1921), Paris, pp. 438-437, ill.
BLÉRIOT.  
*Prix de sécurité Blériot.*  

BLEYHOEPFFER, B.  
*Entwicklung des Luftfahrtwesens in China.*  
Luftweg, Nr. 20–40 (6. Okt. 1921), Berlin, pp. 260–266, ill.

BLIMP.  
*Birth of the “Blimp.”*  

——  
*See Commercial aeronautics: Pony blimp for commercial use.*

BUSS, E. W.  
*Note on the upper air at Helwan, Egypt, based on observations of pilot balloons.*  

BLOCK system.  
*Aeronautic roads—block system.*  

BLONDEL, ANDRE.  
*On the goniometric functions applicable to directive aerials.*  

——  
*Sur une méthode pour la mesure de la transparence atmosphérique.*  

BOATS, flying.  
*See Nicolson, David: Flying boat construction.*

BOCCACIO, PAUL.  
*Essais statiques des avions.*  

BODENSEE.  
*See Hensley, Wm. C.: America and airship transportation. Col. Wm. C. Hensley’s experiences on the “Bodensee” and his conclusions.*

——  
*See Hildesheim, Erik: A trip on the “Bodensee.”*

——  
*See Upson, Ralph H.: The Bodensee commercially profitable. Postwar conditions in German aerial transportation.*

BODIES, airplane.  
*See Design: Latest designs in airplane bodies.*

BÖHM, ALBERT.  
*250 Aufstiegstage vor dem Feinde.*  
Mitt. Österr. Flug-Clubs, Nr. 8 (1. Aug. 1919), Wien, pp. 90–95, ill.

BOOMER, ACHTUNG—BOORMER!  

——  
*See Korenber: Das Boerner-Luftschiff.*

BÖTTINGER, HENRI THEODOR V.  
*H. Th. v. Böttinger.*  

BOLERT, GEORGE GLEASON.  
Problems in aviation law.  
Ithaca, Cornell University, 1921, pp. 39.

BOLEÏVE, M.  
*Application de la résistance des matériaux au calcul des avions.*  

BOISSEL, ANDRÉ.  
*L’aviation maritime.*  
Vie Aérienne, 5e année, No. 1 (5e août 1920), Paris, pp. 2–4, ill.

——  
*Le superdreadnought “Béarn” . . .*  
Vie Aérienne, 5e année, No. 20 (18 déc. 1920), Paris, p. 314, ill.

BOLAND, ADRIENNE.  
*Le record féminin de hauteur.*  
BIBLIOGRAPHY OF AERONAUTICS, 1920–1921.

Boland, Adrienne. See Blanchet, Georges: Nos nouvelles aviatrices.

Bolivia. First flight in Bolivia.

— U. S. officer organizes air service in Bolivia.

Bollee, Leon. The soaring flight of birds.
Aerial Age, Vol. 12, No. 10 (Dec. 27, 1920), New York, p. 421.

Bolling, Raynall Cawthorne. See Gorrell, E. S.; and Phil. Carroll: Colonel Ray­
nal Cawthorne Bolling. Lawyer-cavalryman-flyer.

Bolshevik. Bolshevik aerial developments.
The Aeroplane, Vol. 20, No. 22 (June 1, 1921), London, pp. 499-500.

Bomb rack. See Relf, E. F., and R. Jones: Tests on the drag of a model bomb rack
fitted to R. E. 8 machine.

Air Service Information Circular (Heavier-than-air), Vol. 1, No. 54 (May 21, 1920), Wash­

— Aerial bombing tests now historic. General Pershing, Acting Secretary Roose­
velt, and Secretary Weeks sign report on results with conclusions reached by the
joint board.

— The Alabama bombing tests.
Aerial Age, Vol. 14, No. 3 (Sept. 26, 1921), New York, p. 63.

— Army and Navy board reports on bombing tests.

— The Army and Navy bombing tests.
Aerial Age, Vol. 13, No. 11 (May 23, 1921), New York, pp. 253, 262.

— Aviators to bomb ex-German warships in tests.

— Battleships and bombs.

— Battleships to be bombed.

— Bombing at Aberdeen.
Aviation, Vol. 11, No. 8 (Aug. 22, 1921), New York, pp. 227-228, ill.

— Bombing of warships proves air power.
Aviation, Vol. 11, No. 4 (July 25, 1921), New York, pp. 96-98, ill.

— Bombing raid on eastern cities. Sham attacks for practice on New York, Wash­
ington, and other cities.
Aviation, Vol. 11, No. 6 (Aug. 8, 1921), New York, pp. 160-161.

— Bombing tests and our naval policy.

— Bombing tests of the U. S. S. Alabama.

— Bombing tests of warships on June 21.
Aviation, Vol. 10, No. 23 (June 6, 1921), New York, p. 714.

— Bombing the Alabama.

— Bombing the old battleship Indiana.
BOMBING. Bombing the radio-controlled Iowa.
Aerial Age, Vol. 13, No. 13 (June 6, 1921), New York, p. 303.

— Bombs or torpedoes.
Aviation, Vol. 11, No. 9 (Aug. 29, 1921), New York, p. 256.

— Depth-bombing from the air; results and lessons of the sinking of the Frankfurt and Ostfriesland off the Virginia coast.
Scient. Amer., Vol. 125 (Aug. 6, 1921), New York, pp. 92-93.

— The famous bombing chart.

— Final plans for bombing tests.

— Is it to be bomb or battleship? Elaborate series of tests to determine the effectiveness of aircraft against warships.
Scient. Amer., Vol. 125, No. (July 2, 1921), New York, pp. 4-5, ill., plans.

— Largest airplane bomb weighs 3,000 pounds.

— Limitations of aerial bombing.
Scient. Amer., Vol. 125 (July 2, 1921), New York, p. 2.

— Navy makes aero-bomb test.

— Ostfriesland sunk by 2,000-lb. aircraft bombs.
Aviation, Vol. 11, No. 5 (Aug. 1, 1921), New York, pp. 128-132, ill.

— On bombs, battleships, and things.

— Report of joint Army and Navy board on bombing and ordnance tests.

— Report on bombing tests.
Aviation, Vol. 11, No. 10 (Sept. 5, 1921), New York, pp. 276-278, ill.

— Schedule of the bombing tests.
Aviation, Vol. 11, No. 1 (July 4, 1921), New York, pp. 8-13, ill.
U. S. Air Service, Vol. 6, No. 6 (June 1921), New York, p. 3.

— The U. S. bombing tests.

— See Barnes, P. J.: Bombs by post.

— See Borden, W. A.: 4,000-pound demolition bomb; a means for detonating 2,000 pounds of T. N. T. on a selected target.

— See Ewell, Arthur W.: A plea for aerial bombing.


— See Fullam, W. F.: Admiral Fullam on the Alabama tests.


— See Murrelle, J. H.: Recent bombing operations.

— See Navy: The naval bombing tests.

— See R., F. A. de V.: Bombing the Mahsuds.

— See Ray, A. B.: Incendiaries in modern warfare; aircraft bombs.

— See Sperry, Elmer Ambrose: What the Virginia Capes aircraft bombing shows.

BOMBING. See United States: The U. S. aerial bombing experiments on warships.

— See Wilson, Edwin Bidwell: Bomb trajectories.

— See Wimperis: Wimperis course-setting bomb sight.


BOOTH, H. C. See Stanton, T. E., H. C. Booth, and Dorothy Marshall: On the effect of surface roughness on the heat transmitted from hot surfaces to fluids flowing over them, with special reference to the case of the gills of an air-cooled engine.


— 4,000-pound demolition bomb; a means for detonating 2,000 pounds of T. N. T. on a selected target. Scient. Amer., Vol. 125A (Dec. 1921), New York, pp. 94-95, ill.


BORNEO. See Roberts, E. W.: Power characteristics of Sumatra and Borneo gasoline.

BOSTON. Flying boat opens Boston service. The Naviator, Vol. 1, No. 18 (June 12, 1920), Pensacola, Fla., p. 5.

BOSTON, CHARLES A. See American Bar Association.

BOTHEZAT, GEORGE DE. The actual state of the helicopter problem. Aerial Age, Vol. 13, No. 11 (May 21, 1921), New York, pp. 241-249.


Aerial Age, Vol. 12, No. 6 (Oct. 13, 1920), New York, pp. 174, 179, charts.

Aeronautics, Vol. 18, No. 349 (June 24, 1920), London, pp. 481-482.

Bottezat, George de. A few remarks concerning some fundamentals of the theory of blade screws.

General theory of the steady motion of an airplane.

Introduction a "L'étude des lois de la résistance de l'aile" ... Aéronautique, 3e année, No. 21 (fév. 1921), Paris, pp. 93-96.

An introduction to the study of the laws of air resistance of aerofoils.

La notion de trainée induite; ses fondements théoriques.

Sur le rendement d'un tunnel aérodynamique.
Aéronautique, 3e année, No. 23 (avr. 1922), Paris, pp. 158-160, ill.

Bott, Alan ("Contact"). Eastern nights and flights; a record of oriental adventure.


See Baker, G. S., and G. H. Bottomley: Experiments with models of seaplane floats. 8th series.

Bouché, Henri. Les applications de la photographie aérienne; carte et cadastre, agriculture, travaux publics.

La coupe Deutsch.
Aéronautique 3e année, No. 29 (oct. 1921), Paris, pp. 368-369, ill.

L'enseignement aéronautique en Allemagne.
Aéronautique, 3e année, No. 24 (mai 1921), Paris, pp. 185-188.

Images aériennes.
Aéronautique, 3e année, No. 22 (mars 1921), Paris, pp. 105-107, ill.

La navigation aérienne et le droit international.
Aéronautique, 3e année, No. 24 (mai 1921), Paris, pp. 216-220.

La photographie aérienne et la vie agricole: cadastre et remembrance; agronomie et agriculture.
Aéronautique, 3e année, No. 21 (fév. 1921), Paris, pp. 71-75, ill.

La photographie aérienne, arme de guerre, outil de la paix.

La photographie aérienne et la restauration des provinces dévastées.
Aéronautique, 1e année, No. 12 (mai 1920), Paris, pp. 525-530, ill.

Le septième salon de l'aéronautique.
Aéronautique, 3e année, No. 31 (déc. 1921), Paris, pp. 489-492, ill.

Vérités premières sur la stabilité.

Bouchenot, R. L'envol d'un avion.

Boulton, B. C. Design of standard lugs.
Aerial Age, Vol. 13, No. 25 (Feb. 28, 1921), New York, pp. 684-687, ill., diagr.

Experimental reinforced plywood truss ribs.
BIBLIOGRAPHY OF AERONAUTICS, 1920–1921.

BOULTON, B. C., and H. M. PRIEST. The graphical method for the deflection of beams of nonuniform section.

BOULTON, B. C. The manufacture and use of plywood and glue.

BOULTON, B. C., and R. L. HANKINSON. Properties of woods at 10 per cent moisture.
Aerial Age, Vol. 12, Nos. 1, 2 (Sept. 13, 20, 1920), New York, pp. 11-12, 30, 43-44, charts.

BOULTON, B. C. The structural analysis and design of the aeroplane.

BOULTON, B. C., and A. S. NILES. Structural analysis and design of aeroplanes.
Aerial Age, Vol. 12, No. 18 (Jan. 10, 1921), New York, pp. 169-470.

BOULTON and PAUL. A Boulton and Paul silencer.

BOURKE. The Bourke turbine propeller.
Aeronautics, Vol. 21, No. 403 (July 1, 1921), London, p. 15.

BOURKE, A. M. A new propeller.

BOUSQUET, M. L'hélice aérienne et le halage des bateaux sur les voies navigables.
(Groupe propulseur Lamblin.)

BOWDEN. Bowden petrometer; device which registers the fuel consumption on a motor vehicle or airplane.


BOWEN, FRANK C. The new British seaplane carrier Hermes.

BOYD, JAMES ELLSWORTH. Compressive strength of spruce struts.
Aviation, Vol. 8, No. 11 (July 1, 1920), New York, p. 435.


BRAZIL. Aviation in Brazil. Aerial Age, Vol. 22, No. 6 (Apr. 18, 1921), New York, p. 136.


Brearley, Harry. The case-hardenening of steel.

Bréguet. Bréguet biplane—Type XX.
Aeronautics, Vol. 20, n. s., No. 381 (Feb. 3, 1921), London, p. 84, ill.
— The Bréguet commercial aeroplane, Model XIV.
— The Bréguet "Leviathan."
Aerial Age, Vol. 13, No. 3 (Mar. 28, 1921), New York, p. 82.
— À propos du Bréguet "Leviathan" . . .
Aéronautique, 3e année, Nos. 19-20 (Jan. 1921), Paris, pp. 266-267, ill.

See Fromentin, J.: Transports aériens et tourisme.

See Fuselage: Bréguet commercial airplane.

See Lénonon, E.-H.: Le Bréguet "Leviathan" Type XX.

See Lénonon, E. H.: Deux nouveaux appareils . . .

Bréguet, Louis. L'aviation d'hier et de demain.
— Les avions Louis Bréguet.
Aéronautique, 3e année, No. 30 (nov. 1921), Paris, pp. 438-439, ill.
L'Aérophile, 28e année, Nos. 5/6, (1er-15 mar. 1920), Paris, p. 74.

Breit, Gregory. The field radiated from two horizontal coils.

Brennan, Louis. The Brennan helicopter.


Breton, A. Bateaux a propulsion hydro-aérienne.

Brewer, Griffith. The Langley machine and the Hammondsport trials.
— Langley machine and Hammondsport trials. Replies to Walcott, Zahm, Manly, and Curtiss.
— A new Langley controversy.
Aviation, Vol. 11, No. 19 (Nov. 7, 1921), New York, pp. 532-533, ill.
— Some kite-balloon experiments.
Aviation, Vol. 8, No. 11 (July 1, 1920), New York, pp. 441-444, diagr.

The Ace, Vol. 2, No. 9 (June 1921), Los Angeles, p. 15, ill.
BIBLIOGRAPHY OF AERONAUTICS, 1920–1921.

BRIGHT, CHARLES. Telegraphy, aeronautics, and war.

BRION, MAURICE. L’emploi du dérivomètre dans le voyage aérien.
— Le vol au moteur.


BRISTOL. An American version of the Bristol fighter.
— The Bristol commercial ten-seater biplane.
— A Bristol express passenger carrier.

Bristol seaplane.
Engineer, Vol. 130 (Nov. 12, 1920), London, p. 188, ill., diagr.

— The “Bristol” ten-seater airplane.
Aviation, Vol. 11, No. 8 (Aug. 22, 1921), New York, pp. 229-230, ill.

— The “Bristol” ten-seater. General description.
Aeronautics, Vol. 21, n.s., No. 405 (July 7, 1921), London, pp. 5-6, ill.

— The Bristol tourer seaplane.

Bristol-Verkehrslufzeug. 450 PS Napier Lion.

First standardized aero engine mounting. Swivelling mount for Bristol “Jupiter.”

— Der 450 PS-Bristol-“Jupiter”-Flugmotor.

— Het “Bristol” verkeersvliegtuig.
Vliegveld, 5e jaarg., No. 22 (22 oct. 1921), Amsterdam, pp. 300-301, ill.

— New “Bristol” tourer seaplane.

— Tests of the 450-horsepower Bristol Jupiter engine.
Aviation, Vol. 11, No. 21 (Dec. 12, 1921), New York, pp. 685-686, ill.


Engineer, Vol. 132, No. 3420 (July 15, 1921), London, p. 73, ill.

— See Great Britain: Modern British aircraft.

Bristol “Babe.” L’avion Bristol “Babe.”
L’Aéronautique, 1st année, No. 12 (mai 1920), Paris, pp. 530, ill.

BRITISH. Ejemplos típicos de aparatos de aviación británico.

— Quelques avions et quelques moteurs britanniques.
Aeronautics, Vol. 21, n.s., No. 403 (July 7, 1921), London, pp. 7-12, ill.
BIBLIOGRAPHY OF AERONAUTICS, 1920–1921.

British Aerial Transport Co. B. A. T. "Baboon."
Aerial Age, Vol. 10, No. 10 (Feb. 23, 1920), New York, p. 608, ill.

— Some "B. A. T." aeroplanes.

British Air Ministry competition. The small airplanes of the British competition.


— British standard schedule of cold worked steels for aircraft.

— British standard schedule of sheet steels for aircraft.

— British standard schedule of wrought steels for aircraft.

Brodetsky, S. The mechanical principles of the aeroplane.

Brooke-Popham. Aeroplanes in tropical countries.

Brooke-Popham, H. R. M. Some problems in aeronautical research.

— Some problems in the design and operation of aircraft.

Brooks, C., and others. Bumpiness in flying; effects of wind and other weather conditions on the flight of airplanes.

Brooks, Charles F. Boundary between a south wind and an under-running northeast wind.

— Effect of winds and other weather conditions on the flight of airplanes.

Brouwer, G. Zuiger-stoomwerktuigen.
Rotterdam, Ditmar's Uitgevers-Maatschappij, 1920.
Reviewed in: Vliegveld, 2e Jaarg., No. 3 (29 Jan. 1921), Amsterdam, p. 47.

Brownwich, T. J. I'a. The problem of random flights.

Brown, Arthur Whitten. Flying the Atlantic in 16 hours.
New York, Frederick A. Stokes Co., 1920, ill.

Brown, F. C. How to make a heat balloon.

Brown, G. M. Carburetion as a prime factor in producing power.

Brown, J. Wireless in aircraft.
Discovery, No. 10 (Oct. 1920), London, pp. 306-310, ill.
BROWNE, A. Continuous monograph on temperature distribution for the B. E. 2c airplane.

Investigation of the flow of air through the cowlings of R. E. 7 airplane and of the resistance of a honeycomb radiator.

On the cooling of a honeycomb radiator.

On the resistance of a honeycomb radiator.

Report on an oil-cooling honeycomb radiator taken from a German Zeppelin.

Tests of a model of F. E. 4 body and tail.
BIBLIOGRAPHY OF AERONAUTICS, 1920–1921.

BRYANT, L. W., and H. B. IRVING. Tests of a model of F. E. 4 body with a modified tail system.

BRYANT, L. W., H. B. IRVING, and W. L. COWLEY. Tests of a model seaplane.

BRYANT, L. W., and H. B. IRVING. Tests of the yawing moment on a model of the B. E. 2c machine at small angles of yaw.

BRYANT, L. W., H. B. IRVING, and W. L. COWLEY. Tests of the yawing moment on a model of the B. E. 2c machine at small angles of yaw.

Tests of vertical fin surfaces at the rear of different types of body.

Tests on model “Bristol” twin tractor biplane.

Tests of models of Caquot kite balloons.

Buch. Après le soleil de Buc.

Le meeting aéronautique de Buc.
L’Aéronautique, 2e année, No. 16 (oct. 1920), Paris, pp. 181-185, ill.

Buchanan, James N. A comparison of two methods of applying prism tests to the eyes.

Buckwald, H. M. Atmospheric data.

The new variable surface airplane.
Aviation, Vol. 9, No. 10 (Nov. 22, 1920), New York, pp. 314-316, ill.

The Oddly variable pitch and reversing propeller.
Aerial Age, Vol. 12, No. 11 (Nov. 22, 1920), New York, p. 299, ill.

The Pischoff avionette.
Aviation, Vol. 10, No. 4 (Jan. 24, 1921), New York, pp. 106-107, ill.

The Rateau turbo-compressor.
Aviation, Vol. 10, No. 3 (Jan. 17, 1921), New York, pp. 73-76, ill.

Budgets. Foreign air budgets.

U. S. Air Service budgets for 60 million dollars.

Budig, Friedrich. Arbeitssicherung vermittelt geringer Druckunterschiede.

Sichtbare stabilisierung von Luftfahrzeugen.


Buttner, Alexander. Bemerkungen zum Segelflugwettbewerb in der Rhön.

Die Flugplatzfrage.

Lufbildnerei einst und jetzt.
BÜTTLER, ALEXANDER. Ein neues Reiseflugzeug.

Die notlandung: ein handbuch für Flieger.

Das Postflugzeug.

Das Presseproblem.
Luftweg, Nr. 41-42 (30. Okt. 1921), Berlin, p. 297.


Warum versagt Englands Luftwaffe?

Die wirtschaftliche Ausnützung der Luftbildtechnik.

Die Zukunft des Flugzeugs.

Die Zukunftsaussichten des Weltluftverkehrs. Eine Betrachtung auf Grund fachmännischer Erwägungen.

BÜTTLER, KURT ALEX. Die Aussichten des zukünftigen Weltluftverkehrs. Eine Betrachtung auf Grund fachmännischer Erwägungen.
Technik für Alle, Heft 1 (1920-21), Stuttgart, pp. 17-21, ill.

Ein neues Reiseflugzeug.
Flug, Jahrg. 1920, Nr. 5 (Mai), Wien, pp. 53-54.

BUIST, H. Massac. Aircraft engines and high-speed marine service.


BUSCH, J. D. Models constructed by J. D. Bunch.
Aerial Age, Vol. 14, No. 5 (Oct. 10, 1921), New York, p. 113, ill.

“Bunch-Commander.” On a return to the air.

Bund deutscher Flieger, e. V., Essen. See Illustrierte Flug-Woche.


Bureau of Aeronautics. For a bureau of aeronautics.
Scient. Amer., Vol. 122 (June 12, 1920), New York, p. 946.

— See Hicks, F. C.: The proposed bureau of aeronautics in the Department of Commerce.

Bureau of Naval Aeronautics. The need of a bureau of naval aeronautics.
Aviation, Vol. 10, No. 16 (Apr. 18, 1921), New York, pp. 596-597.


BURGESS, C. P. Airship O-1 and principles of semirigid airship construction.

---

Calculation of bending moments in nonrigid airship hulls.
Aircraft Technical Note No. 189, Department of the Navy, Bureau of Construction and Repair, Washington (Nov. 5, 1920), pp. 4, diagr.

---

The influence of aircraft upon naval warfare.

BURKE, F. D. Airplane-type ski glider.

BURLESON, A. S. Mr. Burleson on the air mail.

---

Postmaster General Burleson on the air mail.

---

Story of our air mail.

BURMA. See Civil aviation: Civil aviation in India and Burma.

BURNELLI, A. quaint aeroplane.


BURROUGH, JOHN. Flight of birds.

BURT, G. L. Side doors for airplanes.
The Ace, Vol. 1, No. 12 (July, 1920), Los Angeles, p. 11, ill.

BUTCHER, F. I. C. Airship mooring and handling.

BUTLER, FRANK HEDGES. Fifty years of travel, by land, water, and air.


BUTTERFLY monoplane. The "Butterfly" monoplane.

C.

Automotive Industries, Vol. 43 (July 29, 1920), New York, p. 219, ill.

CABANILLAS. Recuerdos de campaña con la flotilla.
Tehuila, año 3, Núm. 1 (agosto 1920), México, pp. 3-4, ill.


CABLE. Aircraft to run on sky cable.

CABLES. Cable laying by aeroplane.
CABLES. Machine-made cable terminal connections.
Aerial Age, Vol. 10, No. 12 (Jan. 5, 1920), New York, p. 455, ill.

— See Kearney, Norman L.: Cable lengths and fitting angles.

CAIRO. Cairo to Cape by air.

— Cairo-Cape flights.
Aeronautics, Vol. 18, Nos. 331, 334 (Feb. 19, Mar. 11, 1920), London pp. 154, 211, map.

— The Cairo-Cape route.

— Cairo to the Cape.

— First Cairo-to-Cape flight.

— London-Cairo-the Cape by airplane.

— The voyages to Cape Town.

— See Cape to Cairo: French fliers cross Sahara in airplane.
— See Commercial aeronautics: Cape to Cairo air line opened.
— See Engines: Vindication of the aero-engine. Cairo-Cape flying.
— See Hicks, C.: Empire building by air: Cairo to the Cape.
— See Routes: The Cairo-Cape air route.
— See Routes: Cairo to Cape route. Preparing the aerodromes on the southern section.
— See Routes: Cape-Cairo route ready.
— See Routes: The organization of the Cape to Cairo air route. Preparing the aerodromes on the southern section.

Caldwell, F. W, and E. N. Fales. High efficiency air flow.
Describes a new method of visualizing air flow.

— Physical basis of air-propeller design—study of flight vortices; abstracts.

Caldwell, F. W. Propeller testing laboratory at McCook field.

Caldwell, F. W. and E. N. Fales. Wind tunnel studies in aerodynamic phenomena at high speed.

Caldwell, F. W. See Fales, E. N., and F. W. Caldwell: The scope of wind tunnel research.

California. Aerial races in California.
BIBLIOGRAPHY OF AERONAUTICS, 1920—1921.


— Air routes in California.
Aerial Age, Vol. 12, No. 26 (Mar. 7, 1921), New York, p. 653.

— Aviation in California.
Aerial Age, Vol. 13, No. 2 (Mar. 21, 1921, New York, p. 33, ill.

— California aero news.
Aviation, Vol. 10, No. 16 (Apr. 18, 1921), New York, p. 508.

— See Forestry: A year of the aerial forest fire patrol.

— See Laws and regulations: New legislation in California.


CALTHROP, E. R. Colonel Holt on parachutes and the air ministry.

— High-speed air contests and accidents.

— Parachutes and the Air Ministry competition.

— Parachute’s worst enemy.

— Pioneers of British aviation—XLVII. Mr. E. R. Calthrop, M. Inst. C. E., M. I. Mech. E.

CALUDEL. The Calubel carburetor.
Aviation, Vol. 8, No. 8 (May 13, 1920), New York, pp. 324-326, ill., diagr.

CALZA, G. Aviation and archaeology.

CAMBER. See Hill, J. D.: The touring airplane and the variable camber wing.

— See Irving, H. B.: Variable wing area and variable camber.

— See Leaman, Thomas P.: Adjustable camber and variable angle of incidence.

— See Parker, H. F.: The Parker variable camber wing.

— See Parker, H. F.: Variable camber wing.

CAMBRIDGE University. Cambridge University aeronautical society.

CAMERA obscura. Uses of the camera obscura.

CAMERAS. A British aero camera.

— Die Luftpkamera in Canada.

— See Eastman Kodak: Eastman Kodak aerial cameras.

— See Elton, Robert W.: The Fairchild distant control for aerial cameras.

— See Elton, Robert W.: Mounting of cameras in airplanes.


— See Photography.

— See Derby: The sixth aerial derby and the Oxford v. Cambridge air race.

BIBLIOGRAPHY OF AERONAUTICS, 1920–1921.

CAMM, F. J. The design of model airplanes.
London, Benn Brothers (Ltd.), 1920, pp. 168, diagr.

Model aeroplanes.

Model aeroplanes; the building of model monoplanes, biplanes, etc., together with a chapter on building a model airship.

Model aeroplanes.

Camouflage. Camouflaging airplanes.
Literary Digest, Vol. 65 (June 12, 1920), New York, pp. 34–35, ill.


See Weigler, Wm. R.: Aeronautical camouflage.


Aviation, Vol. 9 (Sept. 1, 1920), New York, p. 82.

Rigid airships.

CAMPBELL, H. G. Lieut. H. G. Campbell borne to rest.


See Pannell, J. R., J. D. Coales, and N. R. Campbell: A comparison of biplanes with equal and unequal chords.


See Pannell, J. R., and N. R. Campbell: The direction and velocity of the airflow behind a biplane composed of wings of variable section.

BIBLIOGRAPHY OF AERONAUTICS, 1920–1921.

69

Campbell, N. R.  See Pannell, J. R., and N. R. Campbell: The flow of air round a wing tip.

See Pannell, J. R., and N. R. Campbell: The forces and moments on a biplane with wings of variable section.

See Pannell, J. R., and N. R. Campbell: Methods of support for models during the measurement of their aerodynamic resistance.


See Pannell, J. R., and N. R. Campbell: Tests on an aerofoil suitable for airscrew design (A. D. No. 1).

See Pannell, J. R., and N. R. Campbell: The variation of the resistance of rigid airship models with the scale and wind speed.

Canada. Aerial surveying in Canada.


Aeroplanes and the Canadian oil fields.

Aerial Age, Vol. 14, No. 1 (Sept. 12, 1921), New York, p. 16.

The Air Board. Depreciation and insurance of war type aeroplanes and seaplanes.


Aircraft for Canada.


Aviation in Canada.


Aviation progress in Canada.


Canada's commercial air policy.

Aviation, Vol. 11, No. 3 (July 18, 1921), New York, p. 73.

The Canadian air board.


The Canadian air board's specifications for exploratory and forest-patrol aircraft.


The Canadian air force.


Aviation, Vol. 10, No. 22 (May 20, 1921), New York, pp. 483–484, III.


Canadian air harbors.

Aviation, Vol. 11, Nos. 16–17 (Oct. 17–24, 1921), New York, pp. 448–450, 481–482, III.

Canadian air progress—1920.


Canadian civil aircraft may not stunt.

Aviation, Vol. 10, No. 21 (May 23, 1921), New York, p. 657.

Canadian Government purchases ten aeromarine navy flying boats for forest patrol work.

Aerial Age, Vol. 12, No. 21 (Jan. 31, 1921), New York, p. 396.

Canadian purchases in the U. S. A.

CANADA. Canadian system of marking air harbors, adopted by the air board of Canada.

— Civil aviation in Canada.
Aviation, Vol. 11, No. 2 (July 11, 1921), New York, p. 45.

— Civil aviation licenses in Canada.

— The commercial air pilots' association of Canada.
Aerial Age, Vol. 13, No. 6 (Apr. 18, 1921), New York, p. 136.

— Depreciation and insurance of war-type aeroplanes and seaplanes.

— Experimental flying operations in Canada.
Aviation, Vol. 11, No. 6 (Aug. 8, 1921), New York, pp. 166-169, ill., map.

— For flying in Canada. Landing places being marked from coast to coast.
The Navigator, Vol. 4, No. 24 (July 31, 1920), Pensacola, Fla., p. 5.

— Landing fields in Canada.

— On Canadian activities.
The Aeroplane, Vol. 20, No. 11 (Mar. 16, 1921), London, pp. 244-246.

— Progress in Canada.

— The progress of aviation in Canada.

Ottawa, 1921, pp. 16.

Ottawa, 1920, pp. 8.

— Report of Canadian Air Board.
Aviation, Vol. 9, No. 8 (Nov. 8, 1920), New York, p. 264.

Aircraft Journal, Vol. 6, No. 21 (May 24, 1920), New York, pp. 3-4.

— Report of the Canadian Air Board.

Flying, Vol. 10, No. 4 (May 1921), New York, pp. 138-143.

The Air Board, Bulletin No. 2, March 1921, Ottawa, 1921, pp. 16, ill.

— See Banks, William: Aviation in Canada.

CANDACE, GRATIEN. L'aviation coloniale.
L'Air, No. 18 (5 août 1920), Paris, p. 11.

CANNENGET, H. G. Eerste vaart van den ballon Neerlandia op 6 April.
Vliegveld, 5e Jaarg., No. 9 (20 Apr. 1921), Amsterdam, pp. 125-126, ill.

— Kabelballons voor het indische leger.
Vliegveld, 5e Jaarg., No. 3 (29 Jan. 1921), Amsterdam, pp. 42-44, ill.

— Luchtvaartberichten.
Vliegveld, 5e Jaarg., No. 6 (12 Maart 1921), Amsterdam, pp. 87-90.

— Nogmaals iets over de luchtvaartweerberichten.
CANNEGIETER, H. G. De toestand van den dampkring boven Soesterberg . . .
Vliegveld, 6de jaarg., 1920, ’s-Gravenhage, pp. 375, 404, 405, 440, 441, ill.
Vliegveld, 5e jaarg., 1921, Amsterdam, pp. 160-170, 244, 270-272, 291-292, 342-343, 390-391, diagr.

--- De toestand van den dampkring boven Soesterberg in December 1920.
Vliegveld, 5e jaarg., No. 5 (26 feb. 1921), Amsterdam, pp. 73-74.

--- De toestand van den dampkring boven Soesterberg in Januari 1921.
Vliegveld, 5e jaarg., No. 7 (26 Maart 1921), Amsterdam, pp. 104-105.

--- De toestand van den dampkring boven Soesterberg in Februari 1921.
Vliegveld, 5e jaarg., No. 10 (7 mei 1921), Amsterdam, pp. 143-144, ill.

CANTILEVER monoplanes. The D. H. cantilever monoplanes.
Aerial Age, Vol. 13, No. 4 (Apr. 1921), New York, p. 86.


CAPACITY. Large capacity airplanes.

CAPE TOWN. The flight to the Cape.

--- See Cairo: Cairo to Cape by air.

--- See Cairo: Cairo-Cape flight.

--- See Cairo: Cairo-Cape flights.

--- See Cairo: Cairo to the Cape.

--- See Cairo: The Cairo-Cape route.

--- See Cairo: First Cairo-to-Cape flight.

--- See Cairo: London-Cairo-the Cape by airplane.

--- See Cairo: The voyages to Cape Town.

--- See Engines: Vindication of the aero-engine. Cairo-Cape flying.

--- See Hicks, C.: Empire building by air: Cairo to the Cape.

--- See Routes: The Cairo-Cape air route.

--- See Routes: Cairo to Cape route. Preparing the aerodromes on the southern section.

--- See Routes: Cape-Cairo route ready.

--- See Routes: The organization of the Cape to Cairo air route. Preparing the aerodromes on the southern section.


CAPRONI. The American-built Caproni biplane.

--- Der Caproni-dreifach-Dreidecker.

--- The Caproni Epoca.
Aviation, Vol. 10, No. 15 (Apr. 11, 1921), New York, p. 455.

--- The Caproni “Nineplandem” flies. And comes to grief.

--- The Caproni “Nineplandem” flying boat: Eight 400-horsepower Liberty engines.
CAPRONI. Caproni's latest creation.

— The Caproni tandem triplane.

— The development and construction of the Caproni aeroplanes.
Aerial Age, Vol. 12, No. 30 (Jan. 24, 1921), New York, p. 518.

— The giant Caproni.

— The giant Caproni tandem triplane.
Aerial Age, Vol. 13, No. 5 (Apr. 11, 1921), New York, pp. 103-104, ill., diagr.

— Riesen-Caproni.

— See Jongbloed: De "Capronissimo"


CAPRONISSIMO. See Lémonon, E.-H.: Un hydravion géant le "Capronissimo."
Triple-triplan Caproni.

CAPTIVE balloons. New captive balloons.
Aircraft Journal, Vol. 6, No. 16 (Apr. 17, 1920), New York, p. 6, diagr.

— New type of captive balloon.

— New type of captive balloon. Reducing waste of gas.

— See Frantzen, L. P.: Les ballons captifs.

CARBURETION. Carburetion.

— Carburetion and your life.

— Carburetion in internal combustion engines.
Aerial Age, Vol. 13, No. 18 (July 11, 1921), New York, p. 422.

— See Brown, G. M.: Carburetion as a prime factor in producing power.

CARBURETOR. Calibration of carburetor jet flow.
Aviation, Vol. 11, No. 10 (Sept. 5, 1921), New York, pp. 282-284.

— See Caludel: The Caludel carburetor.

— See Claudel: Claudel carburetor now made in America.


Aéroneuf, Vo. 25, No. 126 (June 1921), London, pp. 312-314.

CARDINGTON. A visit to Cardington.

CARGANICO. Die deutsche Luftfahrt—ein grosses Ganzes!

— Der Unsinn vom "Luftkutscher."
<table>
<thead>
<tr>
<th>Author</th>
<th>Title</th>
<th>Source</th>
<th>Pages</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Connecting rod forgings for the Liberty motor.</td>
<td>Amer. Mach., Vol. 52, No. 2 (Jan. 8, 1920), New York, pp. 89-92, figs.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Carlès, André.</td>
<td>La photographie aérienne.</td>
<td>L’Aerophile, 2e année, Nos. 21-22 (1er-15 nov. 1921), Paris, pp. 339-342, ill.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Caro, I.</td>
<td>Aviones que no volaron.</td>
<td>Aire, Mar y Tierra, año 2, Núm. 15 (julio 1920), Madrid, pp. 311-317, ill.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>A university course in meteorology.</td>
<td>The Ace, Vol. 3, No. 2 (Nov. 1921), Los Angeles, p. 5, ill.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CarrieIl, Cruise.</td>
<td>Hawaii from the air. An account of the first aerial survey of our possessions in the Pacific, involving the complete circumnavigation by naval flying boats of all the islands in the archipelago.</td>
<td>Flying, Vol. 10, No. 4 (May 1921), New York, pp. 127-130, ill.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Carroll, Phil.</td>
<td>See Gorrell, E. S., and Phil. Carroll: Col. Raynal Cawthorne Bolling.</td>
<td>Lawyer—cavalryman—flyer.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Casale, Jean H.</td>
<td>Comment de Romanet a battu le record du monde de la vitesse.</td>
<td>Vie Aérienne, 5e année, No. 17 (27 nov. 1920), Paris, p. 258.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
CASE, John. The design of long struts exposed to the air.

CASE, John, and A. A. Griffith. The lateral buckling of wing spars.

CASE, John. The loads and stresses in aeroplanes.

— The loads and stresses in aeroplanes. Part II. Tail unit and fuselage.


Casing head. Casing head gasoline impossible for altitude work.

CASTROL. The history of castrol.

CATAPULTS. Brief history of launching catapults.
Aviation, Vol. 10, No. 9 (Feb. 25, 1921), New York, p. 278, ill.

— U. S. catapult experiment.
The Aeroplane, Vol. 21, No. 19 (Nov. 9, 1921), London, p. 446.

— See Navy: New naval catapult launching device.

— See Launching from ships: A compressed air operated catapult for launching airplanes from ships.

CATO. Simplicity marks design of Cato monoplane and engine.
Automotive Manufacturer, Vol. 61, No. 11 (Feb. 1920), New York, pp. 23-26, figs.

CATTLE ranches. Airplane inspection of cattle ranches.

CAUDRON. Les avions Caudron.
Aéronautique, 5e année, No. 30 (Nov. 1921), Paris, p. 470, ill.

— Caudron aeroplanes.

— L’hydravion Caudron C 39 trimoteur.
L’Aérophile, 20e année, Nos. 11-12 (1er-15 juin 1921), Paris, p. xviii.

— Les multimoteurs Caudron.

CAUTLEY, John R. Wright aircraft engines; complete instructions for their installation, operation, and maintenance.
Paterson, N. J., Wright Aeronautical Corporation, 1921, pp. vii, 78, ill.


— See Taylor, G. I., and C. J. P. Cave: Variation of wind velocity close to the ground.

CAVE-BROWN-CAVE, T. R. Airships for slow-speed heavy transport and their application to civil engineering.

CEANS, OLIVER. Wireless telephony in aeroplanes.

Cei, L. Il motoreista d'aviazione. Descrizione, governo e manutenzione dei motori per l' aviazione.
Roma, 1920, pp. xvi-337, ill.

Celloni, A. Attività aeree civili in Italia.
L'Aeronautica, Anno 3, Num. 5-6 (luglio-agosto 1920), Roma, pp. 291-306.

Centaur. The Centaur disaster.

Central Aircraft Company. Central aircraft types.

— A new Central aircraft machine.

— See Great Britain: Modern British aircraft.

Certificates. Aerial navigators' certificates.

— British aerial navigators' certificates.
Flying, Vol. 9, No. 9 (Oct. 1920), New York, pp. 596-598.

— Certificates of airworthiness.

— See Glass, William: Airworthiness certificates.

— See Great Britain: British aerial navigators' certificates.


Chamberlin-Standard. The Chamberlin-Standard H5 five-seater.
Aviation, Vol. 11, No. 24 (Dec. 12, 1921), New York, p. 681, ill.

Chambre Syndicale des Industries Aéronautiques. L'annuaire de la Chambre Syndicale des Industries Aéronautiques pour 1921.
Paris, 1921.

— À la chambre syndicale des industries aéronautiques.
Aéronautique, 2e année, No. 13 (juin 1920), Paris, pp. 33-34.

Champsaur. Étude comparative du rendement des divers dirigeables.
Aéronautique, 3e année, No. 24 (mai 1921), Paris, pp. 189-192, ill.

Chandler, Charles De F. Col. Charles De F. Chandler retires.
Aviation, Vol. 9, No. 11 (Nov. 29, 1920), New York, p. 333, ill.

Channel. Channel islands air service.

— Conference on cross-Channel air services.
CHANNEL. Cross-Channel aeroplane services.
— The future of cross-Channel flying.
— See Grant, Hugh Duncan: A contribution to the meteorology of the English Channel.

CHANUTE Field. The course of aircraft armament at Chanute Field.
Aerial Age, Vol. 13, No. 10 (June 27, 1921), New York, p. 375.

CHAPMAN, E. H. The relationship between pressure and temperature at the same level in the free atmosphere.

CHAPMAN, J. A. First flight over a peak of the Rockies.

CHAPMAN, S. The energy of magnetic storms.

CHARLTON, E. O. L'avenir de l'aviation commerciale.
Vie Aérienne, No. 177 (1er avril 1920), Paris, pp. 1074-1075, ill.

CHARLTON, L. E. O. Future commercial aviation.

CHART. See Bombing: The famous bombing chart.

CHASE, H. Curtiss Navy racer which won the Pulitzer trophy.
Automotive Industries, Vol. 45 (Nov. 24, 1921), New York, pp. 1015-1016.
— Laboratory for aircraft engine testing.
Automotive Industries, Vol. 45 (Sept. 15, 1921), New York, pp. 520-522, ill., diagr.

CHASSIS. Flugzeugabfederung.

CHATLEY, HERBERT. Application of theory to ornithopters. The action of the flapping wing.
— The problem of flapping flight.

CHATTOCK tilting manometer. See Pannell, J. R.: The Chattock tilting manometer for measurement of small pressure differences.

CHAVAGNES, René de. L'aviation de chasse.—Le groupe des "Cigognes."—De Guynemer à Fonck.

CHAVEZ, GEORGES. The Chavez memorial.
— Un monument Geo. Chavez.

CHEMICAL. Chemical warfare in future wars.
Aviation, Vol. 10, No. 22 (May 30, 1921), New York, pp. 683-694, ill.

CHEMISTRY. See Materials: Materials and chemistry.
CHEMISTRY. See Moureu, C.: La chimie française et les problèmes de la guerre; chimie et aéronautique.

CHESS, W. A. Flying as a sport—some suggestions.

Terminological tortuosities.

CHESSEX, LOUIS. Les tendances actuelles dans les moteurs d’aviation.
Suisse Aéronaute, 3e année, No. 19, 1921, Berne, pp. 283-286.

Vérification en vol des lois aérodynamiques.
Suisse Aéronaute, 3e année, No. 9, 1921, Berne, pp. 123-124.

CHESTERTON, G. K. Aeroplanes and morals.

Chicago. Addresses at the Chicago aeronautical meeting.

The Chicago aero show.

Chicago aeronautical exposition.

The Chicago aeronautical show.
Aerial Age, Vol. 10, No. 12 (Jan. 5, 1920), New York, pp. 443-454, ill.


Chicago air show presents significant technical developments.

Chicago's fine aeronautical show.
Aircraft Journal, Vol. 6, No. 3 (Jan. 17, 1920), New York, pp. 3-7, 20, ill.

Chicago's first aeronautical show.
Aircraft Journal, Vol. 6, No. 1 (Jan. 3, 1921), New York, pp. 5-7, 20, 21, 24, ill.

U. S. Army and Navy exhibiting at Chicago show.

See Klemm, Alexander: Impressions of the Chicago aeronautical show.

CHILE. The Chilean air service.

CHINA. Aerial mail in China.
Aerial Age, Vol. 13, No. 8 (May 2, 1921), New York, p. 173.

Air postal stamps for China.

American aircraft for China.

American aircraft sold in China.

Americans operate Chinese air line.

Aviation in China.

Official aviation in China.

See Chung, De Senn: Aviation in China.
BIBLIOGRAPHY OF AERONAUTICS, 1920–1921.


Chollat, H. L'exposition du sous-secretariat d'etat de l'aeronaute et de l'aviation militaire.

— Quelques notes sur le Salon. Les avions.

Chollet, Léon. Les treuils de ballon captif.
Aeronaute, 3e année, Nos. 27, 28 (août-sept. 1921), Paris, pp. 316-319, 377-386, ill.

Christmas, William Whitney. Dr. William Whitney Christmas, aero engineer, makes statement.


Chronology. Calendar of events.

— Outstanding aeronautical events in 1919 arranged in chronological order.

Chudeau, R. L'hydrographie ancienne du Sahara (ses consequences biogeographiques).

Chung, De Senn. Aviation in China.
Aviation, Vol. 11, No. 18 (Oct. 31, 1921), New York, pp. 511-512, ill.

Churchill. The future of the R. A. F.


The Aeroplane, Vol. 20, No. 7 (Feb. 16, 1921), London, p. 149.


Civil Air Bureau. President Harding urges civil air bureau.

Civil aeronautics. Civil aeronautics bill.
Aviation, Vol. 11, No. 22 (Nov. 28, 1921), New York, p. 628.

— The air conference. The operation of civil aircraft.

— British civil aviation.
Aviation, Vol. 11, No. 7 (Aug. 15, 1921), New York, p. 203.

— By sea, air, and land—the transport trinity.

— Civil aviation can pay.

— Civil aviation in the British Dominions.

— Civil flying during the past year.
BIBLIOGRAPHY OF AERONAUTICS, 1920–1921.

Civil aeronautics. Civil flying progress.

— Bills introduced in Senate and House to aid development of civil aviation.


— Civil aviation in foreign countries.

— Civil aviation in India and Burma.

— Civil aviation October, 1919, to March, 1920.

— Civilian aviation gained 20 per cent.

— Civilian aviation petitions President. Leaders of civilian aviation ask for hearing on air policy.
Aviation, Vol. 10, No. 26 (June 27, 1921), New York, pp. 801-802.

— Civil aviation subsidies. Recommendation of the advisory committee.

— Civil aviation troubles and progress.
The Outlook, Vol. 46, No. 1188 (Nov. 6, 1920), London, p. 470.

— The committee on civil aviation.

— The encouragement of civil aviation.

— Government to aid civil aviation.

— How to save civil aviation.

— On subsidies and civil aviation.
The Aeroplane, Vol. 20, No. 22 (June 1, 1921), London, pp. 407-409.

— On the R. A. F. and civil aviation.
The Aeroplane, Vol. 21, No. 21 (Nov. 25, 1921), London, pp. 517-519.

— On things as they seem.

— Pour l’aviation civile. La réunion du 11 février au Sénat.

— Progress of civil aviation.

— Progress of civil aviation. Half-yearly report.

— Progress of civil aviation. Half-yearly report of the Department of the Controller-General of Civil Aviation.
London, H. M. Stationery Office [1921],Cmd. 1342.

— Promotion of civil aviation.

— The rise of civil aviation.
Civil aeronautics. Service and civil aviation in the Lords.

---

**Six months' flying. Summary of official report.**

*Aeronautics, Vol. 19, No. 351 (July 5, 1920), London, pp. 22-23*

---

**Six months of civil aviation.**


---

**Subsidy and prospects.**


---

£60,000 for civil aerial transport.

---

**See Air lines: Air lines of to-day. Time-tables of the various services.**

---

**See Air Ministry: Air Ministry subsidies for civil aviation.**

---

**See Advisory Committee on Civil Aviation: Government assistance for the development of civil aviation.**

---

**See Aerodromes: Aerodromes for civil use.**

---

**See Argentina: Civil air service in Argentina.**

---

**See Barnwell, F. S.: The technical aspects of service and civil aviation.**

---

**See Clark, V. E.: Air transportation and the business man.**

---

**See Colombia: Commercial aviation.**

---

**See Commercial aeronautics.**

---

**See Durand, William Frederick: Analysis of the need for civil aviation.**

---

**See France: Commercial aviation in France.**

---

**See G., C. G.: The future of civil aviation.**

---

**See G., C. G.: On the coming of civil aerial transport.**

---

**See G., C. G.: On the needs of civil aviation.**

---

**See Great Britain: Civil aviation in the House.**

---

**See Great Britain: The Department of Civil Aviation.**

---

**See Great Britain: Progress of civil aviation.**

---

**See Haviland, G. de: De Haviland on civil aviation.**

---

**See Italy: Civilian aircraft of Italy.**

---

**See Knight, William: The organization of civil aviation along international lines.**

---

**See Montagu of Beaulieu: A comparison of the cost of transport and ton-miles by land, sea, and air.**

---

**See "Navigator:" Civil aviation and the supply of aviators.**

---

**See Norway: Norway’s experience of commercial aviation.**

---

**See Olympia: Air transport and efficiency. Two interesting papers read at Olympia.**

---

**See Philbin, S. H.: The need of federal control in commercial aviation.**

---

**See Sinsheimer, A.: Civilian aviation control favored by general staff.**

---

**See Subsidy: The subsidizing of civil aviation.**

---

**See Sykes, Frederick H.: Aviation and air transport.**
BIBLIOGRAPHY OF AERONAUTICS, 1920–1921. 81

Civil aeronautics. See Sykes, Frederick H.: Civil aviation abroad.

— See Sykes, Frederick H.: Civil aviation and air services.


— See Transportation: The requirements and difficulties of air transport.

— See United States: American air transport services.

— See Vincent, Jesse J.: The next steps in commercial aviation.

— See White-Smith, H.: The operation of civil aircraft in relation to the constructor.

Civil Aviation Advisory Board. See Air Ministry: Civil Aviation Advisory Board.


Garden City, New York, Country Life Press [1929], pp. ix, 171, ill.

Clark. Two new Clark aerofoils.

Aviation, Vol. 8, No. 10 (June 15, 1920), New York, pp. 384-385, charts.

Clark, D. Nelson. The future of aeronautics.

The Ace, Vol. 1, No. 12 (July 1920), Los Angeles, pp. 10, 28-29.

— The spiral engine.


Clark, V. E. Air transportation and the business man.

Flying, Vol. 10, No. 5 (June 1921), New York, pp. 167-173, ill.


— Maintaining airplane engine power at great altitudes.

General Electric Review, Vol. 28 (June 1920), Schenectady, pp. 174-175.


— New York to San Francisco in 9 hours made possible when engine efficiency is maintained at high altitudes.


Clarke, George Aubourne. Clouds; a descriptive illustrated guide book to the observation and classification of clouds.

London, Constable & Co., 1921


Clarkson, Coker F. Automotive engineering standardization and progress.


Claudel. Claudel carburetor now made in America.

Aerial Age, Vol. 11, No. 10 (May 17, 1920), New York, pp. 223-224, ill., diagr.

Claudy, C. H. Aircraft of the future.


Claus, G. M. Draadloze telefoonieproeven te Soesterberg.

Vliegvaard, 4de jaarg., No. 25 (6 Nov. 1920), 's-Gravenhage, p. 396.

Clay, N. S. Bakelite-micarta airplane propellers.

Electrical Journal, Vol. 16, No. 11 (Nov. 1919), Pittsburgh, Pa., pp. 482-484, figs.

Clayden, A. L. Sane view of the aircraft engineering future.


Clayton, H. H. The "flight" of flying-fish.

CLEARY, CHARLES J. Airplane wing coverings. 

CLEARY, MAURICE G. Maurice G. Cleary. 
Aviation, Vol. 10, No. 2 (Jan. 10, 1921), New York, p. 47, ill.

CLÉMENT, L., and C. RIVIERE. Examen dynamométrique des toiles enduites par les dissolutions d’éthers cellulosiques. 

Clerc, L. P. Aerial photography and photo-topography. 

— Application de la photographie aérienne (lecture et interprétation, stéréo-copie aérienne, appareils et méthodes pour la phototypographie aérienne). 

CLEGG-BLIN. Cleggt-Blin motor. 

Clerk, A. Pour utiliser les lignes aériennes—l’aéro-indicateur. 
L’Aérophile, 29 année, Nos. 9-10 (1er-15 mai 1921), Paris, p. 36.

CLINOMETERS. See Sanford: The Sanford clinometer.

CLOTHING. Electrically heated aviator’s clothing. 

— Hot clothes for aviators. 

CLOUD flying. See Hunter, Robert J.: Cultivating the balance sense: A prelude to cloud flying.

— Cloud-flying instrument board. 
Aerial Age, Vol. 13, No. 13 (June 6, 1921), New York, p. 301.

— See Eytinge, Bruce: Cloud flying.

CLOUDS. See Carpenter, F. A.: Photographing clouds from an airplane.


CLOUDSTER. "Cloudster" under construction. 

CLOUGH, G. E. Mystery of the soaring hawk. 

CLUTE, WALKER S. Commercial aviation in Colombia. 
Flying, Vol. 9, No. 11 (Dec. 1920), New York, pp. 694-695, map.

COAL gas. See David, W. T.: The internal energy of inflammable mixtures of coal gas and air after explosion.

COALES, J. D. See Bairstow, L., and J. D. Coales: Notes on the prediction and analysis of aeroplane performance.

— See Cowley, W. L., L. F. G. Simmons, and J. D. Coales: The effect of balancing a rudder, by placing the rudder axis behind the leading edge, upon the controlling moment on the machine.

— See Cowley, W. L., L. F. G. Simmons, and J. D. Coales: An investigation to determine the best shape of fairing piece for a cylindrical strut.

— See Cowley, W. L., L. G. Simmons, and J. D. Coales: Tests on the complete model of F. E. 5 aeroplane.
Coales, J. D. See Cowley, W. L., and J. D. Coales: Wind forces on aeroplane wires of various sections.

— See Fage, A., and J. D. Coales: Experiments with two aerofoils of high aspect ratio.


— See Jones, R., W. L. Cowley, and J. D. Coales: The direction and velocity of flow behind a strut.


— See Pannell, J. R., E. A. Griffiths, and J. D. Coales: Experiments on the interference between pairs of aeroplane wires of circular and lenticular cross-section.

Coast patrol. Aircraft aid to disabled vessels.

— See Parker, Stanley V.: Coast Guard aviation.

Coatings. Comparison of moisture resistance tests for coatings.


Cobb, Percy W. A contribution to the study of dark adaptation.


— Dark adaptation with especial reference to the problems of night flying.


Cobham, Alan J. Popularizing aviation.


— A proposed aeronautical safety code.


— Underwriters for National Air Code.


Coffin, J. G. Attainment of high levels in the atmosphere; reply to A. McAdie.


— Note on measurement of speed of airplanes.


— Static pressure gradients in wind tunnel work.


— A study of airplane ranges and useful loads.


Cogni, E. Der Jahrestag des Handelsluftverkehres in London.

— Flug, sondernummer (Dec. 1920), Wien, pp. 88-90, 111.

COLE, A. P. The principles of rigid airship design.

COLLEN, Leon N. W. The Klemperer wing-load indicator.
Aviation, Vol. 11, No. 6 (Aug. 8, 1921), New York, pp. 164-165, Ill.

COLLIER. See Bragg, Caleb S.: Contenders for Collier trophy should act now.


—— What to do with our fliers?


—— See Fage, A., and H. E. Collins: Dependence of the efficiency of an airscrew on the speed of rotation and the diameter, with a direct reference to the question of engine gearing.

—— See Fage, A., H. E. Collins, and T. H. Fewster: Description of apparatus for measurement in a wind tunnel of the performance of an airscrew or the windage torque of a rotary engine.

—— See Fage, A., and H. E. Collins: Experiments, at high speeds, on six aerofoils suitable for airscrew design.

—— See Fage, A., and H. E. Collins: An investigation of the magnitude of the inflow velocity of the air in the immediate vicinity of an airscrew, with a view to an improvement in the accuracy of prediction from aerofoil data of the performance of an airscrew.

—— See Fage, A., and H. E. Collins: An investigation of the mutual interference of an airscrew and body of the "tractor" type of aeroplane.


—— See Fage, A., and H. E. Collins: An investigation of the mutual interference of the airscrew, body, and wings of the tractor aeroplane, B. E. 2E.

—— See Fage, A., and H. E. Collins: An investigation of the mutual interference of airscrews and bodies of the "pusher" type.

—— See Fage, A., and H. E. Collins: An investigation of the strength of two airscrews for F. E. 2B.


—— See Fage, A., and H. E. Collins: A preliminary investigation of the mutual interference of an airscrew and a tractor body, as affected by the fairing of the nose of the body.

—— See Fage, A., and H. E. Collins: The "scale-speed" effect on a model airscrew of small diameter.

—— See Fage, A., and H. E. Collins: Some experiments on helicopters.

—See Fage, A., and H. E. Collins: Some notes on the calculation of the working stresses of an airscrew.

—See Fage, A., and H. E. Collins: Tests on five model airscrews and an experimental investigation of the interferences between these airscrews and a model of the end of the whirling arm at the Royal Aircraft Factory.


—See Fage, A., and H. E. Collins: A windmill to drive a wireless set of power one kilowatt.

COLLINS, J. H. From airplanes to wheelbarrows.


COLOMBIA. Colombian services.

Aerial Age, Vol. 13, No. 18 (July 11, 1921), New York, p. 424.

—Commercial aviation.

Flying, Vol. 10, No. 2 (Mar. 1921), New York, pp. 59, 76.


COLONIAL. Aircraft for colonial use.


COLUMBIA UNIVERSITY. Aircraft course at Columbia.

Aviation, Vol. 10, No. 2 (Jan. 10, 1921), New York, p. 54.

COLUMNS. Comparison of column formulas.

Engineering Division, Air Service, Technical Orders No. 17 (June 1920), Dayton, Ohio, pp. 69-71.

COLVIN, CHARLES H. The Pioneer turn indicator.

Aviation, Vol. 8, No. 7 (May 1, 1920), New York, pp. 233-284, ill.

COLVIN, FRED HERBERT, and HENRY FRED COLVIN. The aircraft handbook; a collection of facts and suggestions concerning the construction and care of planes, motors, and instruments for those interested in modern aircraft.


COLVIN, FRED HERBERT. Details of airplane manufacture.


—How Ford built Liberty motors.

Amer. Mach., Vol. 51 (Dec. 18, 1919), New York, pp. 1037-1041, ill.

—Naval air station at Pensacola.

Amer. Mach., Vol. 53 (July 29, 1920), New York, pp. 197-199, ill.

—Some details of airplane manufacture.


COLVIN, HENRY FRED. See Colvin, Fred Herbert, and Henry Fred Colvin: The aircraft handbook.

COLYER, W. T. Aviation and fire protection.


COMMERCIAL aeronautics. L'activité aéronautique aux États-Unis.

Aéronautique, 3e année, No. 23 (avr. 1921), Paris, pp. 163-166.
Commercial aeronautics. Aerial Express Co. announces gigantic program of seaplane lines.

Aerial Age, Vol. 11, No. 11 (May 24, 1920), New York, p. 359.

Aerial mail as a promoter of commercial aeronautics.

Aerial Age, Vol. 12, No. 12 (Nov. 29, 1920), New York, p. 315.

Aerial passenger travel at high altitudes.


Aerial service between Buenos Aires and Pernambuco.


Aerial transportation like merchant marine.


Aero limited passenger list (July 1920).


Aero limited September passenger record.


Aeronautics given 10-year setback.


Aeroplanes and ocean travel—a suggestion.


Air line to Cuba.


Air liner is designed for commerce.


Air lines and finances.


Air travel for everybody.

Literary Digest, Vol. 68 (Apr. 24, 1920), New York, pp. 18-19, ill.

Airplane here as commercial factor.


Airplane used as a time saver.


Airship services and commercial conditions.


Airship ton-miles. Air-Commodore Maitland’s estimate criticised.


Airships for slow-speed heavy transport.


American commercial airplanes—1919–1920; tabulation.


America’s aircraft opportunity in South America.

Literary Digest, Vol. 65 (May 22, 1920), New York, pp. 119-120.

Antics of a commercial dirigible.

Scient. Amer., Vol. 121 (Dec. 27, 1919), New York, p. 637, ill.

L’aviation commerciale allemande.


Awakening to our danger in Great Britain’s airplane dumping.

COMMERCIAL aeronautics. Blow to U. S. aviation.
The Navigator, Vol. 1, No. 16 (May 29, 1920), Pensacola, Fla., p. 3.

— A Bureau of Commercial Aeronautics.
Aerial Age, Vol. 14, No. 3 (Sept. 26, 1921), New York, p. 52.

— Business and military efficiency of future depends upon our air merchant marine.
The Navigator, Vol. 1, No. 22 (July 17, 1920), Pensacola, Fla., p. 2.

— Business and military efficiency of to-morrow.

— By air from London to Australia.

— Can airways be made to pay?

— Commercial aircraft for engineers.
Aviation, Vol. 11, No. 19 (Nov. 7, 1921), New York, p. 542.

— Commercial airplane development.

— The commercial airship. Its operation and construction.

— Commercial airship operation. An argument that properly planned route can be operated at rates comparable with those of present transportation.

— Commercial airship transport. Capitalization of $5,000,000 is necessary for a start on a small scale.
Aircraft Journal, Vol. 6, No. 10 (Mar. 6, 1920), New York, pp. 16-17.

— Commercial and military possibilities of aircraft.

— Commercial aviation. Design requirements.

— Commercial aviation in U. S. A.

— Commercial aviation progress.

— Commercial aviation soon to be reality.

— Commercial flying in the United States.

— The commercial future of airships.

— Commercial service between France and Morocco.

— Commercial value of the airship.
The Navigator, Vol. 1, No. 17 (June 5, 1920), Pensacola, Fla., p. 5.

— Cape to Cairo air line opened.

— Cost of commercial flying.

— Disagreement over aviation.
The Navigator, Vol. 1, No. 18 (June 12, 1920), Pensacola, Fla., p. 3.
COMMERCIAL aeronautics. Dumping of military equipment on market material aid to aviation?
The Navigator, Vol. 1, No. 12 (May 1, 1920), Pensacola, Fla., pp. 1, 3.

The dumping situation.

England-Belgium air service.

England to Australia flight.

Era of commercial airplanes now dawning.
Automotive Manufacturer, Vol. 63, No. 8 (Nov. 1920), New York, pp. 7-10, 19, ill., diagr.

European nations encouraging commercial aviation.
Aviation, Vol. 9, No. 11 (Nov. 29, 1920), New York, p. 356.

Europe's progress in commercial aviation. Handley Page map of European air routes.

Figures on air transport.

The financial aspect of commercial aviation.

Flying boat service from Key West to Havana.

Flying freight.

Flying over clouds in relation to commercial aeronautics.

Flying's commercial future.

Forerunners of the flying liners.

Freight train that flies.

From England to Australia by air.

From Paris to New York in one day.

The future of transportation.

Goods by air. The meaning of the Alula wing.

Group of progressive Americans organizing aerial transportation lines throughout the United States, unable to get deliveries of aeroplanes of American manufacture, acquire large number of aeroplanes from British Government.
Flying, Vol. 9, No. 5 (June 1920), New York, pp. 334-335.

High-lift wing and commercial aviation.

How it looks and feels to fly in an air-Pullman.

Internationales Luftverkehrsaabkommen.
BIBLIOGRAPHY OF AERONAUTICS, 1920–1921.

COMMERCIAL aeronautics. Key West-Havana air line inaugurated.

Aerial Age, Vol. 12, No. 9 (Nov. 8, 1920), New York, pp. 249-250, ill.

— Key West-Havana passenger air line.


— Key West-Havana route inaugurated.

Aviation, Vol. 9, No. 7 (Nov. 1, 1920), New York, pp. 226-227, 229, ill.

— Large aircraft will make aerial transport lines public utilities.

Aerial Age, Vol. 12, No. 6 (Oct. 18, 1920), New York, p. 165.

— The large demand for aeroplanes.

Aerial Age, Vol. 12, No. 16 (June 28, 1920), New York, pp. 537-540.

The large demand for aeroplanes in the United States.


— Liners may carry planes. In addition to passengers special mails could be quickened by this method.


— Load factors for commercial aircraft.


The London-Continental services.


— The London-Continental services. Flights between September 19 and December 18, inclusive.


— London-Paris air service.


— London-Paris air express.


— London-Paris airplane passenger service.


— London-Paris fares.


— Los Angeles to Chicago.


— Making airways pay.


Flying, Vol. 9, No. 10 (Nov. 1920), New York, pp. 619-624, ill.

— Mapping air routes for commercial flying.


— New air lines in South America.


— New commercial monoplane is quickly dismantled.


— New international aircraft services.


— No limit to use of aircraft.


— Passenger list of Aero Limited (August, 1920).


— Pony blimp for commercial use.

COMMERCIAL AERONAUTICS. PONY BLIMP SERVICE.

The Ace, Vol. 2, No. 2 (Sept. 1920), Los Angeles, p. 11, ill.

— Proposed transport airplane.


— Regular air line for the Pacific coast.


— Report of commission of Aero Club of America and Aerial League of America which investigated aircraft demand and aeronautic possibilities in United States, Europe, and South and Central America.

Air Power, Vol. 6, No. 1 (Jan. 1920), New York, pp. 210-211.

— Requirements of commercial airplanes.

Aviation, Vol. 11, No. 3 (July 18, 1921), New York, pp. 68-70.

— Shall we put the airplane to work in America?


— Solving the transport problem. Benn Brothers institute a new service. A weekly journal and a freight exchange.


— Stupendous status of American aircraft industry.

Aerial Age, Vol. 11, No. 15 (June 21, 1920), New York, pp. 583-584.

Flying, Vol. 9, No. 6 (July 1920), New York, p. 377.

— Successful year's flying on London-Paris route.

Automotive Manufacturer, Vol. 62, No. 6 (Sept. 1920), New York, p. 16.

— Travel by air now being promoted.

Printers' Ink, Vol. 112 (Sept. 16, 1920), New York, p. 28.

— Time-table and tariff of air companies operating at Paris.


— Transoceanic airplane, multiple engines and transmission gears as aids to continuous flight.


— Les transports aériens entre Paris et Londres.

Génie Civil, T. 76 (June 26, 1920), Paris, pp. 577-578.

— The truth about commercial aeronautics.


— United States has opportunity to lead world in civilian aeronautic activities and as a market for aircraft in 1920. Report of Commission of Aero Club of America and Aerial League of America which investigated aircraft demand and aeronautic possibilities in United States, Europe, and South and Central America.


— Wanted: a Henry Ford of the air.

The Navigator, Vol. 1, No. 2 (Feb. 21, 1920), Pensacola, Fla., p. 3.

— See Accidents. Accidents in commercial aviation.

— See Aerodromes: Aerodromes for civil use.

— See Air routes.

— See "Anglo-Dane": Commercial aviation in Germany.

— See Arnold, H. H.: Commercial possibilities of aircraft in the West.

— See Benn Brothers: Solving the transport problem. Benn Brothers institute a new service. A weekly journal and a freight exchange.

— See Bingham, H.: Airships in foreign trade.
COMMERCIAL AERONAUTICS. See Bingham, Hiram: Aviation and foreign trade.

— See Brancker, Sefton: Aerial transport from the business point of view.
— See Camm, S.: Commerce and aviation.
— See Civil aviation:
— See Commercial aeronautics.
— See Conturier, Roger: Ou en est l'aviation commerciale.
— See Dawson, Trevor: Commercial airship, its operation and construction.
— See Douglas, D. W.: The airplane as a commercial possibility.
— See Fokker, Anthony H. G.: The development of commercial aeronautics.
— See Gaulois, G.: What about our commercial aviation?
— See Great Britain: British commercial air planes—1919-20; tabulation.
— See Hartney, Harold E.: On the problems of commercial aeronautics.
— See Hayford, John Fillmore: What should be done to increase the civil use of airplanes?
— See Hermant, Paul: Deux avions de transport commercial.
— See Houston, G. H.: Aeronautics, international aspects, national control, commercial development, etc.
— See JL-6: The log of an aluminum air liner in first passenger flight, New York to Chicago, the JL-6 German metal monoplane beats the Twentieth Century Limited by 12 hours.
— See Jones, Melville: Flying over clouds in relation to commercial aeronautics.
— See India: Suggested air fleet for India.
— See Italy: Italian plane makers seek world aviation sales.
— See Kingsley, S. G.: Commercial aviation in Uruguay.
— See Larsen: Larsen flight aids commercial aviation.
— See Lloyds, D. G.: Dropping passengers off air liners on the fly.
— See Mingos, H. L.: Cities preparing for future air traffic.
— See Martin, Glenn L.: The Glenn L. Martin commercial transport biplane.
— See Mueller, L. H.: Cost of operation for airplane service.
— See North American Aerial Transportation Company: Big airship company being formed. North American Aerial Transportation Company to start with $5,000,000 capital.
— See Orcy, L. d': Dawn of American commercial aviation.
COMMERCIAL aeronautics. See Page, F. H.: Commercial aviation, its development since the war and its scope in the future.

See Parsons, F. W.: Commercial aeronautics.

See Platt, jr., R. H.: Transportation through the air; significant and recent developments of commercial flying.

See Richmond, V. C.: Organization of a colonial airship service.

See Tinker, Clifford Albion: Commercial aeronautics.

See Transportation: The requirements and difficulties of air transport.

See Pierrot, Émile.: La navigation aérienne commerciale en 1920.

See Pony blimp: Pony blimp for commercial use.

See Praeger, O.: Air mail shows commercial possibilities of planes.

See Pratt, H. B.: Commercial airships; with an introduction by Sir A. Trevor Dawson.

See Pratt, H. G.: Developing trade with South America by air.

See Quisenberry, G. E.: Commercial airplane in its present-day development.

See Searle, F.: Can airways be made to pay?

See Sinsheimer, A.: Civilian aviation control favored by general staff.


See Stockbridge, E. P.: Cargoes through the clouds.


See Sykes, F. H.: Civil aviation and air services.

See Tandy, E. T.: Commercial airplane reaches stage of national advertising.

See Teed, P. Litherland: Future developments of the rigid airship for commercial purposes.

See Thomas, G. Holt: Aerial transport.

See Thomas, G. Holt: Commercial aeronautics.

See Thomas, G. Holt: Commercial aeroplanes—the problems of speed and load.

See Thomas, Holt: Commercial communication by air.

See Townshend, B. W.: Commercial aircraft.

See Upson, Ralph H.: The Bodensee commercially profitable. Postwar conditions in German aerial transportation.


See Warner, E. P.: Comments on small airplanes competing for commercial aircraft.

See Willys, J. N.: Flying's commercial future.

See Wings: Commercial utility wing. An interesting Blackburn development.

See Wings: Goods by air. The meaning of the Alula wing.
COMMERCIAL aeronautics.  See Woodhouse, Henry: How the world found 100 uses for aeroplanes.

— See Zeppelins: New Zeppelins for America.

COMMISSION sportive aéronautique.


COMMUNIQUÉS de l'office aérien fédéral.


COMPASS.  The aeroplane compass during change of speed and course.


— The aperiodic magnetic compass.

Aeronautics, Vol. 20, n. s., No. 365 (May 12, 1921), London, p. 345, ill.

— Distant reading German airplane compass.


— Gyroscopic compass; a nonmathematical treatment.


— New aviator's compass, the Bamberg tele-compass.

Automotive Industries, Vol. 43 (Nov. 25, 1920), New York, p. 1098.

— Radio compass.


— Selenium aviation compass placed on tail of plane.


— See Bamberg: New aviator's compass, the Bamberg tele-compass.

— See Brown, S. G.: Gyrostatic compass.

— See Condroyer, L.: Le compas de navigation aérienne.


— See Fessenden, Reginald A.: The Fessenden peloris (wireless compass), a caution as to its use.

— See Field, M. B.: Navigational magnetic compass considered as an instrument of precision.

— See Friedensburg, Walter: The distant compass.

— See Friedensburg, Walter: Der Fernkompass.

— See Kean, J. B.: Radio compass and automatic pilot developed for naval flying boats.

— See Rouch, J.: Le compas de navigation aérienne.


COMPETITIONS.  See Seaplanes: The seaplane competitions.

COMPRESSED air.  See Addems: The Addems compressed-air model.

— See Fastje: The Fastje compressed-air motored model.

— See Models: Plans for building compressed-air model.

COMPRESSORS.  See Devillers, Rene: The problem of the turbo-compressors.

CONDEMINE, HENRI.  Sauvons l'aviation.

Vie Aérienne, No. 171 (19 fevr. 1920), Paris, pp. 977-978, ill.

CONDIT, K. H.  Firing orders of internal-combustion engines.


— Le premier congrès international de la navigation aérienne. Aéronautique, 3e année, No. 31 (déc. 1921), Paris, p. 325.


See Italy: An Italian aeronautical congress.


See Malone, William J.: Connecticut’s new laws of the air.


CONSTRUCTION. Aircraft construction must be encouraged. Aerial Age, Vol. 12, No. 10 (Nov. 15, 1920), New York, p. 269.


— Der gegenwärtige Stand der deutschen Flugtechnik. Suisse Aérienne, 3e année, No. 2 (févr. 1921), Berne, pp. 18-22, ill.

CONSTRUCTION. Die Lehren des Flugzeugbaues und ihre Anwendung im Automobilbau.
Luftweg, Nr. 47-48 (1. Dez 1921), Berlin, pp. 334-335.

— Metal construction.

— Das moderne Flugzeug und seine Anwendungen.
Suisse Aéroenne, 3e année, No. 17, 1921, Berne, pp. 244-261, ill.

— Rhön-Segelflug 1921: Konstruktions-Einzelheiten.

— Stahlkonstruktionen im Flugzeugbau.

— Tests made at the National Physical Laboratory for the Superintendent of Aircraft Construction on the strength of steel lugs used in connection with the forked ends of aeroplane wires.

— Verkehrsflugzeug der Auto- und Flugzeugwerke von Cuyk.

— See Bairstow, L., and A. Fage: Oscillations of the tail plane and body of an aeroplane in flight.

— See Cowley, W. L.: The stresses in the members of aeroplane bodies and fuselages, due to the aerodynamical loads on the tail system. Part 1.


— See Eisenlohr, Roland: Die konstruktiven Grundlagen der Verkehrsflugzeuge.

— See Eisenlohr, Roland: Zusammengesetzte Querschnittkonstruktion in Holz.

— See Gaule, K. G.: Der Einfluss der wissenschaftlichen Forschung auf die Konstruktion der Flugzeuge.

— See Hanby, Wilfred: Metals in aircraft construction.

— See Junkers, Ing. H.: Personal experiences in constructing metal airplanes.

— See Lanchester, F. W.: Torsional vibrations of the tail of an aeroplane.

— See Mantelburger, Josef: Der Flugzeug-Modellbau.

— See Munk, Max: Die Windstromanlage des Luftschiffbau.

— See S. W. S. CL: Das Militärflugzeug der Schweiz Wagonfabrik Schléier.


"CONTACT" (Alan Bott). Eastern nights and flights.

Contests. Beschluss des Preisgerichtes im Rhön-Segelflug-Wettbewerb 1921.

— Englisches Luft-Derby.

— Das Ergebnis des Wettbewerbs zur Hebung der Sicherheit auf Verkehrsluftfahrten.

— Das Ergebnis des Wettbewerbs zur Hebung der Sicherheit auf Verkehrsluftfahrten (40,000 Mark-Preis).

— Fifty college fliers contest in the air.
CONTESTS. Rhön-Segellug-Wettbewerb, 1921.

— Vom Wettbewerb.

— See Eberhard, W.: Rhön-Segellug-Wettbewerb 1921.

— See Jacques Schneider: Jacques Schneider cup regulations for the 1921 contest.

— See Pulitzer trophy: Rules for the second annual contest for the Pulitzer trophy.

— See Regulations: Changes of regulations for air records and contests.

CONTINENTAL. On Continental affairs.

CONTOUR. See Wilson, Latimer J.: Contour chasing as a sport and how it seemed to a lover of the ground.

CONTRACTS. Coordination of Army and Navy practices in regard to experimental contracts for aircraft.
Aerial Age, Vol. 13, No. 3 (Mar. 28, 1921), New York, pp. 56-57.

CONTROL. Diagonal axis control aeroplane.

— Experiments on the possible rate at which a pilot can pull back the control column in an aeroplane.

— The Inter-Allied Commission of Aeronautical Control again.
The Aeroplane, Vol. 20, No. 6 (Feb. 9, 1921), London, pp. 143-144.

— Lateral control of various aeroplanes.

— New aeromarine control.
Aviation, Vol. 8, No. 4 (Mar. 15, 1920), New York, p. 151, ill.

— A new automatic control.

— Sand test of flying boat controls.
Aviation, Vol. 9, No. 11 (Nov. 20, 1920), New York, pp. 350-352, ill.

— See Bryant, L. W., and H. B. Irving: Experiments on the effect of altering the position of the hinges of the elevators for the B. E. 2c aeroplane.

— See Bryant, L. W., and H. B. Irving: Tests of a model of F. E. 4 body and tail.

— See Bryant, L. W., and H. B. Irving: Tests of a model of F. E. 4 body with a modified tail system.

— See Bryant, L. W., and H. B. Irving: Tests of the yawing moment on a model of the B. E. 2c machine at small angles of yaw.

— See Cowley, W. L., J. F. G. Simmons, and J. D. Coales: The effect of balancing a rudder, by placing the rudder axis behind the leading edge, upon the controlling moment on the machine.

— See Glauert, H.: The longitudinal control of an aeroplane.


Control. See Norton, Frederick Harwood: Practical stability and controllability of airplanes.

See Pannell, J. R., and N. R. Campbell: The balancing of wing flaps.


See Relf, E. F.: Tests on a model of the body of B. E. 9, having a car for mounting a gun in front of the propeller.

See Wing, R. N.: Balanced control surfaces on aircraft.

Conventions. U. S. signs air navigation convention.


Coontz, Robert E. See United States Congress. House. Committee on Naval Affairs; Naval policy of the United States.

Cofland, Harry D. Aerial advertising from Maine to Florida.


Cornell University. See Barnard, W. N.: U. S. Army school of military aeronautics at Cornell University.

Cooling. See Engines: The air cooling of petrol engines.

Corinthwaite, H. G. Altitude determinations based on barometric readings.


Corrosion. Methods for preventing the corrosion of metal parts of aeroplanes.

Aerial Age, Vol. 13, No. 16 (June 27, 1921), New York, pp. 369-370.

Cosmos. The Cosmos 100-horsepower "Lucifer" engine.


See Bourdon, M. W.: Cosmos radial airplane engine designed in England.

Cossira, Henry. Un dirigeable a travers l'Atlantique en 1838: mais . . . c'était un canard d'Edgard Poe.

Vie Aérienne, 5e année, No. 7 (18 sept. 1920), Paris, pp. 101-102, ill.

Cost. The cost of air travel.

Aviation, Vol. 9, No. 7 (Nov. 1, 1920), New York, p. 234.

The cost of running an aeroplane.


Cost of war aviation only $589,090,781.

Aviation, Vol. 10, No. 16 (Apr. 18, 1921), New York, pp. 188-191.

What $698,090,781 bought in war aviation.


See Baumann, Alexander: Die Kosten der Luftreise.

See Stout, William B.: Operation costs of air lines.


Cotton fields. See Agriculture: Raiding outlaw cotton fields by airplane.

See Moulton, R. H.: Detective aeroplane for discovering forest fires and outlaw cotton fields.
COUPET. L'opinion d'un pilote sur le vol sans moteur.
L'Aérophile, 29 année, Nos. 2-3 (1er-15 févr. 1921), Paris, p. xxi.

COURQUIN, A., et G. SERRÉ. Cours d'aérodynamique pratique à l'usage des pilotes et mécaniciens-aviateurs.
Paris, Gauthier-Villars et Cie., 1920, pp. 151, ill.

COURQUIN, A., et G. DUBÉDAT. Technique et pratique de la magneto à haute tension.

COURTNEY, F. T. Air brakes and the sideslip landing.

COURTOIS-SUFFRÉ, R. L'indicateur de stabilité R. Courtois-Suffrit.
L'Aérophile, 29 année, Nos. 11-12 (1er-15 juin 1921), Paris, pp. 164-165, ill.
— See Concours de l'union pour la sécurité en aéroplane. Premiers résultats du concours de 1921.—Les appareils primés.

COUTURIER, ROGER. L'aviation aux État-Unis.
Aéronautique, 3e année, No. 14 (juil. 1920), Paris, pp. 73-78, ill.
— L'avion de marine.
— L'avion métallique en Allemagne.
Aéronautique, 3e année, No. 24 (mai 1921), Paris, pp. 194-200, 249-251, ill.
— Les avions Fokker.
Aéronautique, 1re année, No. 11, (avr. 1920), Paris, pp. 476-478, ill.
— Le gros dirigeable pour le transport civil.
L'Aérophile, 29 année, Nos. 7-8 (1er-15 avr. 1921), Paris, pp. 114-118, ill.
— L'hydravion monoplan "Van Berkel.'
L'Aérophile, 29 année, Nos. 17-18 (1er-15 sept. 1921), Paris, p. XVIII, ill.
— Le monoplan commercial "Fokker F-III.'
— Le moteur Liberty.
Aéronautique, 3e année, No. 23 (avr. 1922), Paris, pp. 152-158, ill.
— Ou en est l'aviation commerciale?
L'Aérophile, 29e Année, Nos. 21-22 (1er-15 nov. 1921), Paris, pp. 322-332, ill.
— Quelques nouveaux types d'avions.
Aéronautique, 3e année, No. 28 (sept. 1921), Paris, pp. 366-367.

COWLEY, WILLIAM LEWIS, and HYMAN LEVY. Aerofoils for airscrew design.

Aeronautics in theory and experiment.
— Critical loading of similar structures.
— Critical loading of struts and structures.
— Economic flight of an aeroplane in a wind.
Cowley, William Lewis, L. F. G. Simmons, and J. D. Coales. The effect of balancing a rudder, by placing the rudder axis behind the leading edge, upon the controlling moment on the machine.


Cowley, William Lewis, L. F. G. Simmons, and J. D. Coales. An investigation to determine the best shape of fairing piece for a cylindrical strut.


Cowley, William Lewis. The stresses in the members of aeroplane bodies and fuselages, due to the aerodynamical loads of the tail system. Part 1.


Cowley, William Lewis, and L. F. G. Simmons. Tests on model aerofoil of R. A. F. 14 section, to compare an aerofoil of uniform section with one modified to represent the sag in the fabric of an actual wing.

Cowley, William Lewis, L. G. Simmons, and J. D. Coales. Tests on the complete model of F. E. 5 aeroplane.


Cowley, William Lewis, and J. D. Coales. Wind forces on aeroplane wires of various sections.


— See Jones, R., W. L. Cowley, and J. D. Coales: The direction and velocity of flow behind a strut.


Cowling. New safety cowling designed to eliminate injury to face.
Aerial Age, Vol. 11, No. 17 (July 5, 1920), New York, p. 569, ill., diagr.

U. S. Air Service, Vol. 6, No. 2 (Sept. 1921), New York, p. 27, ill.

— Cox-Klemin rebuilds Standard with Mercedes motor.
Aerial Age, Vol. 14, No. 2 (Sept. 19, 1921), New York, p. 31, ill.

Cragoe, C. S. Temperatures in spark plugs having steel and brass shells.

Cranking. See Gaulois, G.: Cranking airplane propellers with a flask of air.
Cranwell. At Cranwell training center.  

—— En el campo de aprendizaje de Cranwell.  
Tohli, año 5, Núm. 4 (nov.-dici. 1920), México, p. 399.

—— The R. A. F. training school. A visit to Cranwell.  

Craven, T. T. Aviation estimates before Naval Committee.  

—— Naval air service independence.  

—— Naval aviation and a united air service.  
Flying, Vol. 10, No. 3 (Apr. 1921), New York, pp. 96–100, ill.  

Crawford. The Crawford sport plane.  
Aviation, Vol. 8, No. 7 (May 1, 1920), New York, p. 292, ill.

Creed, G. The "What is it?"  

Crehore, A. C. Planetary attraction and the helium atom.  

Creostani, Giovanni. Il vento nella stratosfera.  

Crispy Field. Crissy Field, San Francisco, Calif.  
Aviation, Vol. 11, No. 15 (Oct. 10, 1921), New York, p. 438, ill.

Croceh, Ernomo. Las garras del águila.  
Tohli, año 5, Núm. 4 (nov.-dici. 1920), México, pp. 213–214.

Crocker, Francis Bacon. The Hewitt-Crocker helicopter.  

Cromwell. Cromwell's brother-in-law had original ideas on flying.  


Cross arm. See Zahm, Albert Francis: Cross-arm wind balance.

Crouse, G. B. Principles of the gyrocompass.  

Crouvezier, G. Cerf-volisme.  

New Haven, Yale University Press, 1921, pp. xxviii, 738, ill.

Crowell, B., and D. Wilhelm. Clipping the wings of the eagle.  

Croydon. Croydon terminal aerodrome.  

—— Croydon to Turin in 9½ hours. The wonderful flight of the Avro Baby.  

—— The first Croydon meeting.  
CROYDON. On the first Croydon race meeting.
The Aeroplane, Vol. 21, No. 12 (Sept. 21, 1921), London, pp. 249-251, ill.

See Races: The Paris to Croydon and back race.

CUBA. Air mail service to Cuba in operation.

See Commercial to Cuba.

CULVER, C. C. What a pilot has to watch.
Aviation, Vol. 10, No. 6 (Feb. 7, 1921), New York, p. 28-29.

CURRISS. Curtiss aeroplanes (Prosecution) (14/6/21).

The Curtiss "Eagle."

The Curtiss Liberty-engined Eagle.
Aviation, Vol. 9, No. 15 (Dec. 27, 1920), New York, p. 483, ill.

The Curtiss model CD-12 400-horsepower aeronautical engine.

The Curtiss twelve.

Curtiss wins suit.

How to build a flying scale model of the Curtiss 18-T triplane.
Aerial Age, Vol. 13, No. 26, Vol. 14, No. 1 (Sept. 5-12, 1921), New York, pp. 625-17, ill.

The new Curtiss Eagle cabin plane.
Aviation, Vol. 8, No. 3 (Mar. 1, 1920), New York, pp. 98-99, ill.

Opening of Curtiss flying field.
Aviation, Vol. 10, No. 21 (May 23, 1921), New York, p. 655, ill.

The trials of the new Curtiss Eagle.

Von der New Yorker Luftfahrtausstellung.

See Chase, H.: Curtiss Navy racer which won the Pulitzer trophy.

See Engines: Curtiss C-6 engine has improved cylinder block and heavier crank shaft.


See Keys, C. M.: Les établissements d’aviation Curtiss.

CURTISS, GLENN HAMMOND. Glenn Hammond Curtiss. A biography.
Aviation, Vol. 10, No. 26 (June 27, 1921), New York, pp. 803-806, ill.

The Langley machine at Hammondsport.
U. S. Air Service, Vol. 6, No. 5 (Dec. 21, 1921), New York, p. 29.

Un mot sur les pilotes.
Vie Aérienne, No. 172 (26 févr. 1920), Paris pp. 988-999, ill.
Curtiss, Glenn Hammond. See Brewer, Griffith: The Langley machine and the Hammondsport trials.


—— The Curtiss “J.N.” New York, 1920, pp. 8, ill.


—— See Keys, C. M.: The Curtiss Corporation after the war.


—— See France: French customs regulations.

—— See Switzerland: Air navigation on and above Swiss waters; Geneva customs aerodrome.

Cylinders. See Dryden, H. L.: Air forces on circular cylinders, axes normal to the wind, with special reference to dynamical similarity.


D.


— Climb of service type DH tested at Langley.

DH-4. Report of static test of the landing chassis of DH—P-34.
Air Service Information Circular (Heavier-than-air), Vol. 1, No. 38 (May 8, 1920), Washington,
Government Printing Office, pp. 8, ill.

D. F. W. The D. F. W. giant biplane.
— See Hildesheim, Erik: Recent D. F. W. aeroplanes.

DAILY EXPRESS prize. Le prix du "Daily Express."
La Conq. FAir, 3e année, No.5 (1er mars 1920), Bruxelles, pp. 52-53.

DAINGERFIELD, LAWRENCE H. Aerological observations during airplane flight above
Hawaiian Islands.

DALBY, W. E. Researches on the elastic properties and plastic extension of metals.

DALLAS, Tex. Dallas organizes aerial police.
Aerial Age, Vol. 14, No. 8 (Oct. 31, 1921), New York, p. 175, ill.

DALSACE, A. La descente en flammes. Ses causes—ses remèdes.
— À propos des avions géants allemands.
L’Aérophile, 28 année, Nos. 5/6 (1er–15 mars 1920), Paris, pp. 76-77.
— À propos des réservoirs à vidange rapide.
L’Aérophile, 28 année, Nos. 5/6 (1er–15 mars 1920), Paris, p. 77.

DAMBLANC. The Damblanc helicopter.
— M. Damblanc on the helicopter.
— Le parachute-hélicoptère de M. Damblanc.

DAMBLANC, LOUIS. Les hélicoptères et les laboratoires d’essais.
— The problem of the helicopter.
— Les vols aux grandes altitudes et les moteurs à compression variable.
BIBLIOGRAPHY OF AERONAUTICS, 1920–1921.

Danielou, M. T. S. F. et navigation aérienne.
L'Aéronautique, 2nd année, No. 18 (nov.–déc. 1920), Paris, pp. 233–238, ill.

Dander, Mario Mele. Airman's international dictionary.

International dictionary of aeronavigation.
Milan, Ulrico Hoepli, 1920, pp. 171.

Daniels, Josephus. Daniels on small aviation appropriation.
Aircraft Journal, Vol. 6, No. 25 (July 2, 1920), New York, p. 16.

Report of Secretary of the Navy on Air Service.

Secretary Daniels on aeronautics.

Secretary Daniels protests to House Committee on Military Affairs and Secretary Baker against assertions of Army officers.

Secretary Daniels urges aeronautic development.
Aerial Age, Vol. 12, No. 25 (Feb. 28, 1921), New York, p. 627.

See Tinker, Clifford Albion: Josephus Daniels and the medal muddle.

Dark. Detecting aeroplanes in the dark.


Darwin, Horace, and C. C. Mason. Effect of wind on the time of flight from one place to another and back again.

Static head-turn indicator for aeroplanes.

David, W. T. The internal energy of inflammable mixtures of coal gas and air after explosion.

Radiation of explosions of hydrogen and air.

Davidson and Bacon. The determination of the effective resistance of a spindle supporting a model aerfoil.

Davies, J. Hudson. See Kaye, G. W. C., and J. Hudson Davies: An investigation into various types of timber splices for aeroplane construction.

Davis, A. H. The heat loss by convection from wires in a stream of air, and its relation to the mechanical resistance.

Davis, J. W. Helium; methods evolved under the stimulus of war to be applied to commercial production.
BIBLIOGRAPHY OF AERONAUTICS, 1920—1921. 105

DAVIS, W. JEFFERSON. Laws of the air.

— Legal aspect of Federal air legislation.
Aviation, Vol. 11, No. 22 (Nov. 28, 1921), New York, pp. 627-628.

— San Diego—the West Point-Annapolis of the air.

DAVIS-DOUGLAS. The Davis-Douglas "Cloudster."

— Davis-Douglas receives Government contract.
The Ace, Vol 2, No. 9, (June 1921), Los Angeles, p. 11.

Dawson, A. Trevor. The commercial airship; its operation and construction.

— See Pratt, H. B.: Commercial airships; with an introduction by Sir A. Trevor Dawson.

DAYNES, H. A. See Further applications of the katharometer.—By Dr. G. A. Shakespeare; with an investigation of some sources of error in the testing of fabrics. By H. A. Daynes.


DAYTON-WRIGHT. The Dayton-Wright R. B. racer.
Aviation, Vol. 9, No. 6 (Oct. 15, 1920), New York, p. 100, ill.

— The Dayton-Wright model FP-2 seaplane.
Aviation, Vol. 11, No. 22 (Nov. 28, 1921), New York, pp. 625-629, ill.

— Dayton-Wright "P. P. 2" survey seaplane.

— Der Dayton-Wright Flügel.

— Der Dayton-Wright RB Racer.

— The new Dayton-Wright wing.


— See Gordon-Bennett: Dayton-Wright challenger for the G. B. cup.


DE HAVILLAND. DH-4 emergency flotation gear.
Aviation, Vol. 11, No. 4 (July 25, 1921), New York, p. 105, ill.

— DH-14 bomber.

— The De H-14 day bomber.
Aerial Age, Vol. 13, No. 8 (May 2, 1921), New York, p. 182.
De Haviland. The DH-18 limousine.
Aerial Age, Vol. 13, No. 10 (May 16, 1921), New York, p. 230.

—— The DH-29 commercial monoplane.
Aviation, Vol. 11, No. 22 (Nov. 28, 1921), New York, pp. 631-632, diagr.

—— De Haviland aircraft.

—— The De Haviland Aircraft Co.’s first product.

—— The De Haviland 18.

—— De Haviland on civil aviation.
Aerial Age, Vol. 12, No. 19 (Jan. 17, 1921), New York, p. 486.

—— The De Haviland 29 commercial monoplane.

—— Easter Sunday and a De Haviland.

—— Floating test of De H-4.
Aviation, Vol. 10, No. 10 (Jan. 3, 1921), New York, p. 16.

—— A new De Haviland passenger carrier.

De Haviland, Geoffrey. De Haviland Aircraft Co. formed.
Aviation, Vol. 9, No. 9 (Nov. 22, 1920), New York, p. 326.

—— Pioneers of British aviation. XLIX. Capt. Geoffrey De Haviland.

De Haviland Aircraft Company. The De Haviland Aircraft Co. (Ltd.).

—— See Great Britain: Modern British aircraft.

De Lancy, W. H. What a model club can do.

De Marcay, Edmond. Edmond De Marcay aeroplanes.
Aerial Age, Vol. 11, No. 26 (Sept. 6, 1920), New York, pp. 869-870, ill.

De Monge. Eindecker De Monge.

—— An interesting French machine.
Aerial Age, Vol. 14, No. 10 (Nov. 14, 1921), New York, p. 221.

De Pischof. The De Pischof avionette.

De Ruyter, S. In memoriam.
Vliegveld, 5e jaarg., No. 5 (26 Feb. 1921), Amsterdam, pp. 74, ill.

De Siebert, Roberto. Chief of Italian Army Air Service.
Aviation, Vol. 9, No. 10 (Nov. 22, 1920), New York, p. 330, ill.

De Windsor, John David. Aerial metropolis of America.
The Ace, Vol. 2, No. 5 (Dec. 1920), Los Angeles, p. 9, ill.


Decker, W. F. The story of the engine. From lever to Liberty motor.
New York, Scribners, 1920, pp. xx, 277, ill.

Dedet, Jacques. Le coin du médecin.

Deeds. See Barnes, John K.: The vindication of Squier and Deeds. What really happened to the billion-dollar aircraft appropriation.

Deeds, E. A. Aviation of the future.
Aircraft Journal, Vol 6, No. 8 (Feb. 21, 1920), New York, pp. 3-4, 8-9, ill.

— The future of aviation.

Defense. See Naef, Ernest: Notre défense aérienne.

Degen, Jacob. See Caro, I.: Aviones que no volaron.

Delage, Yves. Application du tube de Pitot à la détermination de la vitesse des navires et à l’enregistrement des espaces parcourus.

Denby, Edwin B. Secretary Denby launches merchant seaplane.
Aviation, Vol. 10, No. 19 (May 9, 1921), New York, p. 396, ill.

Denmark. Customs aerodromes and seaplane station at Copenhagen.

Department of Aeronautics. See Curry, Charles F.: The necessity for a department of aeronautics.

— See Sinsheimer, A.: Another bill to establish an aeronautic department.

— See Sinsheimer, A.: Bill to create a department of aeronautics.

Depew, Richard H., Jr. Civil aviation schools.
Aviation, Vol 10, No. 8 (Feb. 21, 1920), New York, pp. 231-232.

Depreciation. Aircraft depreciation.

— Aircraft depreciation and costs.

Depression. See Gilles, G.: La chambre à dépression de Friedrichshafen.

Derby. Aerial derby.
The Aeroplane, Vol. 20, No. 22 (June 1, 1921), London, p. 812.

— The aerial derby and Oxford and Cambridge air race.
Aeronautics, Vol. 21, n. s., No. 404 (July 14, 1921), London, pp. 22-24, ill.

— Aerial derby at a glance.
Flight, No. 655, Vol. 13, No. 28 (July 14, 1921), London, pp. 472-473, ill.

— Aerial derby competitors.
The Aeroplane, Vol. 21, No. 2 (July 13, 1921), London, p. 27, ill.

— The aerial derby, 1921. A fine list of entrants.
Flight, No. 655, Vol. 13, No. 28 (July 14, 1921), London, pp. 468-470, ill.
BIBLIOGRAPHY OF AERONAUTICS, 1920–1921.

DERBY.  The British aerial derby.

— Entries for the aerial derby.

— Impressions at the derby.
The Aeroplane, Vol. 21, No. 3 (July 20, 1921), London, p. 62.

— Machines in the aerial derby.

— On the aerial derby.
The Aeroplane, Vol. 21, No. 2 (July 13, 1921), London, p. 25; No. 3 (July 20, 1921), pp. 45–50, 61, ill.

— The sixth aerial derby and the Oxford v. Cambridge air race.

— The winner of the aerial derby.

— The winner of the derby.  Some notes on the Mars I.

— World aerial derby plans progressing.
Aerial Age, Vol. 12, No. 17 (Jan. 3, 1921), New York, p. 435.


DERIVOMETER.  See Brion, Maurice: L’emploi du derivomètre dans le voyage aérien.

DES GACHONS, ANDRÉ.  La prévision du temps par l’aspect du ciel et les nuages.

DESERT.  The desert route to the east.

DESIGN.  Airplane with longitudinal wings.
Illustrated World, Vol. 34 (Sept. 1920), Chicago, p. 45, ill.

— Airplanes built lengthwise.
Literary Digest, Vol. 65 (June 12, 1920), New York, p. 36, ill.

— Airplanes that are different.

— Fundamental principles in aeroplane design.
Aerial Age, Vol. 14, No. 11 (Nov. 21, 1921), New York, p. 243.

— Latest designs in airplane bodies; photographs.

— Longitudinal airplanes: Is it practical?

— Our designing staffs and their future.  A word of warning.

— Problems in design.

— Standardization in aeroplane design.

— Trend of airplane design.

— Wind tunnels and airplane designs.
Scient. Amer., Vol. 121 (Dec. 6, 1919), New York, p. 555, ill.

— See Bairstow, Leonard, and E. F. Reif: Multiple-engined aeroplanes.

— See Bairstow, Leonard, E. F. Reif, and C. H. Powell: Notes on the performance of aeroplanes, based on a reduction of the observations made at the Central Flying School during the acceptance tests of aeroplanes.

— See Bairstow, Leonard: Notes relating to the aerodynamics of aeroplane design.

— See Bairstow, Leonard, and E. F. Reif: Proposals for experiments on aeroplanes in flight.

— See Bishop, Percy: Characteristics of design affecting production, operation, and maintenance of aircraft.


— See Thomas, G. Holt: Aeroplane design, German capacity, and our Empire's future in the air.

DESMONS, ROBERT. L'aviation coloniale.


DETROIT. The Detroit aerial water derby.


— Detroit air meetng. September 8-10, 1921.


— Great aviation field at Detroit.

The Navigator, Vol. 1, No. 22 (July 24, 1920), Pensacola, Fla., p. 4.

— Program and conditions of the Detroit aerial water derby, including the Curtiss marine trophy, class and invitation events to be held in Detroit the first week in September, 1922.


DETTMAR, G. Die Kennzeichnung der Freileitungen für Luftfahrer.


DEUTELMOSER, FERDINAND. Der Flug.

Flug. 8. Jahrg., Nr. 3-4 (1. Feb. 1921), Wien, pp. 10-12, iii.

DEUTSCH DE LA MEURTHE, HENRY. The Coupe Deutsch.


— The Coupe Deutsch de la Meurthe. To be flown on Saturday.


— The Deutsch de la Meurthe trophy.


— See Bouché, Henri: La coupe Deutsch.

— See Lémonon, E. H.: La coupe internationale Deutsch de la Meurthe.

DEUTSCH DE LA MEURTHE, HENRY. Coupe Henry Deutsch de la Meurthe.


— The Deutsch de la Meurthe trophy race.

— Henry Deutsch de la Meurthe aviation cup.

— Henry Deutsch de la Meurthe international contest. General regulations.

See Aero Club of France: The A. C. F. grand prix.

Deutscher Luftschafter-Verband. Amtliche Mitteilungen.

Deutsche Luft-Reederei. Eine Million Kilometer im Luftverkehr.

Development. The development of fighting aircraft.

Devillers, Rene. Dynamics of the aeroplane. Translated by Capt. Wm. John Walker, R. A. F.

La dynamique de l'avion.
Paris, E. Chiron, 1920, pp. 267, ill.

Le moteur à explosions.

The problem of the turbo-compressor.

Dibble, John. See Truby, Albert E., and John Dibble: Operation of the Medical Division of the Air Service since the signing of the armistice.

Dichman, Ernest W. Airplane cost in hydroelectric work.
Engineering and Contracting, Vol. 54 (Nov. 10, 1920), Chicago, pp. 470-471.

Dick. Der Luftschiffbau und Schutte-Lanz.


BIBLIOGRAPHY OF AERONAUTICS, 1920–1921.

111

DICKINSON, HOBERT CUTLER, W. S. JAMES, and R. V. KLEINSCHMIDT. Heat dissipation and other properties of radiators.

DICKINSON, HOBERT CUTLER, and FLOYD BELL NEWELL. High-speed engine pressure indicator of the balanced diaphragm type.

DICKINSON, HOBERT CUTLER, F. B. SILSBEE, and P. G. AGNEW. Methods for testing spark plugs.


DICKINSON, HOBERT CUTLER. Results of tests on radiators for aircraft engines.

DICKINSON, HOBERT CUTLER, and R. V. KLEINSCHMIDT. Synopsis of aeronautical radiator investigations for the years 1917 and 1918.

DICKINSON, HOBERT CUTLER, W. S. JAMES, and G. V. ANDERSON. Variation of horsepower with altitude and compression ratio.
Aerial Age, Vol. 11, No. 2 (Mar. 22, 1920), New York, pp. 54-57.
— Variation of horsepower with temperature.

DIECKMANN, MAX. Funkentelegraphische Ortsbestimmung für Luftfahrzeuge.

DIEHL, WALTER S. The determination of downwash.
Technical Notes, National Advisory Committee for Aeronautics, No. 42 (Jan. 1921), Washington (mim.), pp. 8, diagr.
Aerial Age, Vol. 12, No. 26 (Mar. 7, 1921), New York, pp. 655-656.
Aviation, Vol. 10, No. 20 (May 16, 1921), New York, pp. 635-637.
— Downwash and the determination of aerodynamic angles of attack of horizontal tail surfaces.
— The variation of aerofoil lift and drag coefficients with changes in size and speed.
Aerial Age, Vol. 13, No. 22 (Aug. 8, 1921), New York, pp. 518-520.

DIERFELD, BENNO R. The Hawa commercial triplanes.

DIESEL. A German Diesel airplane engine.
Aviation, Vol. 9, No. 9 (Nov. 15, 1920), New York, pp. 287-288, ill.
BIBLIOGRAPHY OF AERONAUTICS, 1920–1921.

DIESK. Semi-Diesel engines.
Aerial Age, Vol. 12, No. 21 (Jan. 31, 1921), New York, p. 544.

—— Twin-piston Diesel engine designed for use in aircraft.

DIETZIUS, ROBERT. Die Aenderung des Windes mit zunehmender Höhe.

—— Der Nebel im Herbst und Winter in Wien und Lemberg.

—— Welche Ballastmengen sind notwendig, um den Fall eines Freiballoncs zu bremsen?

—— Westwind in der Höhe bei südöstlichem Wind unten.

—— Die Winde über Verona, in Oberitalien.

DIGEST. See Aeronautical digest.

DIME, Eric A. What Europe is doing in aviation—Americans, please take notice!
Scient. Amer., Vol. 122 (May 1, 1920), New York, p. 489, ill.

DINES, W. H. Table of temperature, pressure and density at different levels up to 20 kilometers.

DIRECTION. Radiogoniomètres de bord.

—— Direction finding in relation to aircraft.

—— See Bellini-Tosi: Direction and position finding. The Bellini-Tosi system.

—— See Kolster: Kolster’s direction finder.

—— See Morris, J.: The sense of direction.

DIRECTORY. The aeronautical directory of the world.

DIRIGIBLES. Airship performance facts.
The Ace, Vol. 2, No. 4 (Nov. 1920), Los Angeles, p. 11, ill.

—— The Astra Torres airship.

—— L’avvenir dei dirigibilinel commercio.

—— Comparative study of the efficiency of various dirigibles.
Aerial Age, Vol. 13, No. 20 (July 25, 1921), New York, p. 470.

—— Un dirigeable à air rarifié.
Suisse Aérence, 3e année, No. 22-23, 1921, Berne, pp. 324-335.

—— Le dirigeable pour les raids transocéaniques.
Suisse Aérence, 2e année, No. 24 (31 déc. 1920), Berne, pp. 370.

—— Dirigible prospects in United States and England.

—— Dirigible vedette “Sport y Turismo.”
Tochtli, año 6, Núms. 1 y 2 (enero y febrero 1921), México, p. 66, ill.
DIRIGIBLES. Dirigeables et aérostats pendant la guerre.
L'Aérophile, 28 année, Nos. 7-8 (1er-15 avril 1920), Paris, pp. 121-123, ill.

— Dirigeables superior for forest-fire prevention.

— See Becerril, Benjamin: Dirigibles militares.


— See Dollfus, Charles: Les precurseurs du ballon dirigeable rigide.

— See Périssé, Yves: Au sujet des dirigeables militaires pendant la guerre.


— See Tanzi, J.: La technique des dirigeables rigides allemands.

— See United States Navy Department: Notes on the operation of nonrigid airships.

DISTANCE. The accurate measurement of distance.

DIXIE magnetos. Comparative merits of Dixie magnetos and Delco battery ignition system when used on Liberty "12" aero engine. (Power plants report No. 76.)

DOBSON, G. Meteorology in the service of aviation.

DOBSON, G. M. B. Design of instruments for navigation of aircraft.

— Observations of wind structure made at Upavon in 1914.

DODEN, GUSTAV. Gewerbelehre.
München und Berlin, R. Oldenbourg.

DÖRING, HERMANN. Versicherung und Luftverkehr.
Berlin, E. S. Mittler & Sohn, 1921. (Heft 29 der Veröffentlichungen des Vereines für Versicherungswissenschaft), pp. 93.

DOLLFUS, CHARLES. Les collections de l'aéronautique.
Aéronautique, 3e année, No. 31 (déc. 1921), Paris, pp. 505-506, ill.

— La coupe Gordon-Bennett des ballons libres.
Aéronautique, 3e année, No. 29 (oct. 1921), Paris, pp. 413-414.

— Étude historique sur les projets de traversée de l'Atlantique en ballon.
Aéronautique, 1e année, No. 9 (févr. 1920), Paris, pp. 380-386, ill.

— Les precurseurs du ballon dirigeable rigide.
Aéronautique, 2e année, No. 18 (nov.-déc. 1920), Paris, pp. 221-226, ill.

— Sur quelques postes de commande des gouvernails d'avions.
Aéronautique, 3e année, No. 22 (mars 1921), Paris, pp. 113-115.

— See L'année aéronautique.

Dolman, Perc. A consideration of some tests for determining the sighting eye.

— The Maddox multiple red rod: A consideration of its optical defects.

— The Maddox rod and a screen test combined.

— The relation of the sighting eye to the measurement of heterophoria.

Dominikus, Alfred. Die wirtschaftliche Bedeutung der brasilianischen Kautschukgewinnung einst und jetzt.

Dommett, W. E. Detail design of rigid airships.
Aeronautics, Vol. 18, No. 324 (Jan. 1, 1930), London, pp. 4-8, ill.

Donaldson, J. O. Impressions de vainqueurs: d'un continent à l'autre et retour.
Vie Aérienne, No. 164 (1er Jan. 1930), Paris, pp. 856-857, ill.

Donehower, Emile. People have always wanted to fly.

Donibristle. Donibristle aerodrome—ground leveling.
Flight, No. 630, Vol. 13, No. 3 (Jan. 29, 1921), London, p. 43.

Doorman, K. De funie van marine-luchtvartdienst en luchtvartafdeeling.

Doors, hangar. See Hangars: New type of door at Reno hangar.

Dope. Dopes and protective coverings.
Aviation, Vol. 10, No. 16 (Apr. 18, 1921), New York, pp. 502-504.


— Tests of fireproof airplane dope and equipment.

See Aston, F. W.: Fabric and dope, with special reference to deterioration of strength and tautness.


See Barr, Guy: The extraction of valuable materials from "suint."

See Barr, Guy, and L. L. Bircumshaw: Notes on cellulose acetate.

See Barr, Guy, and W. R. G. Atkins: On the influence of acidity in the solvent.

See Barr, Guy: Preliminary experiments with methyl-ethyl-ketone.


See Barr, Guy: Weathering and other tests on dopes containing acetone substitutes.

See Fabrics: Fabrics and dopes.
BIBLIOGRAPHY OF AERONAUTICS, 1920—1921.

Dope. See Felgate, Russell A.: Wing dope from historic, technical side.
— See Gasoline: Dopes for gasoline.
— See Hopp, Geo.: Coating airplane wings mechanically.
— See Instruments: Tautometer for testing doped surfaces.
— See Phenix: Phenix fireproof dope.
— See Wilson, Edith G.: Note re yellow acetone oil.

DORAND. Comparaison entre les avions monoplans et biplans.
Aéronautique, 3e année, No. 25 (juin 1921), Paris, pp. 239-240.

DORAND, E. Utilisation des résultats des essais faits sur petits modèles au tunnel aérodynamique pour le calcul des avions en vaine grandeur.

DORÉT, CLAUDE. Ardeurs défuntes.
— L’autre son de cloche.
Vie Aérienne, No. 178 (8 avril 1920), Paris, p. 1066.
— Aviation militaire d’abord.
— Bienveillamment.
— Dures vérités.
Vie Aérienne, No. 179 (15 avril 1920), Paris, pp. 1102-1103.
— En feuilletant.
— L’épreuve.
Vie Aérienne, No. 164 (1er janv. 1920), Paris, pp. 846-847.
— 15248 avions.
Vie Aérienne, No. 182 (6 mai 1920), Paris, p. 1142.
— Héros disparus: le sergent Jaouen.
Vie Aérienne, No. 188 (17 juin 1920), Paris, pp. 1194-1195, ill.
— Ironie!
— “Je vais changer tout cela.”
— Laissons-la nos rêves.
Vie Aérienne, No. 167 (22 janv. 1920), Paris, p. 916.
— Liquidation des stocks.
Vie Aérienne, No. 190 (1er juill. 1920), Paris, pp. 1211-1212, ill.
— L’obstacle au progrès.
Vie Aérienne, No. 177 (1er avril 1920), Paris, pp. 1070-1071.
— Pourquoi?
Vie Aérienne, No. 180 (22 avril 1920), Paris, p. 1118.
DORET, CLAUDE. Réconfort. 

—— Les réserves. 
Vie Aérienne, No. 109 (22 juil. 1920), Paris, p. 1280.

—— Resurrection? 

—— Scapa-flow aérien. 

—— Simple question. 
Vie Aérienne, No. 175 (18 mars 1920), Paris, p. 1038.

—— Sommes-nous menacés? 
Vie Aérienne, No. 184 (20 mai 1920), Paris, p. 1158.

—— Un succès de curiosité. 
Vie Aérienne, No. 165 (1er janv. 1920), Paris, p. 802.

—— La vraie solution. 


DORMAN. Dorman wave-power transmission tools. 

DORNIER. Demonstratief van een Dornier-vliegboot te Rotterdam. 
Vliegveld, 5e jaarg., No. 9 (28 Apr. 1921), Amsterdam, pp. 126-127.

—— The Dornier Cs. II commercial flying boat. 185-horsepower B. M. W. engine. 

—— Das Dornier Cs. 2 1920-Flugboot der Zeppelinwerke Lindau G. m. b. H. 

—— The Dornier C. III cabin airplane. 
Aviation, Vol. 10, No. 23 (June 6, 1921), New York, p. 720, ill.

—— The Dornier "Dragon Fly" flying boat. 

—— Das Dornier-Kleinflugboot "Libelle" . . . 

—— Dornier machines. 
Aerial Age, Vol. 13, No. 6 (Apr. 18, 1921), New York, p. 134.

—— Dornier Metallflugzeuge. 

—— Die Dornier-Metall-Flugzeuge der Zeppelinwerke Lindau G. m. b. H. 

—— Dornier-Metall-Flugzeuge, Typ Do. C. II. und Do. Cs. II. 

—— Die Dornier-Metallverkehrsfugzeuge. 
Luftweg, Nr. 11-12 (24. März 1921), Berlin, pp. 81-85, ill.

—— The Dornier twin-engined monoplane, type G. 1. 
Aerial Age, Vol. 13, No. 18 (July 11, 1921), New York, p. 422.

—— The Dornier twin-engined monoplane, type G. 1. Two 185-horsepower B. M. W. engines. 
Flight, No. 650, Vol. 13, No. 23 (June 9, 1921), London, p. 394, ill.

—— Dornier types. 
DORNIER. Ein neues Dornier-Kleinfliugboot: die Dornier-“Libelle”...

--- A new Dornier monoplane.

--- A new German all-metal machine. The Dornier C3, 185-horsepower B. M. W. engine.

--- A novel twin-engined machine.

--- Some Dornier “milestones.”

--- Velivoli Dornier.
Rivista marittima (nov.-dic. 1920), Roma, pp. 30-34, ill.


--- See Hildesheim, Erik: Dornier all-metal cantilever monoplane.

--- See Hildesheim, Erik: The Dornier flying boats.

--- See Hildesheim, Erik: The Dornier giant flying boats.


DORT, R. G. Modern wing coverings—materials used and their application.

--- Reasons behind modern wing coverings.
Aircraft Journal, Vol. 6, No. 14 (Apr. 3, 1920), New York, pp. 5-6, ill.

DOUGLAS, C. K. M. Clouds as seen from an aeroplane.

DOUGLAS, DONALD W. The airplane as a commercial possibility.

--- Donald W. Douglas.
The Ace, Vol. 2, No. 6 (Jan. 1921), Los Angeles, pp. 18, 23, ill.

DOUGLAS, HOWARD T. The late Capt. Howard T. Douglas.
Aerial Age, Vol. 13, No. 15 (July 11, 1921), New York, p. 412.

DOUGLAS, WILLIAM D. Strength test of main plane ribs. Method employed at the R. A. E.

DOUGLAS fir. See Wood: Strength of southern pine and Douglas fir compared.

DOWD, R. E. The aeronautics of the flying fish.
Aerial Age, Vol. 12, No. 18 (Jan. 10, 1921), New York, pp. 464-465.

DOWNWASH. See Diehl, Walter S.: The determination of downwash.


DOWSETT, H. M. Wireless telegraphy and telephony.

DRAG. See Diehl, Walter S.: The variation of aerofoil lift and drag coefficients with changes in size and speed.


--- See Munk, Max M.: The drag of Zeppelin airships.
**BIBLIOGRAPHY OF AERONAUTICS, 1920–1921.**

**DRAG.** See Munk, Max M.: The minimum induced drag of aerofoils.

— See Zahm, Albert Francis, R. H. Smith, and G. C. Hill: The drag of C class airship hull with varying length of cylindric midships.

**DRAG coefficient.** See Reif, E. F.: An estimation of the variation of the drag coefficient of a rigid airship form, from model size to full scale.

**DRAGON Fly.** See Dornier: The Dornier “Dragon Fly” flying boat.

**DREXLER.** See Gradenwitz, Alfred: German gyro gauges. The Drexler aircraft steering gauge.

**DREYER, GEORGES.** See Great Britain. Privy Council. Medical Research Council: The medical problems of flying . . .

**DRIFT.** A possible new method of measuring drift.


**DRIFTOGRAPH.** Driftograph.


**DRIGGS, LAURENCE LA TOURETTE.** Clipped wings.

U. S. Air Service, Vol. 4, No. 5 (Dec. 1920), New York, p. 34.

Outlook, Vol. 126 (Nov. 24, 1920), New York, pp. 554-555, ill.

— Football in the air. How the late Wilbert White tackled a Hun above the Marne.


— Is flying dangerous?

Outlook, Vol. 126 (Nov. 16, 1920), New York, pp. 460-462, ill.

— Laurence Drigge prophesies San Francisco to New York in six hours.


— Speed thirst satisfied.

Outlook, Vol. 126 (Sept. 8, 1920), New York, pp. 57-58, ill.

— We’ll all take a flight.


**DRIVE.** See Kutzbach, K.: Experience with geared propeller drives for aviation engines.

**DROESBERG.** Note sur les hélices aériennes.

La Conq. l’Air, 3e année, No. 5 (1er mars 1920), Bruxelles, pp. 56-57.

**DRUCKLUFT-LUFTENVENTILATOR mit Auspuffstrahldüse.**


**DROZDEN, HUGH LATIMER.** Air forces on circular cylinders, axes normal to the wind, with special reference to dynamical similarity . . .


**DRZEWIECKI.** Détermination approximative de la masse d’air que met en mouvement une aile d’hélice.

L’Aérophile, 20e année, Nos. 11-12 (1er-15 juin 1921), Paris, pp. 170-173, ill.

**DRZEWIECKI, STEFAN.** See Grzędziński, January: Stefan Drzewiecki.


L’Aérophile, 29e année, Nos. 9-10 (1er-15 mai 1921), Paris, pp. 139-148, diags.
Reviewed in; Flug. Jahrg.1920, Nr. 5 (Mai), Wien, p. 68; Flug, Sondernummer (Des. 1920), p. 127.
— See Watts, Henry C.: The design of screw propellers, with special reference to their adaptation for aircraft.

Dubédat, G. See Courquin, A. et G. Dubédat: Technique et pratique de la magneto à haute tension.

Dubowsky. Das Fliegen als Beruf.
Flug, Sondernummer (Des. 1920), Wien, pp. 81-84, ill.

Ducros. L’alimentation des moteurs d’aviation.
Aéronautique, 2e année, No. 18 (nov.-déc. 1920), Paris, pp. 247-250, ill.

Dübendorf. Dübendorf aérodrome.
— See Naef, Ernest: Une visite à Dübendorf.

Duffield, W. G. Meteorology: Lightning.
Air Power, Vol. 6, No. 6 (June 1920), New York, pp. 174-175, ill.

Dugit. Appareils de bord à deux aiguilles.
Vie Technique et Industrielle, Vol. 2, No. 16 (janv. 1921), Paris, pp. 323-327, ill.
— L’échelle rectiligne à divisions équidistantes appliquée à la mesure et à la division des angles et les appareils de mesure à sensibilité constante.
Aéronautique, 3e année, No. 22 (mars 1922), Paris, pp. 120-121, ill.

Duguid, Alan. Aviation in India.

Dumanois, M. P. Essences et combustibles employés en aviation.
L’Aérophile, 29e année, Nos. 5-6, 7-8 (1er-15 mars, 1er-15 avril 1921), Paris, pp. 92-93, 110-114.

Dumbleton, J. E. Principles and practice of air navigation.


Dumping. The antidumping amendment.
Aviation, Vol. 10, No. 21 (May 23, 1921), New York, pp. 654-655.
— Antidumping injunction granted.

Dunlap, Matthew Elbridge. Moisture-resistant finishes for airplane woods.
One of a series of eight monographs prepared by the Forest Products Laboratory of the Forest Service, U. S. Department of Agriculture.


Du Plessis de Grenedan. Sur l’utilisation du rigide “Dixmude” ...
Aéronautique, 2e année, No. 18 (nov.-déc. 1920), Paris, p. 256.

Duralumin. Composition and properties of duralumin.
— See Lewe: Festigkeitsprüfungen eines Holz- und eines Durschswimmers.
DURALUMIN. See Stout, William B.: Duralumin, its characteristics and use.

DURAND, WILLIAM FREDERICK. Analysis of the need for civil aviation.

DURAND, WILLIAM FREDERICK, and EVERETT PARSONS LESLEY. Experimental research on air propellers, III.
— Experimental research on air propellers, IV.
— Tests on air propellers in yaw.

DURATION. Le record de durée en avion Battu sur Farman-Goliath à 2 moteurs Salmon 260 HP. piloté par Bossoutrot et Bernard.
L'Aérophile, 28 année, Nos. 11-12 (1er-15 juin 1920), Paris, pp. 161-163, ill.

DURFEE, W. C. Elements of a general theory of airplane wing design.
Mechanical Engineer, Vol. 41 (Sept. 1919), New York, pp. 728-729, diagr.

DURWARD, J. The variation of wind with place.

DUST. A dust explosion and its prevention.
Aerial Age, Vol. 13, No. 7 (Apr. 25, 1921), New York, p. 158.

DUTCH. A Dutch passenger carrier.
— A Dutch seaplane.
— New Dutch air service.
— See N. A. V.: A new Dutch commercial aeroplane.

DUTERTRÉ, C. Les transports aériens en Guyane Française.
Aéronautique, 3e année, No. 27 (août 1921), Paris, pp. 320-328.

DUVAL. Discours de M. le général Duval.
— Le Général Duval quitte l'aéronautique.
Aéronautique, 1e année, No. 9 (févr. 1920), Paris, pp. 379, ill.

DUVAL, A. B. Le cercle calculateur de routes et de viteses.
Aéronautique, 2e année, No. 16 (sept. 1920), Paris, pp. 155-157, ill.
— Traité pratique de navigation aérienne.

DUVAL, MAURICE. L'avenir commercial de l'aviation.
Ingénieur, Vol. 36, No. 11 (mars 12, 1921), Paris, pp. 199-203.

St. Louis, A. L. Dyke, 1920, pp. 946, charts, ill.

Dynamometer. Aircraft dynamometer hub.
See Stieber, W.: The dynamometer hub.


Dyott, G. M. An air-route reconnaissance from the Pacific to the Amazon.

E.

E. D. The E. D. 1,000-horsepower engine.
Aerial Age, Vol. 13, No. 11 (May 23, 1921), New York, p. 255.

Eagle. The “Eagle” aerial ambulance crash.
See Photography: The Eastman aerial camera.

Eaton, Herbet N. See Hersey, Mayo D., Franklin L. Hunt, and Herbert N. Eaton. The altitude effect on air speed indicators.

Eberhardt, Carl. Flugtechnik.
Berlin und Leipzig, Walter de Gruyter & Co., 1921, pp. 100, ill.

Das Höhenflugzeug der Zukunft.
Motorwagen, Vol. 24, No. 20 (25 Juli 1921), Berlin, pp. 405-408, ill.
44439—25—9
EBBERHARDT, Carl. Luftschifffahrt.

EBBERHARDT, W. Rhön-Segelflug-Wettbewerb 1921.

EBE, Fritz, i. e. Friedrich Ludwig. Ueber die Wirkungsweise zylindrischer Sonde zur Untersuchung aerodynamischer Felder . . .
Basel, 1920, pp. 23, diagrs., pls.
Inaug. diss.—Univ. Basel.

EHLÉ, L. Variabilité de la composition de l'atmosphère.

EBNER. Das Flugwesen in Amerika.

EBNER, A. Amtliche Enthüllungen über die Zustände der amerikanischen Flugzeugindustrie während des Krieges.

— Das englische Luftministerium und die air navigation bill.

— Englischer Luftimperialismus und deutsche Luftpolitik.

— Frankreich und der deutsche Flugzeugbau.

— Luftfahrt und Polizei.

— Luftfahrt und Völkerrecht.

— Luftverkehr und Flugzeugbau im zukünftigen England.

— Nachkünig vom Monaco-meeting.

— Der Rechtszustand in Italien auf dem Gebiete der Luftfahrt.

— Seely und das englische Luftamt.

ECUADOR. Aviation in Ecuador.

ECHOLS, O. P. Aerial artillery observation in mobile warfare.
U. S. Air Service, Vol. 3, No. 6 (July 1920), New York, p. 32.

ECKERSLEY, P. P. Duplex wireless telephony; some experiments on its application to aircraft.

ECKLEY, Ralph B. Promoting a municipal field.
Aviation, Vol. 11, No. 18 (Oct. 31, 1921), New York, p. 510.

ECKSTEIN. Rechtsumschau: Maschinenlieferung mit vorbehaltenen Preisen und Umsatzsteuer.

— Rechtsumschau: Nachbesserungen und Schadenersatz bei Flugzeuglieferungen und Reparaturen.
— Rechtsumschau: Verletzung von Kindern durch unvorsichtiges Fliegen.
Eclipses. See Photography: To photograph eclipses by airplane.
Econom. Der derzeitige Stand unserer Luftschifffahrt.
Edgerton, James C. Radio as applied to air navigation in the air mail service.
Eggleson. Aerodynamical report and tests on the Eggleson air-cell giant biplane.
   Aerial Age, Vol. 14, No. 14 (Dec. 12, 1921), New York, pp. 323-324, 326, ill.
Edstrom. The Edstrom wire wrapping machine.
   Aviation, Vol. 8, No. 2 (Feb. 15, 1920), New York, p. 64, ill.
Effendi. East African aeroplane work.
Egypt. Egypt as an air center.
— Etudes sur l’hélice aérienne, faites au laboratoire d’Auteuil.
— See Fournier: L’œuvre du laboratoire aérodynamique Eiffel pendant la guerre.
Eiffel, G. Résumé des principaux travaux exécutés pendant la guerre au laboratoire aérodynamique Eiffel.
Eisenlohr, Roland. Einige “Papierleistungen” der englischen Flugzeugindustrie.
   Luftweg, Jahrg. 4, Heft 36-37 (23. Sept. 1920), Berlin, pp. 19, ill.
— Die konstruktiven Grundlagen der Verkehrsflugzeuge.
   Flug, Sondernummer (Dec. 1920), Wien, pp. 72-78, ill.
— Luftverkehr-Aussichten.
— Zusammengesetzte Querschnittkonstruktion in Holz.
   Flug, Jahrg. 1920, Nr. 5 (Mai), Wien, pp. 54-55.
El Khanka. The relation of bumpiness to lapse of temperature at El Khanka, near Cairo, from July 27 to August 3, 1920.
Elderkin, P. N. See Gray, G. F., J. W. Reed, and P. N. Elderkin: Air fans for driving generators on airplanes.
Electric drill. A portable electric drill.
Electric drive. Can a successful electrically driven aeroplane be produced?
   Aerial Age, Vol. 12, No. 3 (Sept. 27, 1920), New York, p. 82, ill.
BIBLIOGRAPHY OF AERONAUTICS, 1920-1921.

Electrically heated clothing. See Clothing: Electrically heated aviator’s clothing.

Electricity. See Atmospheric electricity.


Elektron. "Elektron."


— Elektron metal.

Aerial Age, Vol. 13, No. 14 (June 13, 1921), New York, pp. 325-326.

Elevators. Full-scale experiment on the moment about the hinge of the air forces on an elevator. Experiment on R. A. F. whirling arm.

— See Glaeuer, H.: Full-scale experiments with elevators of different sizes.


Ellington, E. L. The present position of aircraft research and contemplated developments.


Ellis, H. C. A 25-inch-spread monoplane.


— Compressed air driven monoplane.


— A 34-inch-spread monoplane model.


Ellis, M. M., and Carl N. Larsen. A device adapting the Barany chair to rebreather tests.


Ellis, M. M. Respiratory volumes of men during short exposures to constant low oxygen tensions attained by rebreathing.


Elmendorf, Armin. Data on the design of plywood for aircraft.


— The design of Monocoque fuselages.

Aviation, Vol. 9, No. 4 (Sept. 15, 1920), New York, pp. 112-114, diagr.

— Factors affecting the warping of plywood.

Aviation, Vol. 8, No. 1 (Feb. 1, 1920), New York, pp. 25-27, ill.

— Plywood in airplane construction.


ELTON, Robert W. Aerial mapping.

Aircraft Journal, Vol. 6, No. 28 (June 21, 1920), New York, pp. 5-6.

— The Fairchild distant control for aerial cameras.


— Mounting of cameras in airplanes.

EMERGENCY flotation gear. Description and test of DeH-4 emergency flotation gear. 
Engineering Division, Air Service, Technical Orders, No. 8 (Sept. 1919), Dayton, Ohio, pp. 51-55, figs.

ENGBERDING, Weltluftschifffahrt ohne Deutschland?
Luftweg, Nr. 45-46 (17. Nov. 1921), Berlin, pp. 317-318.

ENCKE, JOACHIM. Die funkentelegraphische Organisation eines Luftfahrtmizichtenwesens.

ENDURANCE. Endurance of aircraft.

ENGINE valves. See Monel: Monel for engine valves.

ENGINEERING. Does engineering in aeroplane design pay?
Aerial Age, Vol. 14, No. 3 (Sept. 26 1921), New York, p. 51.

Education in aeronautical engineering.

The need for more engineering in aeroplane design.
Aerial Age, Vol. 14, No. 2 (Sept. 19, 1921), New York, p. 27.

ENGINES. A. M. U. A. L. engines.

Aero engines at Olympia.
Flight, vol. 12, No. 29 (July 6, 1920), London, pp. 728-733, ill.

Aero engines, drive pumps and dynamos.
Pop. Mech., Vol. 34 (Nov. 1920), Chicago, p. 693, ill.

Aeromarine U-8 180-horsepower engine.
Aviation, Vol. 9, No. 12 (Dec. 6, 1920), New York, pp. 387-388, ill.

Aeroplane engine inspection.

The air cooling of petrol engines.

Airplane to have engines along and within wings.

Aircraft-engine development.
Aviation, Vol. 11, No. 12 (Sept. 19, 1921), New York, p. 344, ill.

An American engine programme.

Army and Navy development of aero engines.

The B. M. W. 6-cylinder 185-horsepower engine.
Aviation, Vol. 10, No. 12 (Mar. 21, 1921), New York, pp. 370-371, ill.

Aviation a moteur; extraits.
Suisse Adrienne, 3e année, No. 15 (10 août 1920), Berne, pp. 227-229.

Ballonmotoren.
Avia, 9e jaarg., No. 8 (1 Sept. 1920), Rotterdam, pp. 94-97.

British aero engines.

Blast engine with reaction jet propulsion; abstract.
Engines. Coupling of aero engines.
Aerial Age, Vol. 13, No. 19 (July 18, 1921), New York, p. 446.

— Curtiss C-6 engine has improved cylinder block and heavier crank shaft.
Automotive Industries, Vol. 43 (July 26, 1920), New York, p. 300, ill.

— De carbolyseur Courtier.
Vliegveld, 5e Jaarg., No. 24 (26 Nov. 1921), Amsterdam, pp. 328-339.

— Design of supercharged aircraft engines.

— The design of supercharged and over-dimensioned aircraft motors.

— Development of aero engines since 1914.

— Development of aeronautical engines by the Army and Navy.
Aerial Age, Vol. 13, No. 2 (Mar. 21, 1921), New York, pp. 32, 37.

— Development of an American pursuit engine.
Aviation, Vol. 11, No. 26 (Dec. 26, 1921), New York, pp. 735-738, ill.

— A device for keeping a constant mixture in the carburetter of an aeroplane as the machine ascends.

— Einige ungewöhnliche Umlaufmotoren.

— Enemy aircraft engines, detailed descriptions of certain of the engines in use and the German aeroplane-engine trails.
London and Coventry, Iliffe & Sons, Ltd. 1919.

— Engine developments and engine installations.

— Engine performance data.

— Engine rules for pilots.

— Engines at the Paris show.

— Engines for air lines.

— Engines, new design.

— Das fliegende Fahrrad.
Suisse Aéron, 3e année, 1921, No. 13, Berne, pp. 157-188, ill.

— European aircraft trend is toward large water-cooled engines.

— L'évolution et les progrès de la mécanique appliquée; canons, moteurs d'aviation et locomotives à vapeur.

— Experimental centrifugal oil cleaner attached to Liberty engine.

— Extract of British report on variation of engine horsepower with altitude.
Technical Orders No. 9 (Oct. 1919), pp. 115-115, figs.


—— The French competition for peace-time aero engines.
Flying, Vol. 9, No. 6 (July 1920), New York, pp. 396-397.

—— High-compression engines and the African air lines.

—— How engines should be mounted.

—— Increase of power output with higher compression ratios; another of the McCook Field engine tests.

—— An indicator for aero engines.

—— Induction systems.
Aerial Age, Vol. 12, No. 22 (Feb. 7, 1921), New York p. 566.

—— Influence of water injection on engine performance.

—— Influence of water injection upon engine performance.

—— Installation of an aeroplane engine.

—— Internal combustion engines.

—— International aero exhibition.

—— Les dispositifs moteurs.

—— Luftkühlung von Benzinnmotoren.

—— Machinery of H. M. airships R-33 and R-34.

—— Machining airplane-engine parts.
Machinery, Vol. 52 (June 10, 24, 1920), New York, pp. 1247-1252, 1361-1365, ill., diagr.

—— Measuring temperatures in internal-combustion engines.

—— Moteur fiat A15–R 400 HP.
Aéronautique, 2e année, No. 13 (juin 1920), Paris, pp. 24, ill.

—— Un moteur pour l’aviation commerciale.

—— Motor cycling and lubrication.

—— Neue ausländische Verkehrsflugzeuge.

—— New aircraft engines at the Paris aero show.
Aviation, Vol. 8, No. 2 (Feb. 15, 1920), New York, pp. 54-56, ill.

—— The new Fiat type A-18.
ENGINES. One million francs for an aero engine.

— The Olympia 1920 aero show. The engines.

— Overhauling an aviation motor.

— Pictures of the engine that has changed the world.

— Possible line of developments in aircraft engines.
Aerial Age, Vol. 12, No. 21 (Jan. 31, 1921), New York, p. 544.

— Power and weight of aero engines.
Aerial Age, Vol. 14, No. 9 (Nov. 7, 1921), New York, p. 309.

— Power-recuperating engine.

— Preliminary airplane performance calculations.
Technical Orders No. 9 (Oct. 1919), pp. 41-104, figs.

— The problem of fuel for aviation engines.
Technical Notes, National Advisory Committee for Aeronautics, No. 63, July 1921, Washington (mim.), pp. 21, diagr.

— Radiators for water-cooled engines.
Aerial Age, Vol. 14, Nos. 15, 16 (Dec. 12, 26, 1921), New York, pp. 329, 377.

— Radiators for water-cooled engines.

— Requirements of aeroplane engine design.

— Rolls-Royce Bulletin.
London, Rolls-Royce (Ltd.), 1920.

— La VIe exposition internationale d’aéronautique de Londres (9-20 juil. 1920).

— Silencing aero engines.

— Steam engines for aircraft.

— Steam engines for airships.
Aerial Age, Vol. 13, No. 26 (Sept. 5, 1921), New York, p. 622.

— Steam motors for aircraft.

— A supercharged engine and airplane performance.

— Technical specifications of aircraft engines exhibited at the New York aircraft show.

— Tests of an aero engine.

— Torque reaction beds for engine tests.

— Trouble shooting in airplane engines. Complete instructions for the care of motors issued by the Director of Air Service.
Aircraft Journal, Vol. 7, Nos. 10-11 (Sept. 6-13, 1920), New York, pp. 5-6, 6-9, Ill.
Engines. Der 200-PS-Flugmotor "Winterthur."

Universal test engine.

The value of supercharging.

Valves for compressed-air engines.

The variation of horsepower with altitude.

Vindication of the aero-engine Cairo-Cape flying.

Why magneto ignition makes a good engine better.

Work of the Bureau of Standards in testing airplane engines.

The Wright aero engines.
Aerial Age, Vol. 12, No. 12 (Nov. 29, 1920), New York, p. 322.


See A. B. C.: A. B. C. engine data.

See Abell, C. F.: Airship engines.

See Aeronautical Research Committee: The internal-combustion turbine.

See Angle, Glenn D.: Airplane engine encyclopedia.

See Anzani engine. The mounting of Anzani radial engines.

See Archer, R. S.: Some metallurgical features of the Liberty engine.

See Artifex: Aero engines at the Crystal Palace.

See B. M. W.: The B. M. W. aero engines.

See Bauer, W. C.: Aeromarine eight cylinder B type motor.

See Beatty, I. J.: Lincoln motor production plan.

See Blanchet, Georges.: Le Liore-Olivier bimoteur militaire.

See Bothezat, George de.: Airplane performance as influenced by the use of a supercharged engine.

See Bourdon, M. W.: Cosmos radial airplane engine designed in England.

See Bourdon, M. W.: Napier aero engine with new arrangement of cylinders.

See Bradley, W. F.: French rotary airplane engine uses a variable stroke.

See Bradley, W. F.: Lorraine-Dietrich production of airplane engines.

See Brion, Maurice.: Le vol au moteur.

See Bristol.

See Bristol: First standardised aero engine mounting. Swivelling mount for Bristol "Jupiter."

See Buist, H. Massac: Aircraft engines and high-speed marine service.

BIBLIOGRAPHY OF AERONAUTICS, 1920–1921.

— See Carlès, F.: Le moteur à essence.
— See Cautley, John R.: Wright aircraft engines.
— See Chase, H.: Laboratory for aircraft-engine testing.
— See Clark, V. E.: Maintaining airplane engine power at great altitudes.
— See Clark, V. E.: New York to San Francisco in nine hours made possible when engine efficiency is maintained at high altitudes.
— See Condit, K. H.: Modern aviation engines.
— See Cosmos: The Cosmos 100-horsepower "Lucifer" engine.
— See Daimler: Austro-Daimler-Flugzeugmotoren.
— See Dickinson, H. C., and F. B. Newell: A high-speed engine pressure indicator of the balances diaphragm type.
— See Diesel: A German Diesel airplane engine.
— See Diesel: Semi-Diesel engines.
— See Diesel: Twin-piston Diesel engine designed for use in aircraft.
— See Doriner: The Doriner twin-engined monoplane, type G. L. Two 185-horsepower B. M. W. engines.
— See Ducros: L'alimentation des moteurs d'aviation.
— See E. D.: The E. D. 1,000-horsepower engine.
— See Everling, E.: The dynamometer hub and the flywheel of the engine.
— See Fedden, Roy: Static radial air-cooled engines.
— See Fiat: New Fiat airplane and engine.
— See Fiat: New Fiat engine.
— See Fiat: 300-horsepower Fiat model A–12 engine.
— See Fiat: The 650-horsepower Fiat aircraft engine.
— See Fiat: Two new Fiat aero engines.
— See Funck, Georges: Power-recuperating engines; principles of operation and design of valve gear.
— See Funck, Georges: The supercharging of internal-combustion engines—III.


See Germany: The German B. M. W. high-altitude engines.

See Germany: German supercharger developments.

See Gibson, A. H.: Aero engine efficiencies.

See Gilles, G.: Le moteur d'aviation selve 300 HP.

See Great Britain: Modern British engines.

See Great Britain: More about British engines.

See Griffith, A. A.: On the shape of fins for the cooling of hot surfaces by a stream of air.

See Griffiths, E. A.: Tests on high-tension magnetos.

See Haacke.

See Hallett, George E. A.: Superchargers and supercharging engines.

See Harlaut: L'évolution des moteurs d'aviation allemands.


See Herrmann, H.: Motoren der englischen Luftfahrtausstellung.

See Hildesheim, Erik: The Austrian “Hiero” aero engines.

See Hildesheim, Erik: German aero engines at the armistice.

See Hildesheim, Erik: New series Vee type German Benz aero engines.

See Hildesheim, Erik: Recent Benz aero engines.

See Hildesheim, Erik: Recent German aero engine developments.


See Hispano-Suiza: Test of standard Hispano-Suiza engine.


See Howard lectures: Howard lectures—Royal Society of Arts.

See Ignition: Aero-engine ignition.

See Isotta Fraschini: Isotta Fraschini motors.

See Isotta-Fraschini: Isotta-Fraschini type V-6 engine.

See James, P.: Les moteurs au VIIth Salon.

See Kemble, E. C.: The calculated performance of airplanes equipped with supercharging engines.

See Kostiwal, Hans: Unsere Flugmotoren.

See Kutzbach, K.: Experience with geared propeller drives for aviation engines.
ENGINES. See Lanchester, F. W.: Report on high altitude flying and the development and improvement of the aeronautical motor.

See Lancia. The 320-horsepower Lancia aeroplane engine.

See Lawrence: Lawrence L-2 air-cooled motor.

See Lehmann, Otto: Friedensmotoren.

See Léonard, E. H.: Les moteurs d'aviation B. M. W.

See Liberty engine.


See Liptrot, R. N.: Radiators and cooling systems for aircraft engines.

See Loening, Grover Cleveland: Engine shape as effecting airplane operation.

See McBride, R. S.: New engine-testing plant.


See Marcotte, Edmond: Les moteurs d'aéronautique.

See Margoulis, W.: The steadiness factor in engine sets.

See Markiewicz, E.: Les types modernes de moteurs d'avions.

See Martinot-Lagarde: Fonctionnement des moteurs en atmosphère raréfiée.

See Martinot-Lagarde: Les moteurs d'aviation allemands.


See Martinot-Lagarde: Note au sujet des moteurs d'aviation.


See Napier: The 450-horsepower Napier aero engine.

See Napier: The 450-horsepower Napier Lion engine.

See Napier: The Napier 1,000-horsepower aero engine.

See Napier: Some new Napier "Lion" necessities and "The Cub."

See Noack, W. G.: Ist in Luftfahrzeugen der Benzinmotor durch andere Antriebsvorrichtungen ersetzbar?


See O'Gorman, Mervin: The object of tabulating engine data.


See O'Malley, J. M.: Handling the engine in the air.

See Packard: The Packard aero engine.

See Packard: The Packard 500-600-horsepower aircraft engine.

See Packard: Packard to develop dirigible engine.


See Parish, W. F.: Proper balancing of fuel, lubricant, and motor.
We can generate the text representation of this document as follows:

---

**BIBLIOGRAPHY OF AERONAUTICS, 1920–1921.**

**Engines.** See Peugeot: Peugeot engines.

---


---

See Radiators: Testing of airplane radiators.

---

See Rathbun, John B.: Aeroplane engines in theory and practice . . .

---

See Rausie: A new 175-horsepower Rausie aero engine.

---

See Rausie: Rausie E-6 airplane engine designed for commercial work.

---


---

See Ricardo, Harry R.: Some possible lines of development in aircraft engines.

---

See Rolls-Royce: Rolls-Royce aircraft engines described and illustrated.

---

See Rolls-Royce: Rolls-Royce aero engines and the great Victory seaplanes, flying boats, airships.

---


---

See Ruel: Hydrogen in airship engines.

---

See Rumpler: The Rumpler 1,000-horsepower engine.

---


---

See Schipper, J. E.: Experimental separation of engine losses develops interesting results.

---

See Schwager, Otto: Development of German aircraft engines.

---

See Schwager, Otto: Die Entwicklung der Flugmotoren im In und Auslande seit 1914.

---

See Schwager, Otto: Eine neue Zündung ausländischer Flugmotoren.

---

See Schwager, Otto: Motoren für Kleinfeldzeuge.

---

See Schwager, Otto: Notes on the design of supercharged and oversized aircraft engines.

---

See Schwager, Otto: On the calculation of super-compressed and overdimensioned engines.

---

See Schwager, Otto: Preliminary calculation of cylinder dimensions for aircraft engines.

---

See Schwager, Otto: Recent efforts and experiments in the construction of aviation engines.

---

See Schwager, Otto: Die Vorausberechnung der Zylinderabmessungen der Flugmotoren.

---

See Seppeler, Ed.: Die bisherige und zukünftige Entwicklung von Flugmotoren.

---

See Shaw, Douglas: Single or multi engined aeroplanes.

---

See Sherman, T. L.: The starting of airplane engines.

---

See Shoots: Shoots airplane engine loose.

---

See Siam: Siam and the Napier engines.

---

See Sparrow, S. W.: Flying an airplane engine on the ground.
ENGINES. See Sparrow, S. W.: Increase in maximum pressures produced by preignition.


See Stanton, T. E., Dorothy Marshall, and E. Griffith: On the dissipation of heat from the surface of an air-cooled engine when running and when at rest.

See Stanton, T. E.; H. C. Booth, and Dorothy Marshall: On the effect of surface roughness on the heat transmitted from hot surfaces to fluids flowing over them, with special reference to the case of the gills of an air-cooled engine.

See Starters: Bristol aero engine starter.


See Sunbeam: Sunbeam activity.


See Supercharged: Experiments with supercharged engines.

See Switzerland: A Swiss aero engine.

See Sylvester, Cyril: The design and construction of aero engines.

See Taylor, G. I.: Conditions at the surface of a hot body exposed to the wind.


See Tice, Percival S.: Carbureting conditions characteristic of aircraft engines.


See Viking: Viking 16-cylinder airplane engine.

See Villey, Jean: L’adaptation des moteurs à explosions aux hautes altitudes.

See Villey, Jean: Les moteurs à explosions pour atmosphères raréfiées.

See Villey, Jean: Les moteurs d’avion pour haute altitudes.

See Villey, Jean: Le problème de l’adaptation des moteurs à explosions aux atmosphères raréfiées.

See Villey, Jean.: Sur le choix de la densité de remplissage dans la construction des moteurs d’aviation à explosion.


See Vincent, Jesse G.: The engine: The heart of the airplane.


See Vincent, Jesse G.: Special Packard aero engine for altitude work.

See Vincent, Jesse G.: The ultimate aeroplane engine.


See Wallace, John: The design of aeroplane engines.

See Warner, E. P.: Variation of airplane-engine speed with speed of flight.

See Winter flying—engines.
BIBLIOGRAPHY OF AERONAUTICS, 1920–1921.

ENGEL. English aeronautical organization.


ENGINES. See Winterthur: The “Winterthur” aero engine.

— See Woltereck, Hanns: Der Kleinflugzeugmotor.

— See Wright: New Wright aeronautical engines.

— See Wright: The “Wright” aero engine.


— See Zeitlin: Zeitlin variable-stroke aero engine.

ENGLAND. English aeronautical organization.


— The first British commercial airship.


— The resurrection of British air lines. The London-Paris service.


— The state of British aviation.

The Aeroplane, Vol. 20, No. 7 (Feb. 16, 1921), London, pp. 149-150.

— See Commercial aeronautics: England-Australia flight.

— See Commercial aeronautics: England-Belgium air service.

— See Commercial aeronautics: England to Australia flight.

— See Routes, Air: Les grandes routes de l’air.

Enoch, O. The dynamometer hub for testing propellers and engines during flight.

Technical Notes, National Advisory Committee for Aeronautics, No. 59, July 1921, Washington (mim.), pp. 18, diagrs.


— Deutsche Luftfahrtbücherei.


— Gewerblicher Rechtsschutz.


— Gewerblicher Rechtsschutz in Amerika.


— Gewerblicher Rechtsschutz nach dem Friedensvertrag.


— Kongress für den gewerblichen Rechtsschutz.


— Ordentliche Mitglieder-Versammlung der Wissenschaftliche Gesellschaft für Luftfahrt.


— Reform im Patentwesen.


— Tropfenwagen.


Epston, H. A. Process costs.

Equipment.  Airplane protected from tampering.


— General instrument and oxygen equipment.

London, H. M. Stationery Office [1921].

— Making eyes on airplane cables.


Erfurt.  Der zweite Fliegertag in Erfurt.


Ernoul.  The Ernoul "sleeper."


— Französischer Verkehrsflugzeugentwurf Ernoul.


— Le premier avion Ernoul.

Aéronautique, 3e année, No. 30 (nov. 1921), Paris, p. 488, ill.


Escaillle de L'.  Du ministère de l'air.

Aéronautique, 3e année, No. 21 (févr. 1921), Paris, pp. 67-70.

Esnauld-Pelterie, Robert.  The R. E. P. litigation in France.


Espionage.  Wie im Kriege auf dem Luftwege Spionage betrieben wurde.


Esptallier, Georges.  Aéronautique.  La technique du ballon.


— VIe exposition internationale.


— Air estimates, 1921-22.

Aeronautics, Vol. 20, n. s., No. 386 (Mar. 16, 1921), London, pp. 159-161.

— The debate on the air estimates.


Euler, August.  August Euler.


— Der Friedensvertrag und der Luftverkehr.  Abschnitt von "Der Friedensvertrag und Deutschlands Stellung in der Weltwirtschaft."

Berlin, Julius Springer, 1921.


Europe.  Europe turning to the monoplanes for commercial use.


— Commercial aeronautics in Europe.

Aerial Age, Vol. 13, No. 22 (Aug. 8, 1921), New York, p. 524.

— Europe's way with flying.

Aerial Age, Vol. 13, No. 4 (Apr. 4, 1921), New York, p. 75.

— The European air lines—II.

EUROPE. Progress of aviation in Europe.

-- Touring Europe by air.

-- Touring Europe by air. A fine performance by the D. H. hire department.

-- See Dime, E. A.: What Europe is doing in aviation—Americans, please take notice!

-- See M., K. L.: European air lines.

EVERDINGEN, E. VAN. De vliegdienst Holland-Engeland en het weer in Juli en Augustus.
Vliegveld, 4e jaarg., No. 28 (6 Nov. 1920), 's-Gravenhage, pp. 394-395.

EVERLING, E. The dynamometer hub and the flywheel of the engine.

Gleitzahlen ausgeführter Flugzeuge.

Luftkräfte und Belihrnte.

Vereinfachte Kennlinien für Flügelbespanntoffe.

EVERSTAG, ROBERT W. L'aeronautique suisse.

-- Propos de circonstance.
Suisse Aérienne, 3e année, No. 6, 1921, pp. 73-74.

-- Propos de la quinzaine.

-- La coupe Gordon-Bennett des sphériques 1921.
Suisse Aérienne, 3e année, No. 15-16, 1921, Berne, pp. 224-227, ill.

-- Propos de la quinzaine.

EWALD. Luftbildwesen.
Flugwelt, 2. Jahrg., 1920, Leipzig, pp. 113-116, 144-147, 173-177, 244-246.

-- Flugzeug und Kino.

EWALD, ERICH. Die Flugzeugphotographie, ihr heutiger Stand und künftiger Ausbau.

-- Stereoskopie und ihre Anwendung auf die Untersuchung des Fliegerbildes.
München, R. Oldenbourg, 1921, pp. 46, ill.

-- Der Wert der Raumbildaufnahmen vom Flugzeug.

EWELL, ARTHUR W. A plea for aerial bombing.

-- Testing aerial bombs.

44439—25——10


EXHIBITIONS. The aero show, July 9–20.

---


---


---


---

The exhibits on the steel pier at Atlantic City. Flying, Vol. 9, No. 5 (June 1920), New York, p. 322.

---

International aero exhibition.


---


---

The Olympia aero show at a glance. Flight, Vol. 12, No. 28 (July 8, 1920), London, pp. 712–713, ill.

---

See Atlantic City: Aeroplanes and motors exhibited at Atlantic City.

---

See Bradley, W. F.: First post war aircraft exhibition held in France.

---

See Chicago: The Chicago aero show.

---

See Chicago: Chicago aeronautical exposition.

---

See Chicago: The Chicago aeronautical show.

---

See Chicago: Chicago air show presents significant technical developments.

---

See Engines: International aero exhibition.

---

See Espitallier, G.: VIe exposition internationale.

---

See London: La VIe exposition internationale d’aéronautique de Londres (9–20 juillet 1920).

---

See Manufacturers’ Aircraft Association: Aircraft makers exhibit the 1920 commercial models; second national show of the Manufacturers’ Aircraft Association.

---

See New York: New York aero show.

---

See Olympia: The aeroplanes and engines at Olympia.

---

See Olympia: Aeroplanes at Olympia.

---

See Olympia: The Air Ministry exhibits at Olympia.

---

See Olympia: Aircraft exhibited at the recent Olympia show in London.

---

See Olympia: Commercial development rules Olympia aero show.

---

See Olympia: A forecast of the exhibits of accessories and material at Olympia.

---


---

See Paris: The Paris aero show at a glance.

---


---

BIBLIOGRAPHY OF AERONAUTICS, 1920–1921.

EXHIBITIONS. See Paris: Paris aviation show.
— See Paris: The Paris show.
— See Prague: The first international aero exhibition, Prague.
— See Sullivan, L. G.: Air show brings back fond memories to old-time motor-car men.

EXIDE. Accumulators in the making. A visit to the “Exide” factory.

EXPENDITURES. The aviation service.

EXPERIMENTAL station. The future of the aeroplane experimental station. A suggestion.

EXPOSITIONS. L’Exposition du Sous-Secrétariat d’État de l’Aéronautique.
Aéronautique, 3e année, No. 31 (déc. 1921), Paris, pp. 507-508.
— See Exhibitions.

EYNAC, LAURENT. L’aéronautique dans le nouveau ministère. M. Laurent Eynac.
L’Aérophile, 29 année, Nos. 1-2 (1er-15 janv. 1921), Paris, p. 22.
— Extrait du discours de M. Laurent Eynac.

EYTINGE, BRUCE. Cloud flying.
Aerial Age, Vol. 13, No. 20 (July 25, 1921), New York, pp. 461, 467.
— Cross-country cloud flying.
Aviation, Vol. 11, No. 7 (Aug. 15, 1921), New York, pp. 192-193, ill.
— Flying guide and log book.
New York, John Wiley & Sons, 1920, pp. 150, ill.
Flying guide and list of landing fields.
— Landing field guide and pilots’ log book.

F.

F., L.-P. Agrafage de sûreté pour parachutiste.
L’Aérophile, 29 année, Nos. 11-12 (1er-15 juin 1921), Paris, pp. xviii-xix, ill.

FABRICS. The action of air and water on fabric.
— The calendaring of aeroplane fabric.
— The effect of water shrinkage of a fabric on the strength of the component yarns.
— Fabrics and dopes.
— Modern airship fabrics.
— New rubberized airship fabrics.
BIBLIOGRAPHY OF AERONAUTICS, 1920–1921.

FABRICS. Report on the comparative weathering qualities of British and German doped fabric.
— Shrinking fabric on wings.
— What the rubber chemists are doing.
India Rubber World, Vol. 63 (Nov. 13, 1920), New York, pp. 103-104.
— See Aston, F. W.: Fabric and dope, with special reference to deterioration of strength and tautness.
— See Balaban, K.: Einiges über das Materialprüf Wesen in Flugzeugfabriken.
— See Barr, Guy: The deterioration of rubbered balloon fabrics under the action of light.
— See Barr, Guy: The liability to ignition of balloon fabrics.
— See Fokker: Experiments with parts of Fokker show noninflammable fabric used.

FAGAN, R. T. Is flying dangerous?

FAGE, ARTHUR. Airscrews in theory and experiment.
— An analysis of the energy account of an airscrew with an application to the case of the tandem airscrew (with appendix).

FAGE, ARTHUR, and H. E. COLLINS. Dependence of the efficiency of an airscrew on the speed of rotation and the diameter, with a direct reference to the question of engine gearing.

FAGE, ARTHUR, H. E. COLLINS, and T. H. FEWSTER. Description of apparatus for measurement in a wind tunnel of the performance of an airscrew or the windage torque of a rotary engine.
BIBLIOGRAPHY OF AERONAUTICS, 1920–1921.

FAGE, ARTHUR, H. E. COLLINS, and J. H. FEWSTER. The effect of the inflowing velocity of the air on the efficiency of an airscrew, with a special reference to the case of tandem airscrews of large machines.

--- An experimental investigation into the accuracy of the airscrew dynamometer at the National Physical Laboratory.

FAGE, ARTHUR, and H. E. COLLINS. Experiments at high speeds, on six aerofoils suitable for airscrew design.

FAGE, ARTHUR, and J. D. Coales. Experiments with two aerofoils of high-aspect ratio.

FAGE, ARTHUR, and H. E. COLLINS. An investigation of the mutual interference of an airscrew and body of the "tractor" type of aeroplane.

--- An investigation of the magnitude of the inflow velocity of the air in the immediate vicinity of an airscrew, with a view to an improvement in the accuracy of prediction from aerofoil data of the performance of an airscrew.

--- An investigation of the mutual interference of airscrew blades.

--- An investigation of the mutual interference of the airscrew, body, and wings of the tractor aeroplane, B. E. 2B.

--- An investigation of the mutual interference of airscrews and bodies of the "pusher" type.

--- An investigation of the strength of two airscrews for F. E. 2B.

--- Measurements of the drag of the bodies of a model fighter and bomber machine.

--- A preliminary investigation of the mutual interference of an airscrew and a tractor body, as affected by the fairing of the nose of the body.

--- The "scale-speed" effect on a model airscrew of small diameter.

--- Some experiments on helicopters.

--- Some experiments with tandem combinations of airscrews.

--- Some notes on the calculation of the working stresses of an airscrew.

--- Tests on five model airscrews and an experimental investigation of the interference between these airscrews and a model of the end of the whirling arm at the Royal Aircraft Factory.

FAGE, ARTHUR. The whirling and transverse vibrations of a rotating airscrew and its shaft.

FAGE, ARTHUR, and H. E. COLLINS. Windage experiments with a model of the rotary engine B. R. 1.
FAGE, ARTHUR, and H. E. COLLINS. A windmill to drive a wireless set of power one kilowatt.

FAGE, ARTHUR. See Bairstow, L., and A. Fage: Oscillations of the tail plane and body of an aeroplane in flight.

— See Bairstow, L., A. Fage, and H. E. Collins: The relation between the efficiency of a propeller and its speed of rotation.

F. A. I. La conférence de la Fédération aéronautique internationale a Genève, les 8, 9, 10 septembre 1920.
Suisse Aérienne, 2e année, No. 18 (30 sept. 1920), Berne, pp. 266-274, ill.


FAIRCHILD. The Fairchild automatic camera.
Aviation, Vol. 8, No. 12 (July 15, 1920), New York, p. 478, ill.

— See Elton, Robert W.: The Fairchild distant control for aerial cameras.

FAIRCHILD, MURR S. Experimental night flying by flight section, McCook Field.
Aerial Age, Vol. 13, No. 22 (Aug. 8, 1921), New York, pp. 516-517.

FAIRF. The Fairey amphibian.

— Fairey flying boat.
Aerial Agr, Vol. 13, No. 8 (May 2, 1921), New York, p. 182.

— The Fairey "Titania."
Aerial Age, Vol. 13, No. 5 (Apr. 11, 1921), New York, p. 110.

— The Fairey type IIID seaplane.
Aviation, Vol. 11, No. 12 (Sept. 19, 1921), New York, p. 341, ill.

— Our new large flying boats. The Fairey "Titania" and the Vickers-Sauders "Valentia."

FAIREY AVIATION CO. (LTD.). See Great Britain: Modern British aircraft.

FAIREY, C. R. Pioneers of British aviation—XXVI. Mr. C. R. Fairey.

FAIRLEADS. Detachable fairleads for aircraft.
Aviation, Vol. 11, No. 6 (Aug. 8, 1921), New York, p. 165, ill.

FALES, E. N., and F. W. CALDWELL. The scope of wind-tunnel research.
Aerial Age, Vol. 14, Nos. 11-12 (Nov. 21-28, 1921), New York, pp. 246-250, 270-272, ill., diagr.

FALES, E. N. Le tunnel de MacCook Field.
Aeronautique, 3e année, No. 28 (sept. 1921), Paris, pp. 357-360, ill.

FALES, E. N. See Caldwell, F. W., and E. N. Fales: Physical basis of air-propeller design—study of flight vortices; abstracta.

— See Caldwell, F. W., and E. N. Fales: Wind-tunnel studies in aerodynamic phenomena at high speed.

FAN dynamotors. See Gray, G. F., J. W. Reed, and P. N. Elderkin: Air fans for driving generators on airplanes.


FA-R-EAST aviation and automobile industry.
BIBLIOGRAPHY OF AERONAUTICS, 1920–1921.

FARMAN. L’avion “Sport-Farman.”
Aéronautique, 1ère année, No. 10 (mars 1920), Paris, pp. 440-441, ill.

— Farman Dreimotoren Goliath.

— The Farman Goliath transport airplane.

— The Farman sport airplane.

— Les nouveaux avions Farman.
Aéronautique, 3ème année, No. 30 (nov. 1921), Paris, pp. 417-440, ill.

— Some new Farman aircraft.

— Some recent Farman aeroplanes.

— Vingt-quatre heures sans escale.
Aéronautique, 2ème année, No. 13 (juin 1920), Paris, pp. 19-20, ill.

FARMAN, ANDRÉE. See Blanchet, Georges: Nos nouvelles aviatrices.


FARMAN, HENRY. Der erste Ueberlandflug in Europa.
A. Flugw., Nr. 9 (Sept. 1921), Berlin, p. 338, ill.

FASTJE. The Fastje compressed-air motored model.
Aer. Age, Vol. 13, No. 18 (July 11, 1921), New York, p. 425, ill.

FAUNCE, CY Q. The air liner and its inventor, Alfred W. Lawson, with a summary of the entire aeronautical movement.
Columbus, Ohio, Rockcastle Publishing Co. [1921], pp. 206, ill.

FAURE-FAVÉLE, LOUISE. Après de record de la durée: une interview de Bossoutrot.
Vie Aérienne, No. 192 (15 juil. 1920), Paris, p. 1223, ill.

— Un champ d’atterrissage dans le champ de l’Angelus.
Vie Aérienne, 5ème année, No. 6 (11 sept. 1920), Paris, pp. 87, ill.

— Visibilité.
Vie Aérienne, 5ème année, No. 7 (18 sept. 1920), Paris, p. 103.

FAUROTE, FAY LEONE. “Let us then be up and doing.”

— Selling the public on flying.

FAVOLLE. Du rôle de l’aviation dans la guerre.

FEAR. See Hoffman, C. G.: Ordeal by fire; a note on the psychology of fear.

FECHET, J. E. Report on Reserve Officers’ Training Corps.

FEEDEN, ROY. Static radial air-cooled engines.

FEDERAL control. See Philbin, S. H.: The need of Federal control in commercial aviation.

FÉDÉRATION Aéronautique Internationale. Conférence de la F. A. I. à Genève les 8, 9, 10 septembre 1920.


Ferrero, A. Ascensione libera del 6 giugno 1920. L'Aeronautica, anno 3, Num. 5-6 (luglio-agosto 1920), Roma, p. 233.


Fessenden, Reginald A. The Fessenden peloris (wireless compass) a caution as to its use. Electrician, Vol. 82, No. 2170 (Dec. 19, 1919), pp. 719-721, figs.


FiAT. The 650-horsepower Fiat aircraft engine.
Aerial Age, Vol. 10, Nos. 16, 17 (Feb. 2, 9, 1920), New York, pp. 599, 629-631, ill.

— The 650-horsepower Fiat engine.
Engineering Division, Air Service, Technical Orders No. 17 (June 1920), Dayton, Ohio, pp. 103-104.

— 300-horsepower Fiat model A-12 engine.
Aerial Age, Vol. 13, No. 18 (July 11, 1921), New York, pp. 415-416, ill.

— Two new Fiat aero engines.


FIELD, M. B. Navigational magnetic compass considered as an instrument of precision.

FILM. Das grosse Fliegerfilm.


FINK, CARL. Einiges von der Entwicklung unserer Flugzeugkameras.

— Höher hinauf.

— Luftbildwesen: Reihenbild und Karte.

— Luftbildwesen: zum Wiederaufbau des Luftbildwesens.

— Militärtechnisches Deutch.

— Das Reihenbild als Kartensatz.

FINDBURY. Finsbury and district model research association.

FIORAVANZO, GIUSEPPE. L'aviazione e l'esplorazione strategica dei nostri mari.
Rivista Marittima (nov.-dic. 1920), Roma, pp. 3-18.


— See Forestry: A year of the aerial forest-fire patrol.

FIRE prevention. Fire prevention on heavier-than-air craft.

FIREPROOFING. Fireproofing airplanes.
The Ace, Vol. 2, No. 3 (Dec. 1920), Los Angeles, p. 11.

— Tests of fireproof equipment.

— See Dope: Tests of fireproof airplane dope and equipment.

BIBLIOGRAPHY OF AERONAUTICS, 1920–1921.

Fires. See Polk, George W., jr.: Fires in airplanes.


Fish patrol. Aerial fish patrol.
Scient. Amer., Vol. 123 (July 24, 1920), New York, p. 89.


Fischeries. Aerial fish patrol.
Scient. Amer., Vol. 123 (July 24, 1920), New York, p. 89.

Fishes. See Tevis, M.: Do fish swim as airplanes fly?

Fiske, Bradley M. See United States Congress. House Committee on Naval Affairs: Naval policy of the United States.

Fittings. See Black, Archibald: The heat treating of brazed fittings for aircraft.

Fitzgerald. See Rayleigh: Lord Rayleigh’s exposition of Fitzgerald’s theory of flapping flight.

Flack, Martin. The human machine in relation to flying.


Flanders, L. Howard. The flight of the albatross.

Comment on report published by the National Advisory Committee for Aeronautics.

On aerial tramps.


Aviateurs contemporains. Laurent Eynac et Pierre-Étienne Flandin.

Aéronautique, 3e année, Nos. 19-20 (Janv. 1921), Paris, pp. 265-266.

International air traffic regulations.

Le statut du personnel navigant.

See La Vaulx, Henry de: Lettre ouverte à M. Pierre-Étienne Flandin.

Flapping flight. See Chatley, Herbert: The problem of flapping flight.

See Rayleigh: Lord Rayleigh’s exposition of Fitzgerald’s theory of flapping flight.

Flapping wing. See Chatley, Herbert: Application of theory to ornithopters. The action of the flapping wing.

Fleming, J. The thermionic valve in wireless telegraphy and telephony.
Royal Institution of Great Britain, weekly evening meeting, Friday, May 21, 1920, pp. 29, ill.

Fleurieu, P. De. L’avenir de l’aviation.
Vie Aérienne, No. 165 (1er jan. 1920), Paris, pp. 870-871, ill.
FLIGHT. From wing to paddle.

FLINT, A. H. Why flying is safe.
The Navigator, Vol. 1, No. 6 (Mar. 20, 1920), Pensacola, Fla., p. 5.

FLOATS. Collapsible floats for aeroplanes.
Scient. Amer. Supplement, Vol. 88 (Dec. 6, 1919), New York, p. 341:
--- Model float construction.
--- See Lewe: Festigkeitsprüfungen eines Holz- und eines Duralschwimmers.

Luftweg, Jahrg. 4, Heft 36-37 (23. Sept. 1920), Berlin, pp. 5-7, ill.

FLORIDA. Flying popular in Florida.
Aerial Age, Vol. 10, No. 21 (Mar. 8, 1920), New York, p. 775, ill.

FLOYD, ANNA. The rough road to the stars.

FLUG'1'E TECHNISCHE VEREIN DRESDEN. Der Flugtechnische Verein Dresden.

FLURY, WALTER. À la mémoire de Walter Flury.
Suisse aérienne, 2e année, No. 11 (10 juin 1920), Berne, pp. 164-166, ill.


FLYING. My wild ride with youth in an aeroplane.
--- New York, 1912-1921; established in 1912; ceased publication June, 1921, as an individual magazine and combined with Aerial Age weekly with the August 1, 1921, number of the latter.
--- To fly or not to fly: symposium.
Collier's, Vol. 65 (Mar. 6, 1920), New York, p. 24, ill.
--- Six months' flying. October 1, 1920, to March 31, 1921.

FLYING boats. Acetylene welded flying boat carries 10 tons.
Sheet Metal Worker, Vol. 11 (Nov. 12, 1920), New York, p. 336, ill.
--- Flying boat construction.
--- A giant flying boat.
--- Hochziehbare Fahrgestelle für Flugboote.
--- A large flying boat.
Aviation, Vol. 9, No. 5 (Oct. 1, 1920), New York, p. 149, ill.
--- Oil prospecting with flying boats.
--- Travel by flying boat.
--- See Baatz, Gotthold: Schwimmerflugzeug und Flugboot.
FLYING boats. See Baker, G. S.: Flying boats: The form and dimensions of their hull.
—— See Fairey: Our new large flying boats. The Fairey "Titania" and the Vickers-Saunders "Valentia."
—— See Nicolson, David: Flying-boat construction.

FLYING fields. Practice fields for reserve aviators.
Aviation, Vol. 8, No. 11 (July 1, 1920), New York, p. 434.

—— See Dowd, R. E.: The aeronautics of the flying fish.
—— See Fishes.

FLYING without wings.
Literary Digest, Vol. 64 (Jan. 3, 1920), New York, pp. 25-26, ill.

FOCH, FERDINAND. Foch gives figures on German aircraft.
Aerial Age, Vol. 12, No. 20 (Jan. 24, 1921), New York, p. 520.

FÖPPL, AUGUST. Drang und Zwang, eine höhere Festigkeitslehre für Ignienure, von Dr.-Ing. Aug. Föppl und Dr. Ludwig Föppl.

FOERSTER. Welche Aufgaben erwachsen heutzutage den Luftfahrtvereinen und wie werden sie ihnen Gerecht?

Fog. Instrument guides planes in fog.
—— See Gramont, Armand de, Duc de Guiche: La navigation aérienne par temps de brume.
—— See Wireless: Fog-bound airplanes guided by wireless.

FOKKER. American Minister visits Fokker works.
Aviation, Vol. 10, No. 16 (Apr. 18, 1921), New York, p. 495.
—— Concerning the Fokker monoplane.
—— Experiments with parts of Fokker show noninflammable fabric used.
—— A flying model of the Fokker biplane.
Aerial Age, Vol. 12, Nos. 20-21 (Jan. 24-31, 1921), New York, pp. 521; 547, diagr.
—— The Fokker commercial aeroplane. Type F. III.
—— Fokker commercial airplanes.
Aviation, Vol. 9, No. 12 (Dec. 6, 1920), New York, pp. 385-396, ill.
—— The Fokker commercial express biplane, type CII.
Aerial Age, Vol. 13, No. 7 (Apr. 25, 1921), New York, p. 151, ill.
—— The Fokker commercial express, type C. II.
Aviation, Vol. 10, No. 15 (May 2, 1921), New York, pp. 565-566, ill.
—— The Fokker P III six-seater monoplane.
Aerial Age, Vol. 13, No. 12 (May 30, 1921), New York, pp. 271-272, ill.
Aviation, Vol. 10, No. 25 (June 6, 1921), New York, pp. 717-718, ill.
—— Der Fokker F IV.
Luftweg, Nr. 47-48 (1. Dez. 1921), Berlin, pp. 331-333, ill.
Fokker. The Fokker "F. IV." A Dutch 1922 model.

— The Fokker F III commercial monoplane; 230-horsepower Siddeley-"Puma" engine.

— De Fokker in America.
Vliegveld, 5e Jaarg., No. 6 (12 Maart 1921), Amsterdam, pp. 90-91, ill.

— Fokker plans air freight train as future carrier.

— De Fokker verkeersvliegtuigen van het F. type.
Vliegveld, 5e Jaarg., 1921, Amsterdam, pp. 138-140, 166-167, 333-334, ill.

— A Fokker raid on London.

— Fokker single-seater scouts.

— Fokker VI passenger limousine V-45.

— A Fokker six-seater limousine monoplane.

— Fokker studying the American situation.
Aviation, Vol. 9, No. 10 (Nov. 22, 1920), New York, p. 325, ill.

— Fokker talks on future war airplanes.
Aircraft Journal, Vol. 6, No. 7 (Feb. 14, 1920), New York, pp. 6, 13, ill.

— Investigation of materials and construction of Fokker D-VII fuselage.
Engineering Division Air Service, Technical Orders No. 16 (May 1920), Dayton, Ohio, pp. 67-86, ill.

— Le monoplan Fokker F. III.
Aéronautique, 3e année, No. 31 (Déc. 1921), Paris, p. 492.

— Der neue Fokker FIII-Verkehrseindecker.

— Die neue Fokker-Limousine F III.

— New deal for the monoplane: Fokker’s passenger-carrying airplane.

— The new Fokker commercial aeroplane—Type F. III.

— Record of the Fokker European airlines.


— Some Fokker milestones.

See Couturier, Roger: Les avions Fokker.

See Couturier, Roger: Le monoplan commercial "Fokker F—III."

See Fromentin, J. : Transports aériens et tourisme.

BIBLIOGRAPHY OF AERONAUTICS, 1920–1921.

FOKKER. See Mapes, Bruce A.: Fokker model built by Bruce Mapes.

FOKKER, ANTHONY H. G. Certificaten van luchtwaardigheid.
Vliegva, 5e jaarg., No. 7 (26 Maart 1921), Amsterdam, pp. 101–102.

— The development of commercial aeronautics.

— De zeilvliegtuigenwedstrijden in de Rhön.

FONCK, RENE. Mes combats. “Préface du Marechal Foch.”

— Die Fortschritte der deutschen Flugzeugtechnik.

— The proposed air ministry in France.

— Le rôle d’un ministère de l’air.


— See Silsbee, F. B., and E. L. Fonseca: Measurement of heat energy per spark of various ignition systems.


FORD, HENRY. Henry Ford and the Navy.

— Henry Ford ready. Offers fifteen millions to put the airship in the air.
U. S. Air Service, Vol. 3, No. 3 (Apr. 1920), New York, pp. 8–9, 16.


FOREIGN. Foreign competition.
The Aeroplane, Vol. 20, No. 7 (Feb. 15, 1921), London, p. 150.

FOREIGN biplane flying model.
Everyday Engineering Magazine, Vol. 9, No. 3 (June 1920), New York, pp. 241, ill.

FOREST fire patrol. Airplane patrol for Northwest’s forests.
American Lumberman, No. 2528 (Dec. 27, 1919), Chicago, p. 45, map.

FORESTRY. Aerial protection against fires in the great national forests.

— Aeroplanes for forest surveys.

— Aircraft and forestry.
The Outlook, Vol. 56, No. 1188 (Nov. 6, 1920), London, p. 470.

— Airplanes and fires. Eight planes covered 16,000,000 acres of national forest twice a day.

— Forest-fire patrol work.
Aerial Age, Vol. 13, No. 26 (Sept. 5, 1921), New York, p. 621.
Aviation, Vol. 11, No. 12 (Sept. 19, 1921), New York, p. 343, ill.

— A year of the aerial forest-fire patrol.
Flying, Vol. 10, No. 1 (Feb. 1921), New York, pp. 13–16, ill.

— See Babb, C. Harding: Patrol of Oregon forests by De Havilands during fire season of 1920.

— See Canada: Canadian Government purchases 10 aeromarine navy flying boats for forest-patrol work.

— See Canada: The Canadian air board’s specifications for exploratory and forest-patrol aircraft.

— See Dirigibles: Dirigibles superior for forest-fire prevention.


— See Hammatt, R. F.: Winged patrols for our expansive forests.

— See Harry, D.: Fire eagles; how army planes and pilots keep check on forest fires.

— See Moulton, R. H.: Detective aeroplane for discovering forest fires and outlaw cotton fields.

— See Odenthal, H. J.: Aircraft will save millions annually protecting national forests from fire.

— See Redington, Paul G.: Airplanes and forest fires.

— See Wilson, Ellwood: The use of aircraft in forestry and logging.


FORLANINI. See Caro, I.: Aviones que no volaron.


FOSTER, A. B. My flight with the aerial mail. The Ace, Vol. 1, No. 12 (July, 1920), Los Angeles, pp. 13, 22, 29, ill.

FOSTER, R. L. Army balloon service offers opportunities. Aerial Age, Vol. 12, No. 10 (Nov. 15, 1920), New York, p. 278, ill.


4L-200. See Waterman: The Waterman type 4L-200 four-place airplane.


BIBLIOGRAPHY OF AERONAUTICS, 1920-1921.

152


FRANCE. Aerodromes, customes, and wireless stations.


Aerodromes, seaplane stations, customes, and wireless stations.

Air service to her colonies being developed by France.

Commercial aviation in France.

Concerning the French subsidies.

Customs stations on the Swiss frontier.

France: Aerodromes and meteorological stations (9/1921).

France to organize first international air navigation congress.
Aerial Age, Vol. 13, No. 20 (Sept. 5, 1921), New York, p. 622.

Frankreichs Niederlage in der Luftfahrt.

France develops airplane ambulance.

French activities.
Aerial Age, Vol. 14, No. 5 (Oct. 10, 1921), New York, p. 112.

French aerodrome signals.

French aerodromes.

French aeronautics.

French air aims.

French air losses.

French aircraft customs regulations.

The French antiaircraft service.
Aviation, Vol. 11, No. 23 (Dec. 5, 1921), New York, p. 655.
BIBLIOGRAPHY OF AERONAUTICS, 1920–1921.

FRANCE. French civil aviation subsidies.

— French customs regulations. (Brought into force May 1, 1921.)
Aeronautics, Vol. 21, n.s., No. 494 (July 14, 1921), London, p. 35.

— French customs regulations for aircraft.

— French enterprise.
Aerial Age, Vol. 12, No. 25 (Feb. 28, 1921), New York, p. 640.

— French enterprise.
Aerial Age, Vol. 12, No. 25 (Feb. 28, 1921), New York, p. 640.

— French development in Channel air service.

— French interest in aviation.

— French regulations issued.
Aerial Age, Vol. 12, No. 18 (Jan. 10, 1921), New York, p. 472.

— The French services.
Aerial Age, Vol. 13, No. 18 (July 11, 1921), New York, p. 411.

— French state aerodromes for civil use.
Aviation, Vol. 10, No. 20 (May 10, 1921), New York, pp. 638–639, map.

— The French subsidies.

— French subsidies for transport aircraft.

— French views on commercial and military aviation.

— A gallant French effort.

— Gliding competition in France.

— The new French aviation subsidies.
Aviation, Vol. 10, No. 15 (Apr. 11, 1921), New York, p. 469.

— New French commercial airplanes.
Aviation, Vol. 11, No. 2 (July 11, 1921), New York, p. 48.

— Night service in France.
Aerial Age, Vol. 13, No. 10 (May 16, 1921), New York, p. 219.

— Nimes aerial lighthouse—Toulouse customs aerodrome.

— L'office national météorologique.
L'Aérophile, 29 année, Nos. 1–2 (1er–15 janv. 1921), Paris, p. 22.

— L'organisation de lignes aériennes en Guyane française.

— Organization of French aeronautics.
Aerial Age, Vol. 13, No. 16 (June 27, 1921), New York, pp. 365, 367–368.

— Pour la puissance de l'aviation française: notre sécurité et notre avenir en dépendant . . .

— The regulations concerning the grant of subsidies to air navigation companies in 1920 by the French Government.
FRANCE. Regulations regarding flight over inhabited areas: Flying of captive balloons.

154 BIBLIOGRAPHY OF AERONAUTICS, 1920–1921.

See Commercial aeronautics: Commercial service between France and Morocco.

See Engines: The French competition for peace-time aero engines.

See Fonck, René: The proposed air ministry in France.

See Gouault, G.: Le personnel du service de la navigation aérienne.

See Knight, Wm.: Italian and French experiments on wind tunnels.

See Margoulis, W.: Notes on specifications for French airplane competitions.


See Routes, Air: Les grandes routes de l’air.

See Sacconey: Commission de navigation aérienne.

See Soreau, Rodolphe: Travaux de la commission technique.

FRANCK, P. La T. S. F. dans l’aviation civile.

Aéronautique, 3e année, No. 31 (déc. 1921), Paris, pp. 517–524, ill.

FRANK, ANDREAS. Das russische Flugwesen im Weltkriege, bei der “Weissen Armee” und bei den Bolschewisten.


FRANKFURT. See Bombs: Depth bombing from the air; results and lessons of the sinking of the Frankfurt and Ostfriesland off the Virginia coast.

FRANKFURTER Flugmodell-Verein.


FRANTZEN, L. P. Les ballons captifs. Le ballon captif militaire italien type Avorio-Prassone (1918).

L’Aérophile, 29 année, Nos. 2–3 (1er–15 févr. 1921), Paris, pp. xvii–xviii, ill.

Les ballons captifs maritimes pendant la guerre.

La Conq. l’Air, 3e année, No. 2 (1er févr. 1920), Bruxelles, pp. 32–34, ill.

Deux belles descentes en parachute A. Robert.


Experiences d’aérodynamique pratique.

La Conq. l’Air, 3e année, No. 1 (1er janv. 1920), Bruxelles, pp. 14–15, ill.


Les hydravions Borel.

La Conq. l’Air, 3e année, No. 5 (1er mars 1920), Bruxelles, pp. 49–51.

Les parapluies américains. Le parachute d’aviation Floyd Smith.

L’Aérophile, 29 année, Nos. 7–8 (1er–15 avril 1921), Paris, pp. xviii–xix, ill.
– Les parachutes d’avions. À l’école de parachutes Jean Ors. L’Aérophile, 29 année, Nos. 2–3 (1er–15 févr. 1921), Paris, pp. 91–95, ill.
– À propos de la sécurité aérienne. La Conq. l’Air, 3e année, No. 5 (1er mars 1920), Bruxelles, pp. 57–58.
– La sécurité par le parachute. L’école de parachutistes d’avion de Jean Ors. L’Aérophile, 29 année, Nos. 1–2 (1er–15 janv. 1921), Paris, p. 29.
– Selle vliegtuigen. Avia, 8e jaarg., No. 6 (15 Feb. 1920), Rotterdam, pp. 70–74.


– See Simmons, L. F. G., and R. A. Frazer: Model tests on bodies proposed for use as kite balloons.


FRECHET, CHARLES. L’avion-torpilleur. Aéronautique, 3e année, No. 23 (avril 1921), Paris, pp. 169–173, ill.


FREE flight. See Warner, E. P., and F. H. Norton: Preliminary report on free flight tests.


FRICTIE. De opheffing van het illusiaansche vliegregiment. Vliegveld, 5e jaarg., No. 2 (15 Jan. 1921), Amsterdam, pp. 26–29, ill.

BIBLIOGRAPHY OF AERONAUTICS, 1920–1921.


FRIEDRICH, J. D. See Jones, T. H., and J. D. Frier: Aeroplane structural design.


FRIEDRICH, J. D. See Jones, T. H., and J. D. Frier: Aeroplane structural design.


FRIEDRICH, J. D. See Jones, T. H., and J. D. Frier: Aeroplane structural design.


FRIEDRICH, J. D. See Jones, T. H., and J. D. Frier: Aeroplane structural design.


FRIEDRICH, J. D. See Jones, T. H., and J. D. Frier: Aeroplane structural design.


FRIEDRICH, J. D. See Jones, T. H., and J. D. Frier: Aeroplane structural design.


FRIEDRICH, J. D. See Jones, T. H., and J. D. Frier: Aeroplane structural design.


FRIEDRICH, J. D. See Jones, T. H., and J. D. Frier: Aeroplane structural design.


FRIEDRICH, J. D. See Jones, T. H., and J. D. Frier: Aeroplane structural design.


FRIEDRICH, J. D. See Jones, T. H., and J. D. Frier: Aeroplane structural design.


FRIEDRICH, J. D. See Jones, T. H., and J. D. Frier: Aeroplane structural design.


FRIEDRICH, J. D. See Jones, T. H., and J. D. Frier: Aeroplane structural design.
FUEL. Benzol as an engine fuel.

— Benzol as a fuel for aircraft engines.
Automobile Engineer, Vol. 9, No. 138 (Dec. 1919); pp. 446-448, figs.

— Bureau of Standards tests of various gasolines and benzol mixtures.

— Comparative value of filtering mediums from gasoline.
Aerial Age, Vol. 13, No. 12 (May 20, 1921), New York, p. 270.

— Comparison of hector fuel with export aviation gasoline.
Automotive Industries, Vol. 42 (June 10, 1920), New York, pp. 1336-1337.

— Engine fuels.

— Hecte fuel compared with export aviation gasoline.

— Hydrogen in airship engines.

— Instructions to pilots for the use of mixture controls.
Aerial Age, Vol. 13, No. 23 (Aug. 15, 1921), New York, pp. 541-542.

— A new engine fuel.
Aeronautics, Vol. 20, n. s., No. 368 (June 2, 1921), London, p. 301.

— Partial test of an alcohol fuel.

— The problem of fuel for aviation engines.
Aerial Age, Vol. 14, No. 1 (Sept. 12, 1921), New York, pp. 8-11, 22-23, diagr.

— Synthetic alcohol.
Aerial Age, Vol. 13, No. 13 (June 6, 1921), New York, p. 302.

— See Alcogas: Alcogas as aviation fuel compared with export-grade gasoline.
— See Casing head: Casing-head gasoline impossible for altitude work.
— See Dickinson, Hobert Cutler, V. R. Gage, and S. W. Sparrow: Comparison of hector fuel with export aviation gasoline.
— See Gage, V. T., S. W. Sparrow, and D. R. Harper: Comparison of alcogas aviation fuel with petrol.
— See Gage, V. R., S. W. Sparrow, and D. R. Harper, 3d: Comparison of alcogas aviation fuel with export aviation gasoline.
— See Gage, V. R., S. W. Sparrow, and D. R. Harper: Comparative power properties of alcogas and aviation gasoline.
— See Hexahydrobenzene: Hexahydrobenzene as a fuel.
— See Parish, W. F.: Proper balancing of fuel, lubricant, and motor.
— See Roberts, E. W.: Power characteristics of Sumatra and Borneo gasolines.
FUEL. See Roberts, E. W.: Power characteristics of 20 per cent benzol mixture.

— See LePere: LePere vacuum-feed system for airplanes.

Fuelizer. See Packard: The Packard fuelizer.

Fuu-I-Go. A Japanese two-seater.


Fuelizer. See Packard: Packard fuelizer.

Fulcher, G. S. Electrostatic effects on airships.


Füld, E. Amsterdam-Leuwarden.

Vliegveld, 5° jaarg., No. 18 (27 Aug. 1921), Amsterdam, pp. 257-258.
— De K. L. M.

Vliegveld, 5° jaarg., No. 24 (26 Nov. 1921), Amsterdam, pp. 325-326.
— Een druppel in de groote zee!

Vliegveld, 4° jaarg., No. 21 (9 Oct. 1920), 's-Gravenhage, pp. 335-337, ill.
— Eenige harde woorden.

Vliegveld, 5° jaarg., No. 10 (7 Mei 1921), Amsterdam, pp. 137-138.
— Gebruikt de luchtdiensten steunt onze nationale aviatiek.

Vliegveld, 5° jaarg., No. 7 (26 Maart 1921), Amsterdam, pp. 103-104.
— Het K. L. M.-subsidie en de tweede kamer.

Vliegveld, 5° jaarg., No. 25 (10 Dec. 1921), Amsterdam, pp. 338-339.
— Naar aanleiding van de begrooting.

Vliegveld, 5° jaarg., 1921, Amsterdam, p. 274.
— Voorbereidende propaganda voor 1922.

Vliegveld, 5° jaarg., No. 26 (24 Dec. 1921), Amsterdam, p. 352.
— Szintilla.

Vliegveld, 5° jaarg., No. 2 (15 Jan. 1921), Amsterdam, pp. 29-30, ill.

Fullam, W. F. Admiral Fullam on the Alabama tests.

Aerial Age, Vol. 14, No. 6 (Oct. 17, 1921), New York, p. 130.

Fullerton, J. D. Pioneers of British aviation—XXX. Col. J. D. Fullerton, R. E.


Funk, Georges. Power-recuperating engines; principles of operation and design of valve gear.

Mechanical Engineer, Vol. 12 (June, 1920), New York, pp. 334-335, diagr.
— The supercharging of internal-combustion engines—III.


Funk. Das Flugführerbuch.

Luchtweg, Nr. 14-15 (22 April 1920), Berlin, p. 5.

Fuselage. A boat-built fuselage.

— Breguet commercial airplane.

— Stubby fuselage is feature of surprising airplane.

— See Elmdorf, Armin: The design of monocoque fuselages.
G. A. X. The U. S. "G. A. X." ground attack triplane.

G., C. G. Aerial dispatches and terrestrial delays.
— The failure of civil aviation.
— On air lines.
— On air posts.
— On safety, comfort, and economy.
— On small racing machines. A sporting suggestion.
— On our imperial air routes.
— On the aerial derby.
— On the aero show.
The Aeroplane, Vol. 19, No. 2 (July 11, 1920), London, pp. 84-86A.
— On the air estimates.
— On the Air Ministry and the aircraft industry.
— On the amphibian competition.
— On the coming of civil aerial transport.
— On the lesson and the future.
— On the Monaco meeting.
— On the Navy’s way with the R. A. F.
— On the needs of civil aviation.
— On the R. A. F.’s first war.
— On the R. A. F. tournament.
— On the sport of flying.
— On who’s who in America.
G., E. Discussion des résultats du meeting de Monaco. 
Aéronautique, 2e année, No. 13 (juin 1920), Paris, pp. 22-25, ill.

G–FAAF. See Upson, Ralph H.: The British passenger airship G–FAAF.


G., S. D. Random reflections of the pageant. 


— Comparison of alco gas aviation fuel with petrol. 

— Comparative power properties of alco gas and aviation gasoline. 


— Some factors of engine performance. 

— A study of airplane engine tests. 


GAINES, C. Planting grain fields by airplane. 

GALLAUDET. The Gallaudet C–3 Liberty tourist plane. 
Aerial Age, Vol. 11, No. 23 (Aug. 16, 1920), New York, p. 771, ill.

— Gallaudet electric heat-treating furnace. 
Aviation, Vol. 11, No. 16 (Oct. 17, 1921), New York, p. 457-458, ill.

— Gallaudet Liberty tourist tested. 

— The Gallaudet multiple drive. 

— Gallaudet multiple drive tested. 
Aviation, Vol. 11, No. 10 (Sept. 5, 1921), New York, p. 279, ill.

GALLIOT, NORBERT. Un problème d’aérodynamique. 
Vie Aérienne, No. 171 (19 février 1920), Paris, pp. 982-983, ill.

— L’empoignade aérienne. 
Vie Aérienne, No. 194 (29 juil. 1920), Paris, p. 1244, ill.

BIBLIOGRAPHY OF AERONAUTICS, 1920–1921.

Galveston. Navy airplane base at Galveston.
Auto. Ind., Vol. 39, No. 11 (Sept. 12, 1918), Chicago, pp. 475.

Garavaglia, Benjamin. See Naef, Ernest: Benjamin Garavaglia parachutiste.

Gardner, H. A. Aircraft technical note on dopes and fabrics.

— Glues and veneers in aircraft work.

— Notes on fabric and dope.

— Prevention of dope poisoning.

— Tests on rigid outer cover cloth.
Aircraft Technical Note No. 183, Department of the Navy, Bureau of Construction and Repair, Washington (July 12, 1920), pp. 7, ill.

— Waterproof finishes for aircraft.


Gas. Experiments in apparatus for handling gas.
Aerial Age, Vol. 12, No. 18 (Jan. 10, 1921), New York, p. 471.


Gases. See David, W. T.: The internal energy of inflammable mixtures of coal gas and air after explosion.
— See David, W. T.: Radiation of explosions of hydrogen and air.
— See Helium: Government seeks to locate gas containing helium.
— See Helium: Helium in the British Empire.
— See Hydrogen: Apparatus for making and handling hydrogen.
— See Schuette, O. F.: Great natural-gas industry.
— See Upson, R. H.: Maintenance of gas purity by purging.
— See V., R.: L'hélium.

Gasnier du Fresne, P. À propos des services des dirigeables de marine pendant la guerre.
L'Aérophile, 26 année, Nos. 5/6 (1er-15 mars 1920), Paris, p. 79.
GASOLINE. Comparative test of special homogeneous gasoline and commercial aeronautical gasoline.

— Dopes for gasoline.
Aviation, Vol. 16, No. 2 (Jan. 10, 1921), New York, p. 53.

— Inflammability of gasoline.
Automotive Manufacturer, Vol. 62, No. 4 (July 1920), New York, p. 36.

— Test of various types of gasoline hose connections. (Power plants report No. 75.)

— Tests of synthetic gasoline.

— See Alcogas: Alcogas as aviation fuel compared with export-grade gasoline.

— See Dickinson, H. C., V. R. Gage, and S. W. Sparrow: Comparison of heceter fuel with export aviation gasoline.


— See Fuel.

— See Gage, V. R., S. W. Sparrow, and D. R. Harper, 3d: Comparison of alcogas aviation fuel with export aviation gasoline.


— See Imber: The Imber self-sealing gasoline tank.

— See Roberts, E. W.: Power characteristics of Sumatra and Borneo gasoline.

GASOLINE tank. See Gose, John: A fire prevention device.

GASTAMBIDE. See Blanchet, Georges: Un éclatant succès pour la technique française.

GASTAMBIDE-LATHAM. See Wings: Another new wing.

GASTAMBIDE-LEVAVASSEUR. The Gastambide-Levavasseur variable surface wing.

— Verstellflügel des Gastambide-Levavasseur-Doppeldecker.

— See Carrying surface: Die verstellbare Tragfläche.

GATES, S. B.: The full-scale determination of the pitching moment of a biplane.


— See Sandison, C. G. D., and S. B. Gates: Forces, moments, and interferences on wings and body of a \( \frac{1}{2} \) scale model of B. E. 2E with R. A. F. 15 wing section.

GAUBERT, LOUIS. Impressions of an aerial tour in America.
Aerial Age, Vol. 11, No. 15 (June 21, 1920), New York, p. 508, ill.
Gaul, K. G.: Der Einfluss der wissenschaftlichen Forschung auf die Konstruktion der Flugzeuge.

Gaulois, G.: Air bags for the airplane that lands on water.
Scient. Amer., Vol. 122 (May 1, 1920), New York, p. 489, ill.

— Cranking airplane propellers with a flask of air.

— Man-sized helicopter that leaves the ground with full load.

— What about our commercial aviation?


Gazetteer. French aeronautical gazetteer.

Geary. A mercantile air fleet as a factor in Indian defense.
Journal of the United Service Institution of India.

Geddes, A. E. M. Meteorology.
London, Blackie and Son (Ld.), 1921, pp. 396.


Geiger, Harold. What is the future of the large dirigible?

Generators. See Gray, G. P., J. W. Reed, and P. N. Elderkin: Air fans for driving generators on airplanes.

— See Hull, Lewis M.: Determination of the output characteristics of electron tube generators.


George Parnall and Co. See Great Britain: Modern British aircraft.


Gerhardt, W. F. The resistance of aeroloids.

— Technical discussion of helicopter progress. An important forward step in aerial transportation may soon be made.

— See Kerber, L. V., and W. F. Gerhardt: A method for determining the angular setting of a tail plane to give balance at any given condition.

Germany. Aeronautics in German universities.
Aerial Age, Vol. 13, No. 23 Aug. 15, 1921, New York, p. 533
GERMANY. Aid is refused to German airplane.

---

America and German aircraft.
   Aerial Age, Vol. 12, No. 17 (Jan. 3, 1921), New York, p. 435.

---

Aeronautics investigations in Germany.
   Technical Notes, National Advisory Committee for Aeronautics, No. 72 (Oct. 1921), Washington (mim.), pp. 9.

---

Aviation in Germany.

---

British flying rights in Germany.

---

Commercial air transport in Germany.

---

Commercial aviation in Germany.

---

Communiqués de l'office aérien fédéral: Luftverkehr nach Deutschland.
   Suisse Aérienne, 2e année, No. 12 (25 Juin 1920), Berne, pp. 175-176.

---

Design and structure of the German metal airplane.
   Aut. Ind., Vol. 42 (June 19, 1920), New York, pp. 1390-1392, diagr.

---

Development of giant aircraft in Germany.

---

Die deutsche Luftsporlamission und ihre Jättigkeit.

---

Explosion days. A German diary of life in a captive balloon.
   U. S. Air Service, Vol. 2, No. 6 (Jan. 1920), New York, pp. 6-11, ill.

---

A fast German semirigid airship.
   Aviation, Vol. 11, No. 4 (July 25, 1921), New York, p. 101, ill.

---

From German technical reports.

---

German aerial enterprise. A German gliding and soaring competition.

---

A German aerial time table.

---

German aeronautical material at Antwerp.
   Aerial Age, Vol. 12, No. 3 (Mar. 28, 1921), New York, p. 64; Flight, No. 633, Vol. 13, No. 6 (Feb. 10, 1921), London, p. 97.

---

A German aeroplane testing plant.

---

The German air danger.

---

German air lines.
   Aerial Age, Vol. 11, No. 5 (Oct. 10, 1921), New York, p. 112.

---

German air mails.
GERMANY. German aircraft at Grain.

— German aircraft and indemnification figures.

— German airplanes succeed in trials.

— German airplanes; tabulation.
Aer. Ind., Vol. 42 (Jan. 15, 1920), New York, pp. 188-190.

— German airship situation.
AER, Vol. 9, No. 8 (Nov. 8, 1920), New York, p. 262.

— German airships.

— German all-metal commercial machines.
AER, Vol. 13, No. 13 (June 6, 1921), New York, p. 302.

— German aviation.

— German aviation companies.

— The German B. M. W. high-altitude engines.

— German cabin plane makes début at Mineola.
Aircraft Journal, Vol. 8, No. 16 (Apr. 17, 1920), New York, pp. 3-5, ill.

— German commercial flying.

— A German criticism of British airship performances.

— German disarmament.

— German frontier aerial navigation rules.

— German gliding contest.
AER, Vol. 13, No. 6 (Apr. 18, 1921), New York, p. 137.

— German gliding flight trials.
Flight, No. 663, Vol. 13, No. 36 (Sept. 8, 1921), London, pp. 597-598.

— German high-lift wings.

— The German M-type airships.

— German night-landing scheme.
AER, Vol. 12, No. 24 (Feb. 21, 1921), New York, p. 614.

— German progress in aviation.
Journ. Soc. Automotive Engineers, Vol. 6, No. 6 (June 1920), New York, p. 421.

— German propeller has steel core rods with wood fillings.
BIBLIOGRAPHY OF AERONAUTICS, 1920–1921.

GERMANY. A German sport monoplane.
Aviation, Vol. 9, No. 12 (Dec. 6, 1920), New York, p. 294, ill.

— German supercharger developments.

— German state committee for aeronautics.
Aerial Age, Vol. 13, No. 17 (July 4, 1921), New York, p. 400.

— German subsidy scheme.

— German views on airships.

— German wind-tunnel tests.

— Germans build aircraft to raid France.

— Germans hide airplane parts.
Aviation, Vol. 10, No. 10 (Mar. 7, 1921), New York, p. 305.

— Germany and the peace treaty.

— Germany awaiting opportunity to compete for dominion of the air.
Aerial Age, Vol. 13, No. 4 (Apr. 4, 1921), New York, p. 88.

— Germany infringes clauses concerning aircraft disarmament.
Aerial Age, Vol. 12, No. 20 (Mar. 7, 1921), New York, p. 664.

— Gliding in Germany.

— The Inter-Allied Commission in Germany.

— Motorless monoplane in Germany makes extraordinary flight. Rises to 300 feet and soars for more than 13 minutes.

— New record by a new German-designed monoplane.
Literary Digest, Vol. 66 (July 27, 1920), New York, pp. 70–74, ill.

— An official view of German aviation.

— The present position of German aviation.

— Second German soaring competition.

— The soaring flight competition, 1921.

— Soaring flight in Germany. The Rhön competition.

— Some recent German airplanes.
Aviation, Vol. 8, No. 1 (Feb. 1, 1920), New York, pp. 20–22, ill.

— The truth about German flying.

— Typical German radiator practice.
GERMANY. What Germany says.

Aerial Age, Vol. 12, No. 19 (Jan. 17, 1921), New York, p. 496.

- World’s largest airplane completed in Germany.
  Pop. Mech., Vol. 33 (June 1920), Chicago, p. 880, Ill.
  See “Airliner”: Post-war aviation in Germany.
  See Airships: The German airships L-64 and L-71.
  See “Anglo-Dane”: Commercial aviation in Germany.
  See Baumann, A.: Progress made in the construction of giant airplanes in Germany during the war.
  See Bradley, W. F.: Germany grimly hopeful for her aircraft industry.
  See Compass: Distant-reading German airplane compass.
  See Dalsace, A.: À propos des avions géants allemands.
  See Diesel: A German Diesel airplane engine.
  See Dornier: A new German all-metal machine. The Dornier C5, 185 B. M. W., engine.
  See Engines: Enemy aircraft engines, detailed descriptions of certain of the engines in use and the German aeroplane-engine trials.
  See Foch, Ferdinand: Foch gives figures on German aircraft.
  See Gohlke, H.: Ziele der deutschen Flugtechnik.
  See Gradenwitz, Alfred: German all-metal commercial machines.
  See Gradenwitz, Alfred: German gyro gauges. The Anschütz aircraft horizon.
  See Great Britain: How England profited by German dirigible construction.
  See Hildesheim, Erik: Commercial aviation in Germany.
  See Hildesheim, Erik: The development of giant aeroplanes in Germany.
  See Hildesheim, Erik: German aerial developments.
  See Hildesheim, Erik: German aero engines at the armistice.
  See Hildesheim, Erik: More German and Austrian aircraft.
  See Hildesheim, Erik: Recent German aero engines developments.
  See Hildesheim, Erik: Some new German seaplanes.
  See Hildesheim, Erik: Some German seaplanes.
  See Hildesheim, Erik: New series Vee type German Benz aero engines.
  See JL-6: The log of an aluminum air liner in first passenger flight, New York to Chicago; the JL-6 German metal monoplane beats the Twentieth Century Limited by 12 hours.
  See Lagorgette, Jean: Les avions allemands.
  See Legge-Pool, A.: The defeat of Germany.
  See Military aeronautics: Explosion days. A German diary of life (and death) in a captive balloon.
  See Neumann, Georg Paul: German air force in the great war . . .
  See Oldroyd, C. A.: Is Germany bluffing?
  See Parsons, F. W.: Air supremacy of Germany.
Germany. See Rego, Marc: L’aéronautique allemande.

— See Sabatier, J.: The large German airship centers and their organization.

— See Sabatier, J.: Large German airship stations.

— See Sablatnig: The Sablatnig P. 3 monoplane. Germany’s first commercial aeroplane.

— See Schwager, Otto: Development of German aircraft engines.

— See Staaken monoplane: The new Staaken monoplane. An interesting German all-metal machine.

— See Tanzi, J.: La technique des dirigeables rigides allemands.

— See Thomas, G. Holt: Aeroplane design, German capacity, and our empire’s future in the air.

— See Upson, Ralph H.: The Bodensee commercially profitable. Postwar conditions in German aerial transportation.

— See Warner, Edward P.: The German aircraft industry.

— See Warner, Edward P.: German wind tunnels and apparatus.

— See Warner, Edward P.: Report on German wind tunnels and apparatus.

— See Wronsly, IV.: Commercial aviation in Germany.


Giacomelli, R. Meteorologia aeronautica.
L’Aeronautica, anno 3, Num. 1 (marzo 1920), Roma, pp. 57-38.

— Le salon de l’aéronautique.

Giblett, M. A. A comparison of minimum temperatures for the periods 17th to 9th and 17th to 17th

Gibson, A. H. Aero-engine efficiencies.
Transactions of the Royal Aeronautical Society.
Aviation, Vol. 10, No. 8 (Feb. 21, 1921), New York, pp. 238-240.

Gilbert, Eugène. Le monument à l’aviateur Gilbert inauguré à Vichy.
L’Aérophile, 28 année, Nos. 19-20 (nov. 1920), Paris, pp. 311-312.

Gil, N. J. The aerial arm.

Gil, Warren D. Into the future.
The Ace, Vol. 2, No. 3 (Oct. 1920), Los Angeles, pp. 9-10, 22, ill.

Gilles, G. La chambre à dépression de Friedrichshafen.
Aéronautique, 3e année, No. 21 (avrill 1921), Paris, pp. 177-179, ill.

— Le moteur d’aviation solve 300 HP.
Aéronautique, 3e année, No. 26 (juill. 1921), Paris, pp. 277-280, ill.

Gillet, P. Le laboratoire Eiffel pendant la guerre.
La Conq. l’Air, 3e année, No. 4 (15 févr. 1920), Bruxelles, pp. 43-46; No. 5 (1 mars), pp. 54-56.

Giradoux, Jean. Sentiment et langage.
Aéronautique, 3e année, No. 30 (nov. 1921), Paris, pp. 430-431.
BIBLIOGRAPHY OF AERONAUTICS, 1920–1921. 169

GIROCLINOMETER. Giroclinometro luminoso. Rivista marittima (giugno 1920), Roma, pp. 3-4.


GLIDERS. See Burke, F. D.: Airplane-type ski glider.

— See Miller: The Miller amphyglider.

— See White, G. D.: How to build a glider for $10.

GLIDING. See Constantin, Jean: Sur le problème du vol à voile.

GLIDING flight. Gleiter.

— Il velivolo più grande del mondo.

— See Germany: German gliding flight trials.

— See Soaring.

— See Wittekind, Fritz: Gleit und Segelflug.

GLOUCESTERSHIRE AIRCRAFT COMPANY (Ltd.). See Great Britain: Modern British aircraft.

GLUE. See Allen, S. W., and T. R. Truax: Glues used in airplane parts.

— See Boulton, B. C.: The manufacture and use of plywood and glue.

— See Bradford, Louis J.: Failure of casein glue joints in ash.

— See Gardner, H. A.: Glues and veneers in aircraft work.

GNOME engines. Gnome engine works destroyed.


GNOSSPELIUS, O. T. Pioneers of British aviation—XXXIX. Maj. O. T. Gnosspe- lius.


GÖTTINGEN. The aerodynamic experimental station at Göttingen.


— Some Göttingen tests on thick sections.


— See Prandtl: Göttingen wind tunnel for testing aircraft models.

GÖTTINGEN, A. BETZ. Vortices and the related principles of hydrodynamics.


GÖTTINGER Modellversuchsanstalt für Aerodynamik. Der Einfluss der Oberflächen-beschaffenheit auf den Widerstand, untersucht an Streben.


GOGGLES. Goggle requirements.

Aviation, Vol. 10, No. 2 (Jan. 10, 1921), New York, pp. 43-44.

GOHLE, H. Ziele der deutschen Flugtechnik.

Wirtschafts-Motor No. 12 (Dec. 1920), Berlin, pp. 35-36; Nos. 2-3 (Feb.-Mar. 1921), pp. 31-34, 34-37, ill.

GOLD, E. Aerial navigation and meteorology.


GOLDENBERG, V. Les diagrammes logarithmiques.

Suisse Aérienne, 3e année, 1921, No. 19, Berne, pp. 149-155, ill.

— Les données expérimentales de l’aérodynamique.

Suisse Aérienne, 3e année, 1921, No. 6, pp. 77-81, ill.

Anhang von Robert Gell.

— Un hydravion de sport: Le Dornier libellule.

Suisse Aérienne, 3e année, 1921, No. 18, Berne, pp. 262-263, ill.

— Le meeting de Dübendorf.

Suisse Aérienne, 3e année, 1921, No. 13, Berne, pp. 189-190, ill.

— Note sur les nîles de Handley-Page.

Suisse Aérienne, 3e année, 1921, No. 19, Berne, pp. 281-282, ill.
BIBLIOGRAPHY OF AERONAUTICS, 1920–1921.

GOLDENBERG, V. Notes sur l’aviation en Europe orientale. Suisse Adrienne, 3e année, 1921, No. 11, Berne, pp. 155-156.

GOLLIATH F 60. See Naef, Ernest: Le Goliath F 60 à Lausanne.


GONIOMETRIC functions. See Blondell, A.: On the goniometric functions applicable to directive aerials.


— The American Gordon Bennett racers.


American Gordon-Bennett team sails. Aviation, Vol. 11, No. 10 (Sept. 5, 1921), New York, p. 287.

— American planes for the Gordon Bennett cup.

Literary Digest, Vol. 66 (Sept. 11, 1920), New York, pp. 82-86, ill.


— La copa Gordon-Bennett. Tohtli, año 5, Núm. 3 (oct. 1920), México, pp. 92-93, ill.

— Coupe aéronautique "Gordon-Bennett." Conq. l’Air, 3e année, No. 5 (1er mars 1920), Bruxelles, p. 52.


BIBLIOGRAPHY OF AERONAUTICS, 1920–1921.

GORDON-BENNETT. Entries for the Gordon Bennett.

— Experiences in the Gordon Bennett balloon race.
Aviation, Vol. 11, No. 18 (Oct. 31, 1921), New York, pp. 503-504, ill.

— France wins Gordon Bennett aviation race.

— French keep the Gordon Bennett cup.

— The Gordon Bennett.

— Gordon-Bennett airplane race.

— The Gordon Bennett aviation trophy.

— The Gordon Bennett aviation trophy contest.
Flying, Vol. 9, No. 8 (Sept., 1920), New York, pp. 506-507, ill.

— The Gordon Bennett balloon race.

— The Gordon-Bennett cup race.
The Ace, Vol. 2, No. 2 (Sept. 1920), Los Angeles, pp. 9, 24, 28, ill.

— The Gordon Bennett Cup. U. S. A. Army entry.

— Gordon Bennett entry of the U. S. Air Service.
Aviation, Vol. 9, No. 5 (Oct. 1, 1920), New York, pp. 148-149, ill.

— The Gordon Bennett. Interesting Curtiss entry.

— Gordon-Bennett 1920. The cup goes to France.

— Der Gordon-Bennett-Preis der Lüfte 1921 für die Freiballone.

— The Gordon-Bennett race.

— On the last Gordon Bennett race, September 23, 1920.

— Our Gordon Bennett cup challengers.
Aviation, Vol. 9, No. 3 (Sept. 1, 1920), New York, p. 92, ill.

— Presentation of the Gordon Bennett trophy.
Aviation, Vol. 9, No. 8 (Nov. 8, 1920), New York, p. 265, ill.

— Reflections on the Gordon Bennett race.

— La réunion et le diner du 12 octobre à l’occasion de la coupe Gordon-Bennett et du meeting de Buc.

— The S. E. J. Cox Gordon-Bennett expedition.
Aerial Age, Vol. 11, No. 26 (Sept. 6, 1920), New York, pp. 867, 881, 883, ill.

— The sixth Gordon Bennett aviation race.
BIBLIOGRAPHY OF AERONAUTICS, 1920–1921.

GORDON-BENNELL. Some Gordon Bennett racers.
Aer. Eng. Suppl. The Aeroplane, Vol. 19, No. 20 (Nov. 17, 1920), London, pp. 794, 796.

— U. S. A. Army entry.

— See Bradley, W. F.: Bennett cup winner uses novel cooling equipment.

— See Dollfus, Charles: La coupe Gordon-Bennett des ballons libres.


— See Races: The approach of two classic races: The Schneider and the Gordon-Bennett.

— See Saladin, Raymond: Derniers échos de la coupe Gordon-Bennett.


GORRELL, EDGAR S. Air navigation.

GORRELL, EDGAR S., and PHIL. CARROLL. Colonel Raynal Cawthorne Bolling. Lawyer—cavalryman—flyer.

GORRELL, EDGAR S. Rules of the air.

GORTON, W. S. The subsidiary gap as a means for improving ignition.
Fifth annual report of National Advisory Committee for Aeronautics, Washington, 1920, pp. 177-190, ill.

GORTON, WALTER T. Aircraft machine guns.
Aviation, Vol. 10, No. 23 (June 6, 1921), New York, pp. 724-727, ill.

GOSE, JOHN. A fire-prevention device.

GOSPORT. The Gosport system.
Air Power, Vol. 4, No. 12 (June 1920), New York, pp. 176-180, ill.

GOTHU. See Hildesheim, Erik: The latest twin-engined Gotha war aircraft.

GOTTLICH, S. Note on northeast component winds observed Jan. 27–31, 1920.

GOUAULT, EMILE. L’état actuel de l’aéronautique en France.

— La navigation commerciale aérienne.

GOUBERT, LOUIS. L’aéronautique au 18ème concours Lépine.
Vie Aérienne, 5e année, No. 7 (18 Sept. 1920), Paris, p. 196, ill.

— L’aviation de transport.

— Hommage d’un fantassin a Georges Guynemer.
Vie Aérienne, 5e année, No. 6 (11 Sept. 1920), Paris, p. 82-83, ill.

— L’homologation de la coupe G. B. des petits aéroplanes.
Vie Aérienne, 5e année, No. 17 (27 Nov. 1920), Paris, p. 258.

— Les mémoires de Denhaut.
BIBLIOGRAPHY OF AERONAUTICS, 1920–1921.

Goubert, Louis. La traction sur route par hélice aérienne.
Vie Aérienne, 5e année, No. 1 (5 août 1920), Paris, pp. 12-13, ill.

* La turbine à combustion appliquée à la locomotion aérienne; par L. Goubert et H. Hadde.

Gourdou. Les études de MM. Gourdou et Lessuerre.
Aéronautique, 3e année, No. 36 (nov. 1921), Paris, p. 480, ill.


Gourdou, Charles, and J. Lessuerre. Calcul des longeons d’une aile d’avion.
Aéronautique, 1re année, No. 12 (mai 1920), Paris, pp. 545-546.

Aircraft Technical Note No. 174, Department of the Navy, Bureau of Construction & Repair, Washington (Apr. 6, 1920), pp. 7, ill.

Graby, Raoul. Un peu partout.
Vie Aérienne, 5e année, No. 1 (5 août 1920), Paris, p. 16.

Gradenwitz, Alfred. Automatic cinematograph for aerial surveying.

— Flyer’s artificial eye and ear.

— Doctor Nitschmann’s solution of the soaring flight problem.

— German all-metal commercial machines.

— German gyro gauges. The Anschutz aircraft horizon.

— German gyro gauges. The Drexler aircraft steering gauge.
Aeronautics, Vol. 20, n. s., No. 401 (June 23, 1921), London, pp. 451-452, ill.

— Intelligence tests at high altitudes.

— Kinematographic surveying.

— New types of parachutes.
Aviation, Vol. 11, No. 1 (July 4, 1921), New York, p. 22, ill.

— The 1,000-horsepower Zeppelin monoplane.

— A remote control compass.

Aerial Age, Vol. 12, No. 2 (Sept. 29, 1920), New York, pp. 46-47, ill., diagr.

— The Grahame-White E-8 nine-seater limousine.

— Grahame-White-Grossverkehrs-Flugzeug.


Graiol. See Germany: German aircraft at Grain.
GRAMBERG, A. Maschinenuntersuchungen und das Verhalten der Maschinen im Betriebe.

GRAMMEL, R. Der Kreisel.

GRAMONT, ARMAND DE, DUC DE GUIÈCHE. Essais d’aérodynamique, Volume IV, quatrième serie.
Paris, 1920, pp. 180, ill.

---

La navigation aérienne par temps de brume.

GRAND CANYON. Flight through the Grand Canyon.
Aviation, Vol. 11, No. 9 (Aug. 29, 1921), New York, p. 255.

---

See Arizona: A flight thru the Grand Canyon of Arizona.

GRANET, ANDRÉ. See Blanchet, Georges: La VIIe exposition de la locomotion aérienne.
L’organisateur du salon André Granet.

GRANT, HUGH DUNCAN. A contribution to the meteorology of the English Channel.

GRASSET, A. L’aéronautique, el la guerre maritime.
Aéronautique 3e année No 30 (nov. 1921), Paris, p. 426.

GRAVITY. See McAdie, A.: Gravity and aerostatic pressure on fast ships and airplanes.

GRAY, C. F., J. W. REED, and P. N. ELDERKIN. Air fans for driving aircraft generators.
Engineering and Industrial Management, Vol. 5, n. s., No. 4 (Jan. 27, 1921), London, pp. 98-100, ill.

GREAT BRITAIN. Aeronautics in 1919.
Engineer, Vol. 129 (Jan. 2-9, 1920), London, pp. 5-8, 31-36, ill.

---

Advisory Committee reports.
Reports published by the Aeronautical Research Committee.

---


---

The air estimates.

---

Air League of the British Empire.

---

Air ministry competitions, 1920.

---

Airplane has been put to work in Great Britain.

---

Aviation taking its place.

---

British aerial events in 1920.

---

Britain’s part in the air.
GREAT BRITAIN. British aerial invasion.

- British air mail. Aerial Age, Vol. 13, No. 26 (Sept. 5, 1921), New York, p. 622.
- British Government warns against aircraft perils. Literary Digest, Vol. 65 (June 19, 1920), New York, pp. 102-104.
- British governmental cooperation in commercial aeronautics. Aerial Age, Vol. 13, No. 19 (July 18, 1921), New York, pp. 443-464.
- British imperial air routes. Flying, Vol. 9, No. 5 (June 1920), New York, pp. 338-344.
- British military and naval airplanes on which authentic data have been released since November 11, 1918; tabulation. Auto. Ind., Vol. 42 (Jan. 15, 1920), New York, pp. 180-187.
- British pilots required to pass examination in navigation. Flying, Vol. 10, No. 3 (Apr. 1921), New York, pp. 102-104.
- British terms for disposal of airships. Aerial Age, Vol. 13, No. 16 (June 27, 1921), New York, p. 376.
- Civil flying progress in Britain. Aerial Age, Vol. 13, No. 2 (Mar. 21, 1921), New York, p. 40.
GREAT BRITAIN. Cooperation of aircraft with artillery.
(Revised edition.) (Provisional.) Issued by the General Staff.

Cost of the air war.

The Department of Civil Aviation.

The Dominions and aircraft.

England frees air to civilians.
The Navigator, Vol. 1, No. 14 (May 15, 1920), Pensacola, Fla., p. —.

The future of British flying.

Government aeroplane competitions, 1920 and 1912.

Halbjahresbericht des britischen Luftministeriums.

Half-yearly report on British civil aviation.
Aerial Age, Vol. 13, No. 17 (July 4, 1921), New York, pp. 394-395.

How England profited by German dirigible construction.

Luftpolitik Englands.

Machines de aviação Britannicos.

Modern British aircraft. A résumé of machines and engines of to-day.

Modern British engines. A résumé of aero engines of to-day.

More about British engines.

La navigation commerciale aérienne en Grande-Bretagne.
Models submitted for Air Ministry competition held Sept. 1920.

The Navy and the air.

The 1920 British air program.
Air Power, Vol. 6, No. 2 (Feb. 1920), New York, pp. 40-47, ill.

On the British aircraft industry as it is and was.

Passenger air service is planned. British plan air service between London, Brazil, and Argentine Republic.

Pioneers. Celebration in honor of the first 100 British aviators and the pioneers of British aviation.


— Progress of British civil aviation.
Aviation, Vol. 10, No. 7 (Feb. 14, 1921), New York, pp. 207-208.

— Progress of civil aviation. A digest of half-yearly report issued by British Air Ministry.
Flying, Vol. 10, No. 1 (Feb. 1921), New York, pp. 16, 27.

— The progress of civil aviation. Half-yearly report of the Controller-General of C. A.

Suisse Aéronnie, 2e année, No. 7 (10 avr. 1920), Berne, pp. 104-105.

— Résumé de communiqué No. 514 du Ministère britannique de l'air.
Suisse Aéronnie, 2e année, Nos. 9-10 (mai 1920), Berne, pp. 144.

— The Royal Aero Club of the United Kingdom.

— Smallest British airplane weighs 220 pounds.

— Some machines at the Air Ministry competitions.

— Typische Britische Flugzeuge.

— De vooruitgang van het luchtverkeer.
Vlieveld, 5e jaarg., No. 15 (16 Juli 1921), Amsterdam, pp. 216-217.

— Work of the British Air Office.

— See Advisory Committee for Aeronautics.
— See Air Ministry: Civil Aviation Advisory Board.
— See Airships: The future of British airships.
— See Airships: The largest British-built airship.
— See Argentina: British enterprise abroad.
— See Browne, E. A.: Vom grössten Verkehrsfugzeug Grossbritanniens.
— See Certificates: British aerial navigators' certificates.
— See Civil Aviation: Six months' flying. Summary of official report.
— See Estimates.
BIBLIOGRAPHY OF AERONAUTICS, 1920–1921.

Great Britain. See Japan: British aviation in Japan.

— See Magnets: British magnets.

— See Manufacturers Aircraft Association: British air power and air policy. Analysis of British air appropriations, 1921–1922.

— See Mail: England recognizes America’s lead in aerial mail.

— See R-80: Aerial cruiser; details concerning the latest British rigid dirigible R-80.

— See Routes: The imperial air routes.

— See Royal Aeronautical Society. Associate fellowship.

— See Whale, G.: British airships, past, present, and future.


— See Wright patents: British planes licensed under Wright patents.

Great Lakes. Naval aviation school is great.


Great Steam Duck. Great steam duck; the first western tract on aviation.


Greece. Commercial aviation in Greece.


Green, F. M. Development of the fighting aeroplane.


Green, F. M. The technical history of the aeroplane.


Green Engine Co. See Great Britain: Modern British engines.

Greenhill, George. Compass deviation due to vibration, without friction.


— Flying as affected by the wind.


— Gyroscopic stability of a flying machine.


Gregg, Harold W. See Schneider, Edward C., Brenton R. Lutz, and Harold W. Gregg: The changes in the content of hemoglobin and erythrocytes of the blood in man during short exposures to low oxygen.

— See Schneider, Edward C., Brenton R. Lutz, and Harold W. Gregg: Compensatory reactions to low oxygen.

Gregg, Willis Ray. Average free-air conditions as observed by means of kites at Drexel Aerological Station, Nebr., during the period November, 1915, to December, 1918, inclusive.


— The highest aerial sounding.


— Some recent papers on the rate of ascent of pilot balloons.


Gregory, Sir Richard. Discovery.

GRENOBLE, H. S. Strength tests of screw fastenings of plywood.
Aerial Age, Vol. 12, No. 21 (Jan. 31, 1921), New York, pp. 533-536.
Aviation, Vol. 10, No. 8 (Feb. 21, 1921), New York, p. 290.

GREY, CHARLES GREY. All the world’s aircraft, 1919.
London, 1920. Sampson Low, Marston & Co. (Ltd.).
London, Sampson, Low, Marston & Co., 1921, pp. 300, 74, 33, ill.

— French and Italian hydroaeroplanes at Monaco.

— On a tour in the west country.

— On the Japanese-American war.

— On variable and other wings.
481-482, 503-504, 525-530.

— Why Great Britain has no airships. British business man arraigned for failure to see that airship lines would reestablish trade in one-fourth the time it will take in present circumstances.

— See Jane, F. T.: All the world’s aircraft, 1920. Edited and compiled by C. G. Grey.

GREY, ROBIN. Major Robin Grey.


GRIEBSCH, WILHELM. Leutnant d. R. Wilhelm Griebisch.

GRIES, ALOYS v. Flugzeugstatik.
Berlin, Julius Springer, 1921, pp. xii, 380, ill.

GRIFFITH, A. A., and G. I. TAYLOR. The application of soap films to the determination of the torsion and flexure of hollow shafts.

GRIFFITH, A. A. The determination of the torsional stiffness and strength of cylindrical bars of any shape.

— On the shape of fins for the cooling of hot surfaces by a stream of air.


GRIFFITH, A. A. The phenomena of rupture and flow in solids.


--- Second report on the twisting of propeller blades.


GRIFFITHS, E. See Stanton, T. E.: Miss Dorothy Marshall and E. Griffiths: On the dissipation of heat from the surface of an air-cooled engine when running and when at rest.


GRIFFITHS, E. A., and J. D. COALES. Effect of variation in the bottom chamber of aerofoils.


GRIFFITHS, E. A. Experiments on an aerofoil with flap extending along the whole length.


--- Forces and moments on triplanes.


--- Further experiments on wing (A) of the previous section to obtain a comparison with standard wing sections, eliminating the effect of plan form and aspect ratio.


--- Influence of a small body placed on an aeroplane wing at its center.


--- Model test on fairing for chassis axle.


--- Test of AVRO wing section.


--- Test of the standard R. A. F. 6a wing section.


--- Tests of R. A. F. 3-wing section under standard conditions.


GRIFFITHS, E. A. Tests on high-tension magnetos.

GRIFFITHS, E. A., and C. H. POWELL. Tests on two aerofoils for the Aircraft Manufacturing Co. (Ltd.).


See Pannell, J. R., and E. A. Griffiths: Determination of the forces and moments acting on a model of a flying boat hull.
See Pannell, J. R., and E. A. Griffiths: The effects of the variation of gap, stagger and angle between the chords of a biplane.
See Pannell, J. R., E. A. Griffiths, and J. D. Coales: Experiments on the interference between pairs of aeroplane wires of circular and lenticular cross-section.
See Pannell, J. R., and E. A. Griffiths: Forces and moments on upper and lower planes of a biplane.

GRIGG, A. D. See William Froude National Tank Staff, and A. D. Grigg: Experiments with models of soapplane floats. (Ninth series).

GRIMAULT, P. Les concours officiels d'avions civils pour 1920 en France et en Angleterre.
Aéronautique, 1er année, No. 11, (avril 1920), Paris, pp. 471-475.

Sur l'atmosphère standard.

Le vent sous l'aile.
Aéronautique, 3e année, No. 22 (mars 1922), Paris, pp. 118-119.

GRISSELL prize. Airship and architects. A 1921 competition.
Prize of £50 and a gold medal given by the Royal Institute of British Architects.

GRÖSCHLER, A. Flugpost-und Luftverkehrspropaganda.
Luftweg, Nr. 11-12 (24. März 1921), Berlin, p. 90.

GROSE, FREDERICK J. Performance calculations of an aeroplane.

GROSE. Segelflugfragen.

GROUND engineering. Notices to ground engineers.

See Air Ministry: Air Ministry notice to ground engineers.

See Outram, H. W. S.: Ground engineering.

Groves, Robert Marsland. Air Commodore Groves killed.

——. R. M. Groves memorial prizes for the R. A. F.

Grzędziński, January. Stefan Drzewiecki.

Gsell, Robert. Abriss de letzten Entwicklung der Verkehrsflugzeuge.
Suisse Aérienne, 3rd year, No. 1 (January 1921), Berne, pp. 5-6, ill.

——. Anpassung.

——. Anhang zu Goldenberg: Les données expérimentales de l’aérodynamique.

——. Die Bedeutung des Staudruckmessers für die Sicherheit des Fluges.
Suisse Aérienne, 3rd year, No. 3, Berne, 1921, pp. 34-35.

——. Die Bordinstrumente der Verkehrsflugzeuge.

——. Existenzfragen.
Suisse Aérienne, 2nd year, Nos. 9-10, (May 1920), Berne, pp. 136-137, ill.

——. Das motorlose Flugzeug.

——. Die neuen techn. Abnahmedelegationen für Verkehrsflugzeuge in Frankreich.
Suisse Aérienne, 3rd year, No. 2 (February 1921), Berne, pp. 22-23.

——. Über die Verwendung von Düsen zur Arbeitsleistung.


——. Le laquage des bois.

Suisse Aérienne, 2nd year, Nos. 9-10 (May 1920), Berne, pp. 131-133, ill.

——. More about high flying.
Scient. Amer. Monthly, Vol. 2 (July 1920), New York, pp. 70-73, diagr.

——. La vie et les voyages aux très hautes altitudes; cabines closes, à pression constante, pour ballons et avions.


——. See Photography: Aerial photography in British Guiana.

Guide lights for airman.

Guidoni, A. Aerodynamics at very high speed.
Aerial Age, Vol. 13, No. 2 (Mar. 21, 1921), New York, pp. 31-32.

The gliding surface of seaplane floats. Aviation, Vol. 8, No. 9 (June 1, 1920), New York, pp. 363-365, diagr.


What has been done and is being done in Italian aeronautics. U. S. Air Service, Vol. 3, No. 3 (Apr. 1920), New York, pp. 31, ill.

GUINEA. See Idrac, P.: Soaring flight in Guinea.


GUNS. See Military aeronautics: Resistance on aeroplane guns.

GURDON, J. E. See Neumann, Georg Paul: German air force in the great war . . . translated by J. E. Gurdon.

GYLANEc. See France: L’organisation de lignes aériennes en Guyane française.

GUYNEMEIR, GEORGES. See Goubert, Louis: Hommage d’un fantassin à Georges Guynemer.


GYRO gauges. See Gradewitz, Alfred: German gyro gauges. The Anschütz aircraft horizon.

GYROSTATIC compass. See Brown, S. G.: Gyrostatic compass.

— See Compass: Gyrostatic compass; a nonmathematical treatment.

H.


HAACKE. Der Haacke-Flugzeugmotor.

— The Haacke 30-horsepower aero engine.
HAACKE. The Herman Haacke motor.
Aerial Age, Vol. 13, No. 24 (Feb. 21, 1921), New York, p. 612, ill., diagr.

HAAS, A. Einführung in die theoretische Physik.
Einführung in die theoretische Physik mit besonderer Berücksichtigung ihrer modernen Probleme.


HAEDER, H. Kleines Hilfsbuch für Flieger und Freunde des Flugwesens, von R. Thebis und Dr. H. Haeder.
Wiesbaden, pp. 48.

HAEDICKE, H. Die Zerlegung der Kräfte bei schiefem Winddruck und der dieneussche Höcker.

HAEFNER. Flugzeugkutscher oder Luftkapitän?

HAEGIN, FRIEDRICH. Wirtschaftsfragen der Zivilaviatik.
Suisse Aérienne, 2e année, No. 8 (25 avril 1920), Berne, pp. 121-122.

HAENELT, W. Aufgaben, Ziele, Organisation der Luftfahrtvereine.

HAENICHER, G. Skizzenbuch für Flugzeugkonstrukteure, von W. Weikert und G. Haenisch.

HAGGqvist, F. E. Aerial photography and its applications to modern industries.
Aerial Age, Vol. 13, No. 17 (July 4, 1921), New York, pp. 391-392.


HAHN, HANNS. Die internationale Olympia-Ausstellung.
Types of airplanes.

HAI. Air mail in Haiti.
Aviation, Vol. 9, No. 10 (Nov. 22, 1920), New York, p. 327.

HALL, CHARLES S. A revolution in flying.

HALL, HOKWORTHY. An interview with the editors.


HAMMONDSPORT. Hammondsport again aeronautic center. Aerial Age, Vol. 11, No. 19 (July 19, 1920), New York, pp. 645-659, ill.


HANDASYDE (Ltd.). See Great Britain: Modern British aircraft.


— The H. P. wing and Germany.

— The Handley-Page aircraft deal.

— Das Handley-Page-Fügel-Patent.

— The Handley-Page patent.

— Handley-Page records.

— Handley-Page type W. 8.

— Per Handley-Page van Parijs naar Londen.
Avia, 8e jaarg., No. 7 (15 Mei 1920), Rotterdam, pp. 83-85, ill.

— The Handley-Page wing.
Aerial Age, Vol. 13, Nos. 2, 4 (Mar. 21, Apr. 4, 1921), New York, pp. 37-38; 82-84.

— The Handley Page wing patent.
Aviation, Vol. 9, No. 6 (Oct. 15, 1920), New York, pp. 197-198, diagr.

— Mr. Handley Page on German soaring tests.

— A map of Europe, prepared by Messrs. Handley Page (Ltd.), showing the air services actually in operation or contemplated.

— Der neue Handley-Page Flügel.

— A new Handley Page.

— New Handley Page aeroplane wing.

— The new Handley Page monoplane. First machine designed for slotted wing.

— The new Handley-Page wing.
Aerial Age, Vol. 12, No. 9 (Nov. 8, 1920), New York, p. 230, ill., diagr.
Aviation, Vol. 9, No. 9 (Nov. 15 1920), New York, p. 288, diagr.

— Pioneers of British aviation—XXV: Mr. F. Handley Page, F. R. Ae. S.

— Revolutionary improvements in aeroplane construction announced by Handley Page.
Aerial Age, Vol. 11, No. 3 (Mar. 29, 1920), New York, pp. 80, 88.


— See Brewer, Griffith: The Langley machine and the Hammondsport trials.

— See Commercial aviation: Europe's progress in commercial aviation. Handley-Page map of European air routes.

— See Goldenberg, V.: Note sur les ailes de Handley-Page.

— See Great Britain: Modern British aircraft.


— See Marco Polo: An immediate application of slotted aerofoils. Their use as interplane ailerons.


— See Wings: The Handley-Page wing.

— See Wings: More H. P. wing experiments.


— The Lakehurst hangar is nearing completion. Aviation, Vol. 9, No. 12 (Dec. 6, 1920), New York, p. 388, ill.


— See Airships: Airship sheds and their erection.


BIBLIOGRAPHY OF AERONAUTICS, 1920-1921. 189

HANKINSON, R. L. See Boulton, B. C., and R. L. Hankinson: Properties of woods at 10 per cent moisture.

HANNEN. A novel carburetor.
Aerial Age, Vol. 13, No. 22 (Aug. 8, 1921), New York, p. 522.

HANREZ, G. Un paradoxe d’aérodynamique.
La Conq. l’Air, 3e année, No. 5 (1 mars 1920), Bruxelles, p. 56.

HANRIOT. Hanriot aircraft.

— Les nouveaux avions Hanriot.
Aéronautique, 3e année, No. 19-20 (Janv. 1921), Paris, pp. 292-293, ill.

— Two new Hanriot airplanes.
Aviation, Vol. 11, No. 13 (Sept. 31, 1921), New York, p. 373.

HANRIOT, RENÉ. Les nouveaux avions René Hanriot.
Aéronautique, 3e année, No. 30 (Nov. 1921), Paris, pp. 440-442, ill.

HANSCOM, CLARENCE D. The new Glenn Martin high lift wing.
Aviation, Vol. 11, No. 11 (Sept. 12, 1921), New York, pp. 316-317.

— Present tendencies in airplane design.
Aviation, Vol. 11, No. 21 (Nov. 21, 1921), New York, pp. 597-598.

— Some experiments on thick wings with flaps.
Aerial Age, Vol. 13, No. 4 (Apr. 4, 1921), New York, pp. 79-82.

HANSEN, N. Englische Luftpostperspektiven.
Luftweg, Nr. 8-9 (4. März 1920), Berlin, pp. 7-9, ill.

— Flugökonomie und Herzmuskelleistungen der Vögel.
Flug, Sondernummer (Des., 1920), Wien, pp. 111-112.

— Die Flugverkehrsaussichten in Australien.

— Das Flugzeug im dienste der Forscher.

— Luftreisebilder vom Kairo-Kapstadtflug.

— Neue Fortschritte im drahtlosen Telefondienst und Handelsluftverkehr.

— Dan Problem des Nachtflugverkehrs.

HARCOURT, J.d’ L’aviation militaire et l’accident.

HARDIN. Hardin package parachute at world series.
Aviation, Vol. 11, No. 18 (Oct. 31, 1921), New York, p. 514.

HARDING, WARREN G. Aeronautics. Message of the President of the United States transmitting seventh annual report of the National Advisory Committee of Aeronautics, 1921.

— Aviation report of President to Congress. Views of minority of special committee overruled in report to President.
Aviation, Vol. 10, No. 18 (May 2, 1921), New York, pp. 552-558.

— President Harding and aeronautics.
BIBLIOGRAPHY OF AERONAUTICS, 1920–1921.

HARDING, WARREN G. President Harding favors united air service.
Aviation, Vol. 11, No. 4 (July 25, 1921), New York, p. 96.

— President Harding indorses National Advisory Committee policy.
U. S. Air Service, Vol. 5, No. 4 (May 1921), New York, pp. 11-13, ill.

— President Harding sends special message on aviation. United States, he asserts, should be foremost.

— The President on aviation. From the address to the 67th Congress, Apr. 12, 1921.

— See Civil Air Bureau: President Harding urges civil air bureau.

HARLAUT. L'evolution des moteurs d'aviation allemands.
Aéronautique, 3e année, No. 27 (août 1921), Paris, pp. 310-315, ill.


— See Gage, V. R., S. W. Sparrow, and D. R. Harper, 3d: Comparison of alcogas aviation fuel with export aviation gasoline.

— See Gage, V. R., S. W. Sparrow, and D. R. Harper: Comparison of alcogas aviation fuel with petrol.


HARRIES, G. W. Laws for air travel.

HARRIES, HY. Some local winds of the East Indian seas.
Great Britain, Meteorological office, Monthly meteorological charts East Indian seas, June 1920.

HARRIS, R. G. Forces on a propeller due to sideslip.

— Graphical solution of stability biquadratic.


HARROW, BENJAMIN. Contemporary science; with an introduction.
New York, Bond & Liveright, 1921, pp. 9-253.
Modern library of the world's best books.

HARRY, D. Fire eagles; how army planes and pilots keep check on forest fires.
Sunset, Vol. 45 (Sept. 1920), San Francisco, pp. 104-105, ill.

HART. Hart reversible pitch propeller.
Aviation, Vol. 10, No. 3 (Jun. 17, 1921), New York, pp. 78-80, ill.

HART propeller. Modified Hart adjustable-pitch propeller manufactured by American Propeller & Manufacturing Co. (Destructive whirling test No. 257.)

HARTFORD. Hartford aerial meet.
Aerial Age, Vol. 13, No. 15 (June 20, 1921), New York, pp. 340-341, ill.

HARTNEY, HAROLD E. The Air Service and civil aeronautics.
Aviation, Vol. 10, No. 10 (May 7, 1921), New York, pp. 307-309.
BIBLIOGRAPHY OF AERONAUTICS, 1920–1921.

HARTNEY, HAROLD E. A glimpse at our airways of the future.

— How United States can save $452,000,000. The economy of airplanes as compared to battleships.
Aviation, Vol. 10, No. 19 (May 9, 1921), New York, pp. 588–590.

— Memorial Day address delivered at the National Cemetery, Grafton, W. Va.

— Notes on running Mono-Soupape engine.
Aircraft Journal, Vol. 6, No. 8 (Feb. 21, 1920), New York, p. 5, ill.

— On the problems of commercial aeronautics.
Flying, Vol. 9, No. 10 (Nov. 1920), New York, pp. 638–640, ill.

See Pulitzer trophy: Army flier winner of America’s greatest race. Lieutenant Moseley and Captain Hartney, first and second in contest for Pulitzer trophy at Mitchel Field.

HARTWELL, P. E. Surface winds and lower clouds.

HARTZ, See Bellinger and Hartz: Commander Bellinger and Colonel Hartz ask Senate investigation of conspiracy against them.

HASLETT, ELMER. Luck on the wing; thirteen stories of a sky spy.

HASSET, A. Uebel' die Verwendbarkeit leichter Einsitzer auf Riesenflugzeugen.
Luftweg, Nr. 8-9 (4. März 1920), Berlin, pp. 6-7, ill.

HAUBY, WILFRED. Metals in aircraft construction.

HAUSEN, F. D. Frontflieger einst und jetzt.

HAVANA. See Commercial aeronautics: Flying boat service from Key West to Havana.

— See Commercial aeronautics: Key West-Havana air line inaugurated.

— See Commercial aeronautics: Key West-Havana passenger air line.

HAVELOCK, T. H. The stability of fluid motion.

HAVILAND. See De Haviland.

HAVILAND, G. DE. De Haviland on civil aviation.

HAVILAND AIRCRAFT CO. The D. H. cantilever monoplanes.

HAW, JAKOB. Sonderbauarten von Luftschrauben.

HAWA. See Dierfeld, Benno R.: The Hawa commercial triplanes.

— See Hildesheim, Erik: “Hawa” civil aircraft.

HAWAII. See Cariel, Cruse: Hawaii from the air.


HAWK. See Clough, G. E.: Mystery of the soaring hawk.

— See Landon, W. G.: That hawk again.

HAWKER, HARRY. The late Harry Hawker.
The Aeroplane, Vol. 21, No. 3 (July 20, 1921), London, p. 64.
Hawker, Harry. Mort de l'aviateur Harry Hawker.
——. The passing of Harry Hawker.
Flight, No. 655, Vol. 13, No. 29 (July 21, 1921), London, pp. 491-495.
Hayachi, Keiichi. Fünfstellige Tafeln der Kreis- und Hyperbelfunktion, sowie der Funktionen e^x und e^{-x} mit den natürlichen Zahlen als Argument.
Hayford, John Fillmore. What should be done to increase the civil use of airplanes?
The Ace, Vol. 2, No. 6 (Jan. 1921), Los Angeles, pp. 8-9.
Hazell. Hazell's annual and almanack.
London, 1921.
Hazeltine, R. H. Aeroplane observation of artillery fire against ships.
Heald, R. H. Performance of a vane-driven gear pump.
Technical Notes, National Advisory Committee for Aeronautics, No. 61, Sept. 1921, Washington (mim.), pp. 10, diagrs.
Aerial Age, Vol. 14, No. 4 (Oct. 3, 1921), New York, pp. 81-83, 90, diagr.
Heat balloons. See Brown, F. C.: How to make a heat balloon.
Heat treating. See Black, Archibald: The heat treating of brazed fittings for aircraft.
——. See Gallaudet: Gallaudet electric heat-treating furnace.
Hébrard, Léo. Le bombardement nuit et les problèmes de la navigation aérienne.
Aéronautique, 3e année, No. 10 (sept. 1920), Paris, pp. 158-163, ill.
——. Traité pratique de navigation aérienne.
Heceter. A comparison of hectar fuel with export aviation gasoline.
——. See Dickinson, H. C., V. R. Gage, and S. W. Sparrow: Comparison of hectar fuel with export aviation gasoline.
——. See Fuel: Comparison of hectar fuel with export aviation gasoline.
——. See Fuel: Hectar fuel compared with export aviation gasoline.
Heenan-Froude. The Heenan-Froude dynamometer.
Heffner, R. J. Telephoning from the air.
Hegener, Henri. De Kairo-Bagdad luchtlijn.
Hegener, Henri. Van over de grenzen. 

Heidelberg, Ing. v. Measurements of rudder moments on an airplane during flight. 

Heimstädt, Oskar. Ueber die seitliche Stabilität. 
Flug, Jahrg. 1920, Nr. 5 (Mai), Wien, pp. 45-48, ill.

Heinecke. Der Heinecke-Fallschirm. 

Heinecke, Otto. Der Spruch des Preisgerichts. 
Aut. Flugv., Nr. 10 (Okt. 1921), Berlin, pp. 408-411.

Heinrich, A. O. An analysis of soaring flight. 

Held. Der wiener Flughafen in Aspern. 
Flug, Sondernummer (Des. 1920), Wien, pp. 30.

Held, Theodor. Stellungnahme zu der durch die Entente hervorgerufen Lage der österreichischen Luftfahrt. 
Flug, 8. Jahrg., Nr. 9-10 (1. Mai 1921), Wien, pp. 18-19.

Heldt, P. M. Dutch passenger-carrying monoplane. 

Ignition is discussed by the metropolitan section, S. A. E. 

Helicopter. L'hélicoptère. 
Vie Aérienne, No. 164 (1er janv. 1920), Paris, p. 560.

Helicopters. Concerning helicopters. 


— European developments in helicopters. 

— The helicopter. 

Aeroplane vs. Helicopter. Possible line of thought. 

— Helicopter experiments. 

— Helicopter flight. 
Aerial Age, Vol. 14, No. 12 (Nov. 28, 1921), New York, p. 290.

— The helicopter in England. 
Aerial Age, Vol. 15, No. 17 (July 4, 1921), New York, p. 400.

— The helicopter in Europe. 
Aerial Age, Vol. 12, No. 17 (Jan. 3, 1921), New York, p. 435.

— Helicopter machine (24/5/21). 

— L'hélicoptère Oemichen. 
Aéronautique, 3e année, No. 24 (mai 1921), Paris, pp. 213-214, ill.

— Helicopters and aeroplane helicopters. 
Aerial Age, Vol. 13, No. 16 (June 27, 1921), New York, p. 374.

— Helicopters and parachutes. 
HELIQUPTER. Le premier vol en hélicoptère libre monté.
La Nature, 49e année, 1er sem., No. 2444 (5 février 1921), Paris, p. 93.
Flight of M. Oehmichen.

Recent European developments in helicopters.

See Bateman, H.: Stability of the parachute and helicopter.
See Beach: The Beach helicopter.
See Berliner: The new Berliner helicopter.
See Bothezat, G. dei: The actual state of the helicopter problem.
See Brennan, Louis: The Brennan helicopter.
See Damblanc: The Damblanc helicopter.
See Damblanc: M. Damblanc on the helicopter.
See Damblanc: Le parachute-hélicoptère de M. Damblanc.
See Damblanc, Louis: Les hélicoptères et les laboratoires d'essais.
See Damblanc, Louis: The problem of the helicopter.
See Fage, Arthur, and H. E. Collins: Some experiments on helicopters.
See Gaulois, G.: Man-sized helicopter that leaves the ground with full load.
See Karman: Tests made with captive helicopters.
See Karman, Th. v.: Neuere Schraubenfliegerprojekte.
See Karman, Th. v.: Theoretische Bemerkungen zur Frage des Schraubenfliegers.
See Karman-Petroczy: The Karman-Petroczy helicopter.
See Lamé, M.: Vers la sécurité; la sustentation indépendante.
See Lamé: Hélicoptères et avions-hélicoptères.
See Léémonon, E. H.: L'hélicoptère serait-il l'appareil aérien de l'avenir?
See Low, A. R.: Helicopters.
See Malterner, S. N.: Helicopter.
See Oehmichen-Peugeot: The Oehmichen-Peugeot helicopter.
See Passat: The Passat "helicopter."
See Pescara.
See Pescara: Pescara helicopter.
See Pishoff, de: Considérations sur les hélicoptères.
BIBLIOGRAPHY OF AERONAUTICS, 1920–1921.

HELICOPTER. See Saladin, Raymond: Étude générale sur l'hélicoptère.
— See Shaw, Douglas: The coming of the helicopter.
— See Skerrett, R. G.: Again the helicopter; experiments by prominent inventors who hope to realize this long-standing dream.
— See Toussaint, A.: Drag or negative traction of geared-down supporting propellers in the downward vertical glide of a helicopter.
— See Toussaint, A.: Freinage ou traction négative des hélices sustentatrice-debrayées dans la descente planée verticale d’un hélicoptère.
— See Warner, Edward P.: The problem of the helicopter.

HELIUM. Characteristics of helium gas.
— Government seeks to locate gas containing helium.
— Helium.
— Helium a success in airship tests.
— Helium als Füllgas.
— Helium for airships.
Aerial Age, Vol. 14, No. 9 (Nov. 7, 1921), New York, pp. 203, 207.
Aviation, Vol. 11, No. 22 (Nov. 20, 1921), New York, p. 635.
— Helium in the British Empire.
— Helium production in America.
— Industrial applications of helium.
— Railroad helium repurification plant.
Aviation, Vol. 8, No. 1 (Feb. 1, 1930), New York, p. 17.
— Trials of helium-filled airship C–7.
— See Andrews, W. S.: Helium, the substitute for hydrogen in balloons and dirigibles.
— See Barr, Guy: The permeability of balloon fabrics by helium.
— See Davis, J. W.: Helium; methods evolved under the stimulus of war to be applied to commercial production.
— See McLennan, J. C.: Helium, its production and uses.
— See McLennan, J. C.: Uses of helium.
— See Moore, Richard B.: Helium; Its history, properties, and commercial development.

---
The 300-horsepower Benz aircraft engine.
Technical Notes, National Advisory Committee for Aeronautics, No. 34 (Jan. 1921), Washington (mim.), pp. 10, diagrs.

Henderson, David. David Henderson.

---

Hendy, R. A. Commercial aviation in Australia.
Aviation, Vol. 11, No. 2 (July 11, 1921), New York, p. 49.

Henky, Die Wärmeüberlustrande ebene Wände.
München, Verlag Oldenbourg, 1921, pp. 121, ill.

Hennig, R. Praktische Wetterregeln für Jedermann.
Leipzig und Wein, 1921, Franz Deutieke, pp. 59, ill.

Henri-Paul. Les avions Henri-Paul.

Henry, M. A. Varying the airplane propeller pitch.

Hensley, Wm. C. America and airship transportation. Col. Wm. C. Hensley’s experiences on the “Bodensee” and his conclusions.
Aircraft Journal, Vol. 6, No. 3 (Jan. 17, 1920), New York, pp. 10-11, ill.

---
An American on German airships.

---
Commercial air routes held near. Colonel Hensley, studying dirigibles in Germany, urges United States to prepare...

---
Hensley urges development of rigid airships.

London, Benn Brothers, 1920, pp. 88.

Herbert, Alfred. Turret-lathe practice.

Hercules. Hercules Airplane spark plugs.

Hergesell, Hugo. Männer der Luftfahrt—XII.

---
Wettersicherung der deutschen Luftfahrt.

Hermant, Paul. Deux avions de transport commercial.
Aéronautique, 3e année, No. 29 (avril 1921), Paris, pp. 167-168, ill.

Herne, E. D. C. The prosecution of Captain Herne.
BIBLIOGRAPHY OF AERONAUTICS, 1920-1921.

HERRICK, MYRON T. Myron T. Herrick, president of Aero Club.
Aviation, Vol. 16, No. 4 (Jan. 24, 1921), New York, p. 109, ill.

HERRMANN, H. Abbremsen von Motoren mittels Bremluftschraube.
—— Aus der Literatur des Segelfluges.
—— Brennstoffgefäße, -leitungen und Benzinpumpen.
—— Die Flugzeuge der englischen Luftfahrt-Ausstellung 1920.
—— Flugleistungen englischer Militärluftflugzeuge.
—— Hubschrauber.
—— Ist der Luftschaubenantrieb für Kraftfahrzeuge brauchbar?
—— Motoren der englischen Luftfahrt-Ausstellung.
—— Ueber Fliegen bei ungünstiger Witterung und Wünsche des fliegenden Personals.
—— Verstellprofile.
—— Wasserkraftflugzeuge.
—— Wirtschaftlichkeit ausgeführter Verkehrsflugzeuge.

HERMANN, KURT. Männer der Luftfahrt—V: General-Direktor Kurt Herrmann.

HERSEY, MAYO D. Aeronautic instruments.
Aviation, Vol. 8, Nos. 11-12 (July 1, 15, 1920), New York, pp. 437-440, 473-476, ill.

HERSEY, MAYO D., FRANKLIN L. HUNT, and HERBERT N. EATON. The altitude effect on air-speed indicators.

HERSEY, M. D. Aneroid investigations in Germany.

Hess, Victor F. Uber einige physikalische Fragen, deren experimentelle Bearbeitung durch Versuche im Freiballon wünschenswert wäre.
—— Ueber Höhenmessungen auf radialskelem Grundprinzip.

HETZER, OTTO. Neuzzeitliche Flugzeughallen aus Holz.


HEXAHYDROBENZENE. Hexahydrobenzene as a fuel.
Hickam, H. M. Municipal landing fields.

—— Progress in commercial aviation.

—— The truth about our aeroplane record.
Aerial Age, Vol. 14, No. 7 (Oct. 24, 1921), New York, pp. 155-158.

Hickman. To build Hickman sea sleds.
Aircraft Journal, Vol. 7, No. 2 (July 12, 1920), New York, p. 9, ill.

Hicks, C. Empire building by air: Cairo to the Cape.

Hicks, Frederick C. Aircraft versus dreadnaughts. Results of air bombing of the ex-German ships "Ostfriesland" and "Frankfurt." Speech of Hon. Frederick C. Hicks, of Long Island, in the House of Representatives, August 20, 1921.

—— Hicks' bill for bureau of aeronautics in Navy.

—— The proposed bureau of aeronautics in the Department of Commerce.

Hier. See Hildeshiem, Erik: The Austrian "Hiero" aero engines.

Hieronymus, Otto. Anforderungen an die Motoren des Verkehrsflugzeuges.
Flug, Sondernummern (Déc. 1920), Wien, pp. 57-59.

Hild-Marshonet. Das amerikanische "Hild-Marshonet" sportflugzeug.

—— The Hild-Marshonet sportplane.


Hildeshiem, Erik. A. E. G. aircraft.

—— Albatross aircraft.

—— Albatross 8-seater cabin monoplane.
Aviation, Vol. 10, No. 16 (Apr. 18, 1921), New York, p. 505, ill., diagr.

—— The Austrian "Hiero" aero engines.

—— Aviatik aeroplanes.

—— Commercial aviation in Germany.

—— The development of giant aeroplanes in Germany.

—— The development of the Parseval airships.

—— Dornier all-metal cantilever monoplanes.
Aviation, Vol. 10, No. 22 (June 6, 1921), New York, pp. 721-723, ill.
HILDESHEIM, ERIK. The Dornier flying boats.

--- The Dornier giant flying boats.
Aviation, Vol. 8, No. 11 (July 1, 1920), New York, pp. 432-434, ill.

--- Experiments with and practical use of superchargers.

--- German aerial developments.

--- German aero engines at the armistice.

--- The Dornier giant flying boats.
Aviation, Vol. 8, No. 23 (June 9, 1920), London, pp. 1125-1128, ill., diagr.

--- The Dornier giant flying boats.
Aviation, Vol. 8, No. 23 (June 9, 1920), London, pp. 1125-1128, ill., diagr.

--- Experiments with and practical use of superchargers.

--- German aerial developments.

--- German aero engines at the armistice.

--- The Dornier giant flying boats.
Aviation, Vol. 8, No. 23 (June 9, 1920), London, pp. 1125-1128, ill., diagr.

--- The Dornier giant flying boats.
Aviation, Vol. 8, No. 23 (June 9, 1920), London, pp. 1125-1128, ill., diagr.

--- Experiments with and practical use of superchargers.

--- German aerial developments.

--- German aero engines at the armistice.

--- The Dornier giant flying boats.
Aviation, Vol. 8, No. 23 (June 9, 1920), London, pp. 1125-1128, ill., diagr.

--- The Dornier giant flying boats.
Aviation, Vol. 8, No. 23 (June 9, 1920), London, pp. 1125-1128, ill., diagr.

--- Experiments with and practical use of superchargers.

--- German aerial developments.

--- German aero engines at the armistice.

--- The Dornier giant flying boats.
Aviation, Vol. 8, No. 23 (June 9, 1920), London, pp. 1125-1128, ill., diagr.

--- The Dornier giant flying boats.
Aviation, Vol. 8, No. 23 (June 9, 1920), London, pp. 1125-1128, ill., diagr.

--- Experiments with and practical use of superchargers.

--- German aerial developments.

--- German aero engines at the armistice.

--- The Dornier giant flying boats.
Aviation, Vol. 8, No. 23 (June 9, 1920), London, pp. 1125-1128, ill., diagr.

--- The Dornier giant flying boats.
Aviation, Vol. 8, No. 23 (June 9, 1920), London, pp. 1125-1128, ill., diagr.

--- Experiments with and practical use of superchargers.

--- German aerial developments.

--- German aero engines at the armistice.

--- The Dornier giant flying boats.
Aviation, Vol. 8, No. 23 (June 9, 1920), London, pp. 1125-1128, ill., diagr.

--- The Dornier giant flying boats.
Aviation, Vol. 8, No. 23 (June 9, 1920), London, pp. 1125-1128, ill., diagr.

--- Experiments with and practical use of superchargers.

--- German aerial developments.

--- German aero engines at the armistice.
HILL, FREDERICK T. Practical aeroplane construction. A treatise on modern workshop practice as applied to the building of aircraft.


HILL, G. T. R. The relative effect of changes in weight and head resistance on the performance of an aeroplane.
— The selection of the best wing section for an aeroplane with given landing speed.

HILL, J. D. The touring airplane and the variable camber wing.
Aviation, Vol. 9, No. 5 (Oct. 1, 1920), New York, pp. 159-160.

HILL, R. H. A comparison of the flying qualities of single and twin engine aeroplanes.

HILL, R. M. Comparison of single and twin engine aeroplanes.
— A comparison of the flying qualities of single and twin engine aeroplanes.
— Flying of twin-engined aeroplanes.
— Flying single and twin engined airplanes.
Aviation, Vol. 16, No. 9 (Feb. 28, 1921), New York, pp. 273-276.
— The maneuvers of getting off and landing.
— The technique of flight.

HINKLER, BERT. Mr. Hinkler’s latest feat.
— The Odyssey of Bert Hinkler.

HINTERSTOISSER, FRANZ. Das Fliegen vor zehn Jahren.
Flug, Sondernummer (Dec. 1920), Wien, pp. 92-93.
— Zur Geschichte der Luftfahrt in Oesterreich.

— L’Année aéronautique 1920-1921. 2e année.
Paris, Dunod, 1921, pp. 288-ix, ill.

HIRSCHAUER, L., Après le grand prix de Monaco.
L’Aérophile, 28e année, Nos. 15-16 (1er-15 août, 1920), Paris, pp. 236-238.
— L’aviation de transport. L’évolution de la construction de 1907 à 1919 et la réalisation des avions de transport. L’utilisation économique des appareils.

— Un problème d’orientation. L’Aérophile, 28e année, Nos. 7-8 (1er-15 avril 1920), Paris, p. 117, ill.

— See L’Année Aéronautique.

HISPANO-SUIZA. From Hispano-Suiza to Wright. Aerial Age, Vol. 13, No. 23 (Aug. 15, 1921), New York, p. 538.


Hoff, Wilhelm. The development of German Army airplanes during the war.

— Theory of the ideal windmill.

— Zum Rhön-Segelflug-Wettbewerb 1921.

— Zur "Arbeitsleistung vermittelt geringer Druckunterschiede."

— Zusatz "Theorie der idealen Windkraftmaschine."

Hoffman, C. G. Ordeal by fire; a note on the psychology of fear.

Hoffmann, A. M. New helicopter design promising.

Hoffman, Raoul J. Comparison of airplane performances.
Aviation, Vol. 11, No. 16 (Oct. 17, 1921), New York, pp. 446–447, ill.

— Selection of a wing section.

Hoffmannsthal, Emil v. Bankrott des Luftrecht? 

Hoog, John Edwin. An airplane camping tour in California.

— Flying anglers troll for deep-sea fish.

Holland. Aerodromes, seaplane stations, customs, etc.

— Air traffic with Holland.


Holmes, J. D. V. The worries of an aerodrome prospector.

Holmes, P. L. Mail transport. The cooperation of aircraft and surface craft.

Holm, H. S. An air mail suggestion.

— The air postman.

— Life parachutes and the Air Ministry.

— Parachutes anchored and free.
Flight, Vol. 12, No. 9 (Feb. 20, 1920), London, p. 239.


Holtermann, E. H. Ford motored airplane proves practical.


HONEGGER, JEAN-JACQUES. Le premier champ d'aviation alpestre en Suisse à Montana.

Suisse Adrienne, 3e année, 1921, No. 20, Berne, p. 296.


— Obituary. The late Maj. Linton Hope, M. I. N. A.


HOPP, GEO. Coating airplane wings mechanically. Aviation, Vol. 9, No. 3 (Sept. 1, 1920), New York, p. 96, diagrs.

HORIZON. See Gradenwitz, Alfred: German gyro gauges. The Anschutz aircraft horizon.


HOUSTON, G. H. Aeronautics, international aspects, national control, commercial development, etc.

HOUTEN, OT VAN. In memoriam.
Vliegveld, 5e jaarg., No. 23 (5 Nov. 1921), Amsterdam, p. 319, port.

HOWARD. Amerik. Howard R-Flugzeug-Projekt.

HOWARD, HARVEY J. Judgment of distance with semaphores and a screen at 100 meters.

— A new apparatus for testing accommodation.

— A stereomicrometer.

— A test for the judgment of distance.

HOWARD, R. Seeking the 7-mile ceiling.

HOWARD, RAYMOND M. A proposed American transport aeroplane.

HOWARD, S. Raid on Dun.

HOWARD lectures. Howard lectures—Royal Society of Arts.
   Aerial Age, Vol. 13, No. 7 (Apr. 25, 1921), New York, p. 150.

— Huff-Daland biplane at Bolling Field.
   Aviation, Vol. 10, No. 17 (Apr. 25, 1921), New York, p. 333, ill.

— The Huff-Daland H. D-4 training airplane.
   Aviation, Vol. 11, No. 13 (Sept. 26, 1921), New York, pp. 366-369, ill.

Hug, August. Das Flugzeug als Verkehrsmittel.
   Suisse Aéronette, 2e année, No. 21 (21 nov. 1920), Berne, pp. 318-319; No. 22 (30 nov.), pp. 333-339, ill.; 3e année, 1921, Nos. 1, 6, 8, 9, pp. 10-13, 74-76, 108-113, 124-126, ill.

Hug, Martin. Deutschland und das Ballon-Gordon-Bennett 1921.
   Suisse Aéronette, 3e année, 1921, No. 20, Berne, p. 296.

— Zur Segelflugfrage.
   Suisse Aéronette, 3e année, 1921, No. 20, Berne, pp. 292-294.

Huguet, L. Airplane balance.

— Calculs aérodynamiques des avions: lois de la résistance de l'air.
   Encyclopédie Technique des Aide-mémoire Pluman, Paris & Liège, C. Béanger, 1922, pp. 120, diagrs.


   Paris, La Renaissance du Livre, 1 vol.

Hull, T. G. Creep errors in altimeters due to hysteresis.

Hull, Lewis M. Determination of the output characteristics of electron-tube generators.
   Washington, 1919, Bureau of Standards.

Humphreys, W. J. A manual of aerography for the United States Navy, 1918.

— Physics of the air.
   Philadelphia Published for the Franklin Institute, by J. B. Lippincott Co., 1920, pp. xi, 665, ill.

Hunsaker, Jerome C. Accident percentage.

— Model test for strength and deformation of nonrigid airship hulls.
   Aviation, Vol. 9, No. 2 (Aug. 15, 1920), New York, pp. 53-54, diagr.

— Naval architecture in aeronautics.
HUMSAKER, JEROME C. Résumé of wind-tunnel tests of airship envelopes. 
Aviation, Vol. 8, No. 3 (Mar. 1, 1920), New York, p. 110.

— U. S. naval aircraft. 

— Velocity and stresses in a glide. 

HUNT, FRANKLIN L. See Hersey, Mayo D., Franklin L. Hunt, and Herbert N. Eaton: 
The altitude effect on air speed indicators.

HUNTER, ROBERT J. Cultivating the balance sense: A prelude to cloud flying. 
Air Service Information Circular (Heavier-than-air), Vol. 1, No. 3 (Mar. 15, 1920), Washington, 

HUNTING. See Great Britain: The Dominions and aircraft.

HUNTINGTON. The Huntington motorcycle-engined monoplane. 
Aerial Age, Vol. 12, No. 17 (Jan. 3, 1921), New York, p. 449, diagr.

HUNTINGTON, A. K. Death of Professor Huntington. 

HUSTED, D. R. Stability and balance in airplanes. 

HURRICANE. Airplane estimate of hurricane damage. 
Aviation, Vol. 11, No. 3 (July 18, 1921), New York, p. 77, ill.

HUXLEY, JULIAN S. The “flight” of flying fish. 

HYDE, J. H. Experiments on models of a “Duplex” wind channel: (ii) Experiments on a model of the proposed 14 by 7 foot wind channel, with an investigation into the steadiness of the velocity and direction of the air flow compared with the corresponding effects in an existing 7-foot channel. 

— See Stanton, Thomas Ernest, and J. H. Hyde: Experiments on models of a “Duplex” wind channel. (i) Note on a possible method of increasing the size of wind channels beyond their present limits.


HYDE, W. A. A stabilized camera. 
Aviation, Vol. 10, No. 1 (Jan. 3, 1921), New York, pp. 13-14, ill.

— Stabilization of airplane instruments. 

HYDROAEROPLANE. A hydroaeroplane flying model. 
Aerial Age, Vol. 12, Nos. 24-25 (Feb. 21-28, 1921), New York, pp. 617, 641, ill., diagr.

— The hydroaeroplanes at Monaco. 

HYDROAVIONS. El torneo internacional “Schneider” para hidroaviones. 

HYDRO-ELECTRIC work. See Dichman, E. W.: Airplane costs in hydro-electric work.

HYDRODOME. Airplane hydroplane makes 71 miles an hour. 

— Airplane-wing principle applied to water craft. 
BIBLIOGRAPHY OF AERONAUTICS, 1920–1921.

HYDRODYNAMICS. See Betz, A.: Wirbel und im Zusammenhang damit stehende Begriffe der Hydrodynamik.

— See Prandtl, Ludwig: Application of modern hydrodynamics to aeronautics.

HYDROGEN. Apparatus for making and handling hydrogen.

— See Barr, Guy: Hydrogen for airships and balloons.
— See Barr, Guy, and E. A. Owen: Note relative to the weight of hydrogen.
— See David, W. T.: Radiation of explosions of hydrogen and air.
— See Fuel: Hydrogen in airship engines.
— See Rideal, Eric K.: Développements possibles dans la fabrication de l'hydrogène.

Aviation, Vol. 11, No. 2 (July 11, 1921), New York, p. 48, ill.

HYDROGRAPHIC OFFICE. See United States, Hydrographic Office: Notice to aviators...

HYDROGRAPHY. See Photography: Application of photography in hydrography.

HYDROPLANES. Air-propelled hydroplane has auto body.

— Épreuves et concours aéronautiques. Les épreuves d’hydravions de Monaco.

— Hydravions géants aux États-Unis.

— Navy sells 400 flying boats to a New York concern.
The Navigator, Vol. 1, No. 23 (July 24, 1920), Pensacola, Fla., pp. 1, 8.

— See Baker, G. S.: Flying boat hulls.
— See Baker, G. S.: Flying boats—the form and dimensions of their hull.
— See Creed, G.: The “What is it?”
— See Floats: Collapsible floats for aeroplanes.
— See Flying boats: Acetylene-welded flying boat carries 10 tons.
— See Guidoni, A.: The gliding surface of seaplane floats.
— See Hickman: To build Hickman sea sleds.
— See Hope, Linton: Notes on flying boat hulls.
— See Nutting, William Washburn: The “HD-4.” A 70-miler with remarkable possibilities developed at Dr. Graham Bell’s laboratories on the Bras d’Or Lakes.
— See Paul, George F.: Boats driven by airplane propellers.
BIBLIOGRAPHY OF AERONAUTICS, 1920–1921.

I.

IACHINO, A. Il potere marittimo nella grande guerra. L'Aeronautica, anno 3, Num. 5-6 (luglio-agosto 1920), Roma, pp. 234–239.

Ice sled. An ice sled. Aviation, Vol. 11, No. 21 (Nov. 21, 1921), New York, p. 606, ill.

IDE, JOHN JAY. Aeronautic research laboratory at the Institute of St. Cyr. Aut. Ind., Vol. 44, No. 16 (Apr. 21, 1921), New York, pp. 833–855, ill., diagr.


— Comparative merits of Dixie magneto and Delco battery ignition system when used on a Liberty "12" aero engine. Aviation, Vol. 8, No. 7 (May 1, 1920), New York, pp. 291-292.


— See Engines: Why magneto ignition makes a good engine better.


— See Heldt, P. M.: Ignition is discussed by the metropolitan section, S. A. E.

— See Paquito: The Paquito ignition system.

— See Schools: Ignition course, aviation mechanics' school, Great Lakes.

— See Schwager, Otto: Eine neue Zündung ausländischer Flugmotoren.
IGNITION. See Sparrow, S. W.: Increases in maximum pressures produced by preignition in internal-combustion engines.

See Sparrow, S. W.: Preignition and spark plugs.

See Starters: New ignition end Bijur airplane engine starter.

ILLINGSWORTH, A. E., and V. A. H. ROBESON. The history of the 24th Squadron, R. A. F.

London.


IMBER. The Imber safety tank.

Aviation, Vol. 11, No. 12 (Sept. 19, 1921), New York, p. 347.

The Imber self-sealing gasoline tank.

Aircraft Journal, Vol. 6, No. 8 (Feb. 21, 1920), New York, pp. 11-12, ill.


IMPERIAL Air Communications Committee. The report of the Imperial Air Communications Committee.


IMPERIAL conference. Air questions at the imperial conference.


IMPERIAL War Museum. The Imperial War Museum.


INCIDENCE meter. Aircraft incidence meter.


See Zahm, Albert Francis: Development of an aircraft incidence meter.

INCLINOMETERS. See Instruments: Special inclinometers and indicators.

INDIA. Aerial survey in India.


Aerial surveying in India.


Aeroplanes for India.


Indian air routes.


The Indian Government and aviation.


India's hundred aeroplanes.


The "Nighthawk" in India.


Prohibited areas in India.


Suggested air fleet for India.


See R., F. A. de V.: The Indian air mail.

See Civil aviation: Civil aviation in India and Burma.
INDIA. See Duguid, Alan: Aviation in India.
— See Robertson, F. A. de V.: Airships for India.
— See Robertson, F. A. de V.: Subsidies—a precedent from India.

INDIANA. Bombs: Bombing the old battleship Indiana.

INDICATOR. See Engines: An indicator for aero engines.

INDICATOR, gyroscopic. Indicatore giroscopico di direzione tipo Sperry.

INDICATORS. See Instruments: Turn and pitching indicators for airships.


INDUSTRIAL plants. See Borden, William A.: Air bombing of industrial plants.

INDUSTRY. How to reestablish the aircraft industry.
— An opportunity for the aircraft industry.


INSECT flight.
See Stellwaag, F.: How insects steer themselves while flying.

INSIGNIA. Aero squadron insignias approved by War Department.
Air Power, Vol. 6, No. 1 (Jan. 1920), New York, pp. 194-204, ill.
— Proper insignia for United States aeroplanes.
Aerial Age, Vol. 12, No. 19 (Jan. 17, 1921), New York, p. 497.
— See Italy: Italian air service insignia.

INSTITUTION of Aeronautical Engineers.
— The Institution of Aeronautical Engineers. Two years' progress: History, objects, and construction.

INSTITUTO Sperimentale Aeronautico. Rendiconti dell’Instituto Sperimentale Aeronautico.

INSTRUMENTS. A baro-thermograph for use on aeroplanes.
— Aerial sextant and other aeronautic aids.
— Aeronautic instruments. General principles of construction, testing and use.
— Aids to aerial navigation.
Aerial Age, Vol. 6, No. 2 (Jan. 19, 1920), New York, p. 9, ill.
— Compass deviation in aircraft.
— Experiments with aircraft instruments.
— Foreign aviation instruments.
— Instrumenti per la navigazione aerea.
Rivista marittima (oct. 1920), Roma, pp. 11-12.
INSTRUMENTS. New computers for aeroplane work.  
_Aerial Age, Vol. 10, No. 18 (Feb. 16, 1920), New York, p. 666, ill.

— A new navigation instrument.  

— Note on a rate of climb indicator for use on aeroplanes.  

— Note on the R. A. F. low altitude aimer: A simple form of bombsight for low altitude work.  

— Nouvelle méthode de navigation aérienne à l’estime, au moyen d’un correcteur de route.  

— A petrol flow meter for use on aeroplanes.  

— Pressure gages for airplanes.  
_Aviation, Vol. 9, No. 11 (Nov. 29, 1920), New York, pp. 357-358, ill.

— Special inclinometers and indicators.  
_Aviation, Vol. 9, No. 10 (Nov. 22, 1920), New York, pp. 322-323, ill.

— Tautometer for testing doped surfaces.  

— Turn and pitching indicators for airships.  

— See Altitude: Calibration of barographs used in airplane altitude measurements.

— See Bennewitz, Kurt: Airplane flight instruments.

— See Compass: Distant-reading German airplane compass.


— See Darwin, H.: Static head turn indicator for aeroplanes.

— See Driftograph.

— See Equipment: General instrument and oxygen equipment.

— See Field, M. B.: Navigational magnetic compass considered as an instrument of precision.

— See Fog: Instrument guides planes in fog.

— See Hersey, Mayo D.: Aeronautic instruments.


— See Greenhill, George: Compass deviation due to vibration, without friction.

— See Hull, T. G.: Creep errors in altimeters due to hysteresis.

— See Landing: Automatic landing indicator.

— See Lindemann, F. A.: The northerly turning error of the magnetic compass.

— See Lucas, Keith: On a new type of magnetic compass for use on aeroplanes.


— See Mallock, A.: Behaviour of levels when subject to vibration.

— See Mallock, A.: Deviation of the compass due to vibration and friction between the cup and the pivot.

— See Mendenhall, Charles E.: Aeronautic instruments.
INSTRUMENTS. See Merrill, Albert A.: Recording instrument for use in wind tunnels.
— See Norton, Frederick Harwood: ... The efficiency of small bearings in instruments of the type used in aircraft.
— See Norton, Frederick Harwood: Efficiency of small bearings in instruments of the type used in aircraft.
— See Pannell, J. R.: Calibration of the anemometers at high velocities.
— See Pioneer: Pioneer aircraft instruments.
— See Reid: The Reid control indicator.
— See Sanford: The Sanford clinometer.
— See Smith: Smith instruments.
— See Tautometer: Tautometer for testing doped surfaces.
— See Zahm, Albert Francis: Development of an aircraft incidence meter.

INSULATORS. See Silsbee, F. B., and R. K. Honaman: Methods of measuring resistance of insulators at high temperatures.

INSURANCE. Air insurance.
— Aircraft insurance.
— Aircraft insurance and the air conference.
— Aircraft insurance data.
Aerial Age, Vol. 13, No. 9 (May 9, 1921), New York, p. 198.
— Aircraft insurance for 1921.
Aerial Age, Vol. 13, No. 11 (May 23, 1921), New York, p. 246.
— Aircraft insurance in the U. S. A.
— The aircraft insurance problem.
— American air insurance.
— Australian flight accident: Insurance.
— Depreciation and insurance of war type aeroplanes and seaplanes.
— Insurance men demand aerial laws.
— Legislation and insurance.
— Passenger hazard now insurable.
— Some aircraft hazards as seen by the insurance agent.
BIBLIOGRAPHY OF AERONAUTICS, 1920–1921.

INSURANCE. See Lewis, Hugh, and Gwilym Hugh Lewis: Aviation and insurance.

— See Lloyd's: Lloyd's and aviation risks.

— See Martin, E. Stockton: Aircraft insurance and the aircraft industry.

— See Martin, E. Stockton: The cost of aircraft insurance.

— See Redway, Albert J., jr.: Aviation insurance—What it is and what it offers the ex-service man.

— See Richard, Paul: Aviation et Assurance.


— See Wentworth, R. Preston: Aircraft insurance—A problem capable of solution.

INTELLIGENCE tests. See Gradenwitz, Alfred: Intelligence tests at high altitudes.

INTERNATIONAL Air Convention.


— Protocol to International Air Convention.


— See Laws and regulations: International Air Convention.

INTERNATIONAL air law. See Spaight: Aircraft in peace and the law.

INTERNATIONAL Air Navigation Congress.

Aviation, Vol. 11, No. 12 (Sept. 19, 1921), New York, p. 346.

— France to organise first International Air Navigation Congress. To be held concurrently with next Paris aero show.


INTERNATIONAL Commission for Air Navigation. Nur international?


Paris, E. Blondel La Rougery [1921], 2 vols., ill.

INVENTIONS. See Barker, Frederick W.: Invention in aeronautics.

INVENTORS. Awards to inventors.


— Concerning some claims by inventors.


— War awards to inventors.


INVESTIGATIONS. Legal action started to bring to light pernicious misrepresentation of a vicious clique which has been making trouble in the aeronautic movement.

Flying, Vol. 9, No. 6 (July 1920), New York, p. 399.

IOWA. See Bombing: Bombing the radio-controlled Iowa.

IRELAND. See Mail: The post office and the air mails to Ireland.

IRVIN. The Irvin air chute.

Flying, Vol. 9, No. 5 (June 1920), New York, p. 323, ill.

— See Bryant, L. W., and H. B. Irving: Description of improved moments measuring apparatus for tests on models in the wind channel with an appendix on the determination of corrections due to interference of apparatus on model.
IRVING, H. B. The design of aeroplane control surfaces, with special reference to balancing.


IRVING, H. B., and C. H. POWELL. The effect of rounding the wing tips of an aerofoil having a high value of maximum lift coefficient.

IRVING, H. B., and C. N. JONES. Note on the form and resistance of the spindle used by the N. P. L. for standard tests of 18 by 3 inch aerfoils.

IRVING, H. B. Report on the strength of the wings of captured German aeroplanes.

IRVING, H. B., and C. N. JONES. Standard tests of two aerfoils of Portholme and Albatross sections, and a comparison of these with R. A. F. 15 section.

IRVING, H. B. Variable wing area and variable camber.

-- See Bryant, L. W., and H. B. Irving: Experiments on the effect of altering the position of the hinges of the elevators for the B. E. 2c aeroplane.

-- See Bryant, L. W., and H. B. Irving: Investigation of the flow of air through the cowling of R. E. 7 aeroplane and of the resistance of a honeycomb radiator.

-- See Bryant, L. W., and H. B. Irving: On the cooling of a honeycomb radiator.

-- See Bryant, L. W., and H. B. Irving: On the resistance of a honeycomb radiator.

-- See Bryant, L. W., and H. B. Irving: Report on an oil cooling honeycomb radiator taken from a German Zeppelin.

-- See Bryant, L. W., and H. B. Irving: Tests of a model of F. E. 4 body and tail.


-- See Bryant, L. W., and H. B. Irving: Tests of a model of F. E. 4 body with a modified tail system.

-- See Bryant, L. W., and H. B. Irving: Tests on model "Bristol" twin tractor biplane.

-- See Bryant, L. W., and H. B. Irving: Tests on two models of Caquot kite balloons.

-- See Bryant, L. W., and H. B. Irving: Tests of the yawing moment on a mode of the B. E. 2c machine at small angles of yaw.

-- See Bryant, L. W., and H. B. Irving: Tests of vertical fin surfaces at the rear of different types of body.

IRWIN, N. E. Navy opposed to united air service.
Aircraft Journal, Vol. 6, No. 2 (Jan. 10, 1920), New York, pp. 3-4, 12, ill.

ISENBERG, H. O. C. Hispano-Suiza airplane engine.
ISLE, ROLLET DEL'. La langue internationale des aviateurs.

ISLER, G. A. Die Krisis in der Aviatik.
Suisse Aérienne, 2e année, No. 16 (31 août 1920), Berne, pp. 241-242.

-- Praktische internationale Luftfahrt.
Suisse Aérienne, 2e année, No. 22 (30 nov. 1920), Berne, pp. 334-335.

ISOTTA FRASCHINI. Isotta Fraschini motors.

-- Isotta-Fraschini type V-6 engine.
Aviation, Vol. 8, No. 5 (Apr. 1, 1920), New York, pp. 203-204, ill.

-- Les moteurs Isotta-Fraschini.

-- See Staribacher, Alfred: Der italienische 6-Zylinder 160 PS Isotta-Fraschini Flugmotor.

ISTITUTO sperimentale aeronautico. Buch-Besprechung.

-- Rendiconti, Jahrg. 9, zweite Reihe . . .

ITALY. Civilian aircraft of Italy.

-- Le gare di Anversa: le vittorie aerostatiche italiane.
L'Aeronautica, anno 3, Num. 5-6 (luglio-agosto 1920), Roma, p. 239.

-- Italian aeronautical conference.
Aeronautics, Vol. 20, n. s., No. 386 (June 2, 1921), London, p. 393.

-- An Italian aeronautical congress.

-- Italian aeronautical department.

-- Italian air routes and ports.
Aviation, Vol. 11, No. 7 (Aug. 15, 1921), New York, pp. 190-191.

-- Italian air service insignia.
Aviation, Vol. 10, No. 8 (Feb. 21, 1921), New York, p. 235, diagr.

-- Italian airship plans.

-- The Italian airship Roma.
Aviation, Vol. 8, No. 9 (June 1, 1920), New York, p. 368, ill.

-- Italian aviation.

-- The Italian balloons of the G. B. race.
Aviation, Vol. 10, No. 9 (Feb. 28, 1921), New York, p. 277, ill.

-- Italian Civil Air Department removed.

-- Italian competition for small aeroplanes.

-- Italian plane makers seek world aviation sales.

-- The Italian "6-meter" competition.
ITALY. Italian semirigid airships observed at front.


— Italy's surplus aircraft equipment.

Aviation, Vol. 11, No. 4 (July 25, 1921), New York, p. 110.

— A large Italian flying boat.


— A large Italian seaplane.


— Modern Italian airships.


— New Italian airship.

Aerial Age, Vol. 14, No. 2 (Sept. 19, 1921), New York, p. 38.


— The new Italian organization of military, naval, and civil aeronautics.

Air Power, Vol. 6, No. 3 (Mar. 1920), New York, pp. 72-82, ill.

— New Italian parachutes.

Aviation, Vol. 11, No. 3 (July 18, 1921), New York, p. 80.

— The new Italian Uselli semirigid airship.


— The poor man's aeroplanes of Italy.


— Some new Italian seaplanes.

Aviation, Vol. 11, No. 10 (Sept. 5, 1921), New York, pp. 261-262, ill.

— See Black, A., and D. R. Black: Italians adapt semirigid construction to large dirigible, the Roma.

— See De Siebert, Roberto: Chief of Italian Army Air Service.

— See Ferrari, Cristoforo: Italian aviation.


— See Guidoni, A.: The Italian semirigid airship Roma.

— See Guidoni, A.: What has been done and is being done in Italian aeronautics.

— See Kite balloons: An Italian kite balloon.

— See Knight, Wm.: Italian and French experiments on wind tunnels.

— See McClure, W. K.: Italy's part in the war.

— See P. R. B. I.: A large Italian seaplane.

IVES, HERBERT E. Airplane photography.


— The Fairchild automatic aerial film camera.


J.

JACOB, L. La résistance de l'air et l'expérience. Les conséquences.


JACOB, B. Elektromotorische Antriebe.


JACQUES SCHNEIDER. Jacques Schneider cup regulations for the 1921 contest.

Flying, Vol. 10, No. 4 (May 21, 1921), New York, p. 188.
BIBLIOGRAPHY OF AERONAUTICS, 1920—1921.


— Jacuzzi monoplane flight tested. Aerial Age, Vol. 13, No. 9 (May 9, 1921), New York, p. 198.

— Jacuzzi seven-passenger monoplane. Aviation, Vol. 10, No. 8 (Feb. 21, 1921), New York, pp. 228-229, ill.

— See Kauke, John H.: The Jacuzzi seven-passenger monoplane.


— Comment se diriger a bord des aéronefs. La radiogoniométrie et la direction des aéronefs. L’Aérophile, 29. année, Nos. 21-22 (1er-15 Nov. 1921), Paris, pp. 332-338, ill.


— See Dickinson, H. C., W. S. James, and R. V. Kleinschmidt: General analysis of airplane radiator problems.


— See Dickinson, H. C.; W. S. James, and R. V. Kleinschmidt: Heat dissipation and other properties of radiators.


— See Dickinson, H. C., W. S. James, and G. V. Anderson: Variation of horsepower with altitude and compression ratio.

— See Dickinson, H. C., W. S. James, and C. V. Anderson: Variation of horsepower with temperature.

Jane, Frederick T. Jane’s all the world’s aircraft, 1919. Edited and compiled by C. G. Grey. London and Edinburgh, Sampson, Low, Marston & Co. (Ltd.), 1920, pp. 700, 1500, ill.
BIBLIOGRAPHY OF AERONAUTICS, 1920–1921.

JANE, FREDERICK T. All the world’s aircraft. 1920.
— See Grey, C. G.: Jane’s all the world’s aircraft.

JANSSEN, J. See Renard, Paul: En mémoire de J. Janssen.

JAOUEN. See Doret, Claude: Héros disparus: le sergent Jaouen.

JAPAN. American-Japanese affairs.
The Aeroplane, Vol. 20, No. 22 (June 1, 1921), London, p. 500.
— Aviation in Japan.
Aviation, Vol. 19, No. 29 (June 6, 1921), New York, p. 723.
— British aviation in Japan.
The Aeroplane, Vol. 20, No. 22 (June 1, 1921), London, p. 500.
— The British mission to Japan.
— Imperial Japanese aviation.
Aerial Age, Vol. 13, No. 9 (May 9, 1921), New York, p. 208.
— Japan?
— Japan multiplying pilots.
— Japan organizing aerial naval forces.
Aerial Age, Vol. 13, No. 3 (Mar. 28, 1921), New York, p. 44.
— Japanese activities.
Aerial Age, Vol. 14, No. 9 (Nov. 7, 1921), New York, p. 205.
— Japanese air mail progress.
— Japan’s aerial efforts.
Aviation, Vol. 10, No. 16 (Apr. 18, 1921), New York, p. 187.
— Japan’s naval air service.
Aviation, Vol. 11, No. 3 (July 18, 1921), New York, p. 78.
— Luftverkehr in Japan.
— On Japan’s aeronautical activities and the prospects of the United States.
— On the great Japanese dope joke.
— On the yellow race and the British aircraft industry.
— See Bréguet, Louis: Les possibilités immédiates et prochaines de l’aviation
Tokio à un jour de Paris. Declarations de M. Louis Bréguet au diner de la
C. S. I. Aé., en l’honneur de la mission Japonaise.


JAQUEROD, M. A. Recherches négatives sur un nouveau constituant de l’air atmosphérique.
BIBLIOGRAPHY OF AERONAUTICS, 1920–1921. 219

Jaray, P. The development of aircraft, with special reference to the Zeppelin airships.
   — Studien zur Entwicklung der Luftfahrzeuge unter besonderer Berücksichtigung Zeppelin-Luftschiffe.


Jeffery, G. B. Plane stress and plane strain in bipolar coordinates.

Jeffreys, H. On the relation between wind and distribution of pressure.


Jenkins, Charles Frewen. Address to the engineering section of British Association for the Advancement of Science.
   At head of title: Aeronautical research committee. Some plates printed on both sides.
   — Strength of materials in aeroplane engineering.

Jenkins, P. A. World’s largest trade school trains mechanics for United States naval air service.
   Pop. Mech., Vol. 34 (July 1920), Chicago, pp. 41–44, ill.


Jezzi, Leo. Pioneers of British aviation—LI: Mr. Leo Jezzi.

JL. JL all-metal airplane comprises novel engineering features.
   Auto. Ind., Vol. 48 (Oct. 21, 1920), New York, pp. 866–868, ill.
   — JL all-metal monoplane described.
   Aircraft Journal, Vol. 6, No. 26 (June 28, 1920), New York, pp. 5–6, ill.
   — JL monoplane in 1,200 mile nonstop flight.

JL–6. The log of an aluminum air liner in first passenger flight, New York to Chicago. the JL–6 German metal monoplane beats the Twentieth Century Limited by 12 hours.
   U. S. Air Service, Vol. 3, No. 6 (July 1920), New York, pp. 17–19, ill.
   — The remarkable performance of JL–6 monoplanes on transcontinental trip.
   Aerial Age, Vol. 12, No. 1 (Sept. 13, 1920), New York, p. 29.

JL–12. The JL–12 armored attack airplane.
   Aviation, Vol. 11, No. 19 (Nov. 7, 1921), New York, p. 533, ill.
   — The JL–12 attack plane.
   Aerial Age, Vol. 14, No. 9 (Nov. 7, 1921), New York, pp. 199–200, ill.
BIBLIOGRAPHY OF AERONAUTICS, 1920–1921.

JN–6H. Methods of correcting the longitudinal balance of JN–6H airplanes.

JOACHIM, HEINZ. Feuersicherheit im Luftverkehr.

JOHN F. WRIGHT. See Wright, Orville: John Fritz medal presented to Orville Wright.

JOHN F. WRIGHT. See Wright, Orville: Orville Wright awarded John Fritz medal.

JOHN F. WRIGHT. See Wright, Orville: Presentation of John Fritz medal to Orville Wright.

JOHNSON, HARRY U. Research in the psychology of aviation.
Scient. Amer. Monthly, Vol. 2 (July 1920), New York, p. 84.

JOHNSON, HARRY U. A report on two pilot balloon ascents made at Shoeburyness.

JOHNSON, THEOPHILUS. Naval aircraft radio, June, 1919.
Naval Department, Bureau of Steam Engineering, Washington, D. C., 1920, pp. 103.

JOHNSON, V. E. Model aeroplaning. Its practice and principles.
1. Rubber driven models. 2. Engine driven models.

JOHNSTON, HARRY U. Surveying from the air.
Aviation, Vol. 9, No. 9 (Nov. 15, 1920), New York, p. 284.
Flying, Vol. 9, No. 10 (Nov. 1920), New York, pp. 616–618, ill.

JOHNSON, E. LESTER. Surveying from the air.
Aviation, Vol. 9, No. 9 (Nov. 15, 1920), New York, p. 284.
Flying, Vol. 9, No. 10 (Nov. 1920), New York, pp. 616–618, ill.

JOHNSON, E. T. Torpedo controlled by airplane by means of wireless.


JOHNSON, JOY D. A method and instrument for the measurement of the visibility of objects.

JOHNSON, MELVILLE. Flying over clouds in relation to commercial aeronautics.


JONES, R. See Bairstow, Leonard, and R. Jones: The stability of an aeroplane which has springs in its control surface connections.


— See Bairstow, Leonard, E. F. Relf, and R. Jones: Tests on a model kite balloon.


— See Nayler, J. L., and R. Jones: The determination of the forces on two struts in close proximity to one another.


— See Pannell, J. R., and R. Jones: An investigation into the nature of the flow in the neighborhood of an airscrew.

— See Relf, E. F., and R. Jones: The longitudinal equilibrium of the Caquot type kite balloon.

— See Relf, E. F., and R. Jones: The longitudinal equilibrium of the Drachen kite balloon.

— See Relf, E. F., and R. Jones: Tests of a model bomb rack fitted to R. E. 8 machine.


JONGHLOED. De "Capronissimo." Vliegveld, 5e jaarg., No. 8 (9 April 1921), Amsterdam, pp. 116-117, ill.


— Het N. A. V. O.-verkeerstoestel. Vliegveld, 5e jaarg., No. 2 (15 Jan. 1921), Amsterdam, pp. 24-25, ill.

JORDAN, S. W. Luftverkehrsprobleme. 

JOUKOWSKI. See Margoulis, W.: Les ailes Joukowski.

JOUX, ÉTIENNE. Les dirigeables militaires pendant la guerre. 
L'Aérophile, 28. année, Nos. 5-6 (1er-15 mar. 1920), Paris, p. 76.

JOYCE, TEMPLE N. Effects of wind upon the stability and maneuverability of an airplane in flight. 
Aviation, Vol. 8, No. 1 (Feb. 1, 1920), New York, pp. 18-19, diagr.

London and New York, Sir Isaac Pitman & Sons (Ltd.), 1920, pp. 16-739, ill. 
Treats of stress, strain and elasticity.

London, Sir Isaac Pitman & Sons (Ltd.), 1921, pp. xii, 594, ill. 

— Ferrous materials. 

Aeronautics, Vol. 18, No. 349 (June 24, 1920), London, p. 470, ill.

JUNKERS. The American Junkers S. L–6 commercial monoplane. Some official performance tests. 

— Apparecchi tedeschi. 
L'Aeronautica, anno 3, Num. 9 (nov. 1920), Roma, pp. 307-310, ill.

— Constructing metal aeroplanes. 


— Ergebnis der amtlichen Prüfung des Junkers-JI 6-Verkehrseindeckers in den Vereinigten Staaten. 

— 4,000 PS Junkers Eindecker. 

— The Junker all-metal machines. 

— The Junker all-metal monoplane. 
Technical Orders No. 9 (Oct. 1919), pp. 123-125, figs.

— Junker metal airplanes. 

— The Junker single-seater all-metal monoplane, Type D–I. 

— The Junkers aerodynamic laboratories. 
Junkers. The Junkers armored two-seater biplane. Type J-1.
Aviation, Vol. 8, No. 7 (May 1, 1920), New York, pp. 285-289, ill., diagr.

Die Junkers-Flugzeuge in Amerika.

Die Junkers-Verkehrsindecker.

El monoplano Junkers.
Aire, Mar. y Tierra, año 2, Núm. 19 (oct. 1920), Madrid, pp. 594-595, ill.

Neue Erfolge von Junkers-Flugzeugen in Amerika.
Luftweg, Nr. 11-12 (24. März 1921), Berlin, p. 85.

Performance test of Junker SL-6 with 185-horsepower B. M. W. engine.
Aerial Age, Vol. 13, No. 2 (Mar. 21, 1921), New York, pp. 35-37.

Report of the Junker armored two-seater biplane, Type J. I.

Test of all-metal Junkers airplane wing.
Aviation, Vol. 11, No. 17 (Oct. 24, 1921), New York, p. 480, ill.

¡Su alteza el Junkers!
Tohtli, año 1, Núm. 1 (agosto 1920), México, pp. 7-8, ill.


Männer der Luftfahrt—VII: Professor Hugo Junkers.

Personal experiences in constructing metal airplanes.
Aviation, Vol. 9, No. 7 (Nov. 1, 1920), New York, p. 219.


Jutland. Aircraft at Jutland.

KL. The KL fuel system.
Aerial Age, Vol. 13, No. 22 (Aug. 8, 1921), New York, pp. 515-516, ill., diagr.
Aviation, Vol. 11, No. 7 (Aug. 15, 1921), New York, pp. 201-203, ill., diagr.


Some K. L. G. aviation plugs.

Vliegveld, 5e jaarg., No. 20 (24 Sept. 1921), Amsterdam, pp. 280-281.

Opening van de luchtlijnen der K. L. M.
Vliegveld, 5e jaarg., No. 9 (23 Apr. 1921), Amsterdam, pp. 122-123.

Kuemmerer, W. Ein columbisch-deutsches Flugverkehrs-Unternehmen.

Kahn, Julius. An emergency air service appropriation. Mr Kahn's bill calls for
the sum of $15,680,625 for planes and equipment.

Kahl, P. R. Der Segelflug.
Kahl, R. Luftweg und Schienenweg.
— Great aeronautical races at Kansas City with prizes amounting to $20,000.
Kármán, Th. v. Mechanische Modelle zum Segelflug.
— Neuere Schraubenfliegerprojekte.
— Tests made with captive helicopters.
— Theoretische Bemerkungen zur Frage des Schraubenfliegens.
— Versuche mit Fesselhubschraubern.
Karmán-Petroczy. The Karmán-Petroczi helicopter.
Kasbeck. Deutsche Flugzeuge über dem Kasbeck 5043 m.
Kattler-Lachmann. The Kattler-Lachmann wing.
Katzmayer, R. Bericht über die vii. ordentliche Mitgliederversammlung der Wissenschaftlichen Gesellschaft für Luftfahrt in München-Augsburg 1921.
— Einheitliche Formelzeichen und Benennungen in der Aeromechanik.
— Die Luftschrauben-Prüfanstalt in Fischamend bei Wien.
— See Oesterreichische Flugtechnische Verein: K 10,000—for österreichische Forschungsarbeit.
Kauders, Robert. Vor einem Jahrzehnt.
Kauke, John H. The Jacuzzi seven-passenger monoplane.
Aerial Age, Vol. 12, No. 22 (Feb. 7, 1921), New York, pp. 561-562, ill.
Kautty, Th. Leitfaden für Azetylenenschweißer.
Halle a. S., 1919, ill.
Kaye, G. W. C., and J. Hudson Davies. An investigation into various types of timber splices for aeroplane construction.
Kean, J. B. Radio compass and automatic pilot developed for naval flying boats.
Kearney, Norman L. Cable lengths and fitting angles.


Keen, H. R. How aeroplanes are navigated by wireless.

Keen, R. Cómo se orientan los aeroplanos por la telegrafia sin hilos.
Aire, Mar y Tierra, año I, Núm. 9 (dic. 1919), Madrid, pp. 465-471, ill.

Keller, D. Der Nachtluftverkehr.

Kellett, W. Wallace. Travel by air.

Kemble, E. C. The calculated performance of airplanes equipped with supercharging engines.

Calculation of low-pressure indicator diagrams.

The probable normal state of the helium atom.

Kempe, Erich. Errichtung und Ausbau von Fliegerfachschulen.

Establishment of aviation schools.

Kempewerk Nürnberg.

Pädagogik und Luftfahrt.
Nürnberg, 1920.

Kerber, L. V. Airplane performance and design charts.
Aviation, Vol. 10, Nos. 24-25 (June 18-20, 1921), New York, pp. 748-751, 780-784.

Kerber, L. V., and W. F. Gerhardt. A method for determining the angular setting of a tail plane to give balance at any given condition.

Kerber, L. V. See Gerhardt, W. F., B. E. Boulton, and L. V. Kerber: Preliminary choice of a wing section.

See Niles, A. S., jr., and L. V. Kerber: Determination of the best wing loading for single seater pursuit aeroplanes.

Key West. See Commercial aeronautics: Flying boat service from Key West to Havana.

See Commercial aeronautics: Key West-Havana air line inaugurated.

See Commercial aeronautics: Key West-Havana passenger air line.

Keys, C. M. The Curtiss aeroplane and motor corporation after the war.
Aerial Age, Vol. 13, No. 13 (June 6, 1921), New York, pp. 295-299, ill.

The Curtiss corporation after the war.
The Ace, Vol. 2, No. 9 (June 1921), Los Angeles, pp. 9, 25, ill.
BIBLIOGRAPHY OF AERONAUTICS, 1920–1921.


What we learned in France. Suggestions for training of flying personnel and organization should this country again be drawn into war. U. S. Air Service, Vol. 6, No. 1 (Aug. 1921), New York, pp. 11-15.


Kipling, Rudyard. See Maitland, Edward Maitland: Log of H. M. A. R-34; journey to America and back, with a letter from Rudyard Kipling.


Kite balloon winch manual. Air publication 817.


See Bairstow, L., E. F. Relf, and R. Jones: Tests on a model kite balloon.

See Brewer, Griffith: Some kite-balloon experiments.

See Bryant, L. W., and H. B. Irving: Tests on two models of Caquot kite balloons.

See Relf, E. F.: The longitudinal equilibrium of the Caquot kite balloon, fitted with plane triangular horizontal fins.

See Relf, E. F., and R. Jones: The longitudinal equilibrium of the Caquot type kite balloons.
Kite balloons. See Relf, E. F., and R. Jones: The longitudinal equilibrium of the Drachen kite balloon.

— See Relf, E. F.: The longitudinal equilibrium of the 1,100 cubic meter Drachen balloon, and an estimation of the effect of drag of the rigging.

— See Simmons, L. F. G., and R. A. Frazer: Model tests on bodies proposed for use as kite balloons.

— See Sumner, P. H.: The design and stability of streamline kite balloons.

— See Sumner, P. H.: Streamline kite balloons.

Kites. See Altitude: From kite flying to breaking the altitude record.


Kiwanis. Kiwanis landing field is ready.
The Navigator, Vol. 1, No. 17 (June 5, 1920), Pensacola, Fla., p. 3.

Klamroth, C. Rechtsanschau: Sturz eines Fliegers auf das Dach eines Wohnhauses—Schadenersatzklage eines Bewohners.

Klein, E. Log of a Zeppelin journey.


Kleinschmidt, R. V. Preliminary report on resistance due to nose radiator.

— See Dickinson, H. C., W. S. James, and R. V. Kleinschmidt: General analysis of airplane radiator problems.

— See Dickinson, H. C., W. S. James, and R. V. Kleinschmidt: Heat dissipation and other properties of radiators.

— See Dickinson, H. C., and R. V. Kleinschmidt: Synopsis of aeronautic radiator investigations for the years 1917 and 1918.


Aviation, Vol. 9, No. 7 (Nov. 1, 1920), New York, p. 216.

— American aeronautical progress.

— Dynamic lift and ceiling for airships.

— Impressions of airplanes at the show.
Aviation, Vol. 8, No. 4 (Mar. 15, 1920), New York, pp. 158-162, ill.

— Impressions of the Chicago aeronautical show.

— Introduction to propeller theory.

— The Klemin amphibious gear.
Aviation, Vol. 10, No. 9 (Feb. 28, 1921), New York, pp. 271-272, ill.
Klemm, Alexander. Landing run and get away for aeroplanes. 

---

Klemm, R. Luftbildwesen: Entstehung und Ausnutzung des Luftraumbildes im Kriege. 

Klemperer, W. Zur Aussprache zum Vortrag Hoff bei der VII. Tagung der WGL in München. 

---


Knoff, R., and G. W. C. Kaye. The examination of aircraft timber by X-rays. 
KODAK. See Eastman Kodak: Eastman Kodak aerial cameras.


KOLSTER. Kolster's direction finder. Wireless Age, Vol. 7, No. 2 (Nov. 1919), pp. 24-26, fig.


KOSTIWAL, HANS. Bezeichnung ehemaliger österreichisch-ungarischer Kriegsflugzeuge.

— Einige typische Sport-(Klein-) Flugzeuge.
Flug, Sondernummer ( Dez. 1920), Wien, pp. 126-127.

— Der österreichische Albatros (Oeffag) D III., Kampfeinsitzer.

— Sportliches Fliegen.

— Unser Sportflugzeug.
Flug, 8. Jahrg., Nr. 7-8 (1. Apr. 1921), Wien, pp. 9-12, ill.

— Unsere Brandenburger Flugzeuge.

— Unsere Flugmotoren.

KOUTCHINO. Bulletin de l'Institut Aerodynamique de Koutchino. Fax. VI.
Paris, 1920, Gauthier-Villars et Cie.

KRAMMER. Automatische Luftbildmessung.
Luftweg, Nr. 43-44 (3. Nov. 1921), Berlin, pp. 305-308.

KRALL, OSWALD. Die Windverhältnisse über der italienischen Küste der Nordadria, und insbesondere über Fano im Jahre 1914.


KRÄMER. The "Kramer-vaporizer."

KRAUS, ADOLF. See Berger, Josef Viktor: Ingenieur Adolf Kraus.

KREINER, ARTUR. Bombenwürfe aus Luftfahrzeugen.
Mitt. Österr. Äro-Clubs, Nr. 9 (1. Sept. 1915), Wien, pp. 7-8.

KRÖPP. Drei Jahre zur Luft.

KRUPP, G. Internationale aeronautische Ausstellung in Prag.

KUHN, ARTHUR K. The international regulation of aerial navigation.
Reprint from Proceedings American Society of International Law, 15th annual meeting, Washington, April 27-30, 1921, pp. 77-82.

KUMBRUCH, H. Similitude tests on wing sections.
Technical Notes, National Advisory Committee for Aeronautics, No. 53 (Apr. 1921), Washington (mime.), pp. 17, diagrs.

KUTZBACH, K. Experience with geared propeller drives for aviation engines.
Translated from Technische Berichte, Vol. 3, Sec. 3, by Starr Truscott.
Aerial Age, Vol. 12, Nos. 17-18 (Jan. 3-10, 1921), New York, pp. 442-445; 466-469, diagr.

Berlin, Richard Carl Schmidt & Co., 1921, pp. 204, ill.
BIBLIOGRAPHY OF AERONAUTICS, 1920–1921.

L.

L. B. The “L. B.” aero camera.
Flight, No. 659, Vol. 13, No. 23 (June 9, 1921), London, pp. 390-391, ill.


L. F. G. Das L. F. G.–V 3a-Flugboot.

Aeronautics, Vol. 21, n. s., No. 403 (July 7, 1921), London, p. 16, ill.

L.64. “L. 64” and “L. 71.” Two of the Zeppelins surrendered to Great Britain.

L., P. F. Le parachute dans les services aériens postaux.
L’Aérophile, 28. année, Nos. 5/6 (1er–15 déc. 1920), Paris, p. 82.

L. W. F. The L. W. F. aerial freighter.
— The L. W. F. Owl freight plane.
Aviation, Vol. 8, No. 3 (Mar. 1, 1920), New York, pp. 103-104, ill.

L. W. F. “Owl.” The 1,200-horsepower L. W. F. “Owl.”

L 71. See Military aeronautics: The surrender of “L 71.”

LA PORTE, M. F. Sondages de l’atmosphère à givre au moyen de ballons libres en caoutchouc.

LA PRADELLE, ALBERT DE. L’aéronautique et les relations internationales.
Aéronautique, 3e année, No. 30 (nov. 1921), Paris, pp. 431-452.

LA VAULX. Le ballon libre.
Vie Aérienne, 5e année, No. 1 (5 août 1920), Paris, p. 10, port.

LA VAULX, HENRY DE. Lettre ouverte à Pierre-Étienne Flandin.
— Les vainqueurs de l’air.
Reviewed: in Aéronautique, 3e année, No. 31 (déc. 1921), Paris, p. 524.

LABORATORIES. See Caldwell, F. W.: Propeller testing laboratory at McCook field.
— See Chase, H.: Laboratory for aircraft engine testing.
— See Eiffel: Études sur l’aérodynamique faites au laboratoire aérodynamique Eiffel, de 1815 à 1918.
— See Junkers: The Junkers aerodynamic laboratories.
— See St. Cyr.: Aerotechnical Institute of St. Cyr.

LABRIC, ROGER. Comment fut vengé Péguod.

LACHENBRUCH, JEROME. The aeroplane displaces the automobile in the motion picture.
Aerial Age, Vol. 11, No. 2 (Mar. 22, 1920), New York, pp. 53, 57, ill.

LACHMANN. L’aviation autrichienne pendant la guerre.
Vie Aérienne, No. 184 (29 mai 1920), Paris, pp. 1159-1160, ill.

---
The Lachmann aerofoil.

Aerial Age, Vol. 12, No. 22 (Feb. 7, 1921), New York, p. 560.

---
The Lachmann wing.


**LACHMANN, G.** Das unterteilte Flächenprofil.


---
Die unterteilte Profilform.


---
Ein Vortrag von Handley-Page über das unterteilte Profil.


---
See Handley Page: The Handley-Page wing and Germany.

**LACON, LOUIS.** Construction et réglage du moteur à explosion appliqué à l'automobile et à l'aviation.


**LADD, STORY B.** Aeronautic roads.


**LADDON.** Report on wind tunnel test of Laddon night pursuit airplane.


**LAFAYETTE FLYING CORPS.** See Roosevelt, Philip J.: The Lafayette Flying Corps—an epic of the air.

**LAFFONT, J.** Le vol sans moteur.

La Nature, 48. année, 1er sem., No. double 2406, 2407 (22 mai 1920), Paris, pp. 276-279, ill.

**LAFRANC, JEAN-ABEL.** Le salon de l'aéronautique.


**LAGARDE-MARTINOT.** L'huile de ricin.


**LAGORGETTE, JEAN.** Les avions allemands.

Paris, 1920, E. Blondel de la Rougerie, 214 pp., ill.

**LAGRANGE, L.** Le concours d'avions de transport du S. N. Aé. Un nouvel avion commercial à grande capacité de transport. Le Goliath trimoteur satisfait brillamment aux épreuves.

L'Aérophile, 26e année, Nos. 9-10 (1er-15 mai 1921), Paris, pp. 131-132, ill.

**LAIRD.** The Laird “Swallow.”

Aerial Age, Vol. 12, No. 9 (Nov. 8, 1920), New York, pp. 253, 259, ill., diagr.

Aviation, Vol. 9, No. 4 (Sept. 15, 1920), New York, pp. 119-120.

---
Laird Swallow reaches coast.

The Ace, Vol. 2, No. 9 (June 1921), Los Angeles, p. 13, ill.

**LAIRD, E. M.** How E. M. Laird built and flew a 12-horsepower plane in 1913.


---


**LAKE GARDA, Italy.** Aviation meet on Lake Garda, Italy.


---
See Annunzio, Gabriele d': International aviation meet on Lake Garda for the Gabriele d'Annunzio cup.
BIBLIOGRAPHY OF AERONAUTICS, 1920–1921.

LAKEHURST. Details of the Lakehurst airship station. Aviation, Vol. 11, No. 8 (Aug. 22, 1921), New York, p. 231, ill.


LA BLER, L. P. Flying characteristics of training planes. Aircraft Journal, Vol. 6, No. 23 (June 7, 1920), New York, pp. 3-4.
LANCHESTER, F. W. Memorandum on the use of aluminum alloy sheet in place of fabric for aeroplane wings, etc.

— Pioneers of British aviation—XXXVIII: Mr. F. W. Lanchester, M. Inst. C. E.

— Report on high altitude flying and the development and improvement of the aeronautical motor.

— Torsional vibrations of the tail of an aeroplane.

LANCIA. The 320-horsepower Lancia aeroplane engine.

LANDFALL. Atterrissage d’avion sur cuirassé.
Aéronautique, 2e année, No. 18 (nov.-déc. 1920), Paris, pp. 259-260, ill.

Aerodromes and landing grounds.

— Automatic landing indicator.

— Automatic landing “T” big aid to airmen.
Aerial Age, Vol. 10, No. 21 (Mar. 8, 1920), New York, p. 796.

— Great problem of landing.

— Guide for fliers who make forced landings.

— Looking and landing.

— On landings, doctors, and things.
The Aeroplane, Vol. 20, No. 10 (Mar. 9, 1921), London, pp. 221-222.

— The reduction of landing speeds.

— Safety in landing an important factor.


— See Klemm, Alexander: Landing run and get away for standard airplanes.

— See Merrill, Albert A.: Variation in resultant pressure upon landing due to the proximity of the earth.

— See Military aeronautics: How airplanes land on decks of warships.

LANDING fields. Government should provide landing fields.
Aircraft Journal, Vol. 6, No. 23 (June 7, 1920), New York, p. 5.

— Landing field conditions along the Mexican border.

— Landing fields.

— Landing fields are a major problem in development of air traffic.
Av. Ind., Vol. 43 (Nov. 4, 1920), New York, pp. 928-929, diagr.

— Landing fields needed.
Journ. Soc. Automotive Engineers, Vol. 6, No. 6 (June 1920), New York, p. 424.
LANDING fields. The marking of landing fields.
Aircraft Journal, Vol. 6, No. 18 (May 1, 1920), New York, p. 9.

— Municipal landing fields.

— Over 1,200 landing fields listed in the United States.

— Progress in air awaits suitable landing fields.


See Wentworth, R. Preston: Have you a little landing field in your community?

LANDING gears. Ski landing gears for airplanes.
Aviation, Vol. 8, No. 9 (June 1, 1920), New York, p. 369, ill., diagr.

— See Floats: Collapsible floats for aeroplanes.

— See "A Merchant:" The stresses in the undercarriage of an aeroplane.

— See North, John D.: Aircraft undercarriages.

LANDIS, R. G. Rich man, poor man, beggar man.
Commercial aeronautics.

— Why we all shall fly.

LANDON, W. G. Factors affecting flight.
Aerial Age, Vol. 13, No. 3 (Mar. 28, 1921), New York, pp. 55-56.

— That hawk again.

"LANGLEY." The American aircraft carrier "Langley."

— Flying freight.
Aerial Age, Vol. 12, No. 24 (Feb. 21, 1921), New York, p. 603.

— See Whiting, Kenneth: The Langley—a floating airdrome.

LANGLEY, SAMUEL PIERPONT. Dr. S. P. Langley’s early experiments.
Aerial Age, Vol. 13, No. 3 (Mar. 28, 1921), New York, p. 65.

— The first plane in flight.
Aerial Age, Vol. 13, No. 10 (May 16, 1921), New York, p. 219.

— The Langley airplane.
World's Work, Vol. 43, No. 2 (Dec. 1921), Garden City, pp. 128-130.

— A nearly forgotten chapter in the history of aviation.

— See Brewer, Griffith: The Langley machine and the Hammondsport trials.

— See Caro, I.: Aviones que no volaron.

— See Commercial aeronautics: Flying freight.

LANGLEY FIELD. Mobilizing at Langley Field for bombing.

— See Bacon, D. L.: Langley Field wind tunnel apparatus.

— See Norton and Bacon: N. A. C. A. Langley Field wind tunnel apparatus.
The tilting manometer.
BIBLIOGRAPHY OF AERONAUTICS, 1920–1921.

LANGLEY Field tunnel. See Norton, F. H., and D. L. Bacon. The optical wing aligning device of the Langley Field tunnel.

LANGLEY machine. See Curtiss, Glenn H.: The Langley machine at Hammondsport.


The Die Segelflüge in der Rhön nach dem Wettbewerb.


LEPELLE, A. Les propriétés caractéristiques de l’air aux haute altitudes d’après les travaux de l’Observatoire Aéronautique de Lindenberg.


— The question of tandem propellers.

Aviation, Vol. 11, No. 24 (Dec. 12, 1921), New York, pp. 679–680, ill.

— Resultats acquis sur la question ed l’helice aérienne.


LARGEST American airplane.

Everyday Engineering Magazine, Vol. 9, No. 4 (July 1920), New York, pp. 328, ill.

LARMUTH, LUKE HAMILTON. Airship sheds and their erection.


LARSEN. The Larsen aerial efficiency trophy.

Aviation, Vol. 11, No. 17 (Oct. 24, 1921), New York, p. 479, ill.

— Larsen flight aids commercial aviation.


— Larsen planes carry mail to San Francisco.


LARSEN, CARL N. A new type of rebreather and other respiratory apparatus.


— See Ellis, Max M., and Carl N. Larsen: A device adapting the Barany chair to rebreather tests.

LARSEN, JL. 6. American all-metal machine.


LASCURAIN Y OSIO, A. DE. Importancia comercial del servicio aéreo.

Teleté, año 5, Núm. 3 (oct. 1920), México, pp. 109–111, ill.

LATÉCOÈRE. Les avions Latécoère.

Aéronautique, 3e année, No. 30 (nov. 1921), Paris, pp. 465–469, ill.

LATÉCOÈRE. Les avions Latécoère.

Aéronautique, 4e année, No. 18 (nov.–déc. 1920), Paris, pp. 218–220, ill.

LATERAL control. See Control.

LATHAM. L’hydravion tri-moteur “Latham”

Aéronautique, 2e année, No. 18 (nov.–déc. 1920), Paris, pp. 218–220, ill.

— Le voyage aérien du lieutenant de vaisseau Lefranc.

Aéronautique, 1e année, No. 10 (mars 1920), Paris, pp. 423–424, ill.

LATHAM, JEAN. See Blanchet, Georges: Un éclatant succès pour la technique française . . .

Launching. America tries catapult launching.
— See Gundry, P. G.: The effect of temperature and altitude of aerodrome in the taking off of aeroplanes.
— See Navy: New naval catapult launching device.

Laurent-Eynac. La place de l’aéronautique dans une grande nation. Aéronautique, 3e année, No. 30 (nov. 1921), Paris, pp. 432-444.


Lavergne. French aviation in 1921.

Lawrence. L-2 air-cooled motor.
— The Lawrence indoor tractor model.

Lawrence, Ted. The leader of “A” flight.
Air Power, Vol. 6, No. 6 (June 1920), New York, pp. 170-171, III.

Laws. Aeronautical and aerographic law.
— Air laws.
Aerial Age, Vol. 13, No. 26 (Sept. 5, 1921), New York, p. 607.
— Air legislation pending.
Aerial Age, Vol. 13, No. 6 (Apr. 18, 1921), New York, pp. 133-134.
— The air navigation bill.
 — The air service and Army reorganization act.
Aircraft Journal, Vol. 6, No. 26 (June 28, 1920), New York, pp. 3-4.
— Aviation and its relation to the law.
— International air laws.
Aerial Age, Vol. 14, No. 4 (Oct. 9, 1921), New York, p. 75.
— Résumé of progress of aeronautical matters in Congress.
Aerial Age, Vol. 13, No. 15 (June 25, 1921), New York, p. 342.

Laws and ordinances. State and local air laws and ordinances.
Aviation, Vol. 10, No. 19 (May 9, 1921), New York, pp. 591-592.

Laws and regulations. L’aéronautique au Parlement.
— Air law curiosities in America.
— Air traffic laws.
— All aviators said to be trespassers of the air.

Arêté royal réglementant la navigation aérienne en Belgique. La Cong. l’Air, 3é année, No. 1 (1er janv. 1920), Bruxelles, pp. 7-11.


Certificati di navigabilità. Rivista marittima (nov.-dic. 1920), Roma, pp. 21-25.

Disposiciones gubernativas sobre aviación. Aire, Mar y Tierra, año 2, Núm. 12 (marzo 1920), Madrid, p. 113.


International air traffic association regulations. Aerial Age, Vol. 14, No. 11 (Nov. 21, 1921), New York, pp. 252-253.


Ist der Luftverkehr rentabel? Flug, Jahrg. 1920, Nr. 5 (Mai), Wien, pp. 41-43, ill.

Laws regulating aircraft will retard commercial transportation. The Naviator, Vol. 1, No. 7 (Mar. 27, 1920), Pensacola, Fla., p. 2.

Legislazione aerea. Rivista marittima (giugno 1920), Roma, pp. 16-17.

La navigation aérienne et le droit international. Aéronautique, 3é année, No. 24 (mai 1920), Paris, pp. 216-220.


Laws and regulations. Les nouveau code de l’air.
Suisse Aérienne, 2e année, No. 13 (10 juill. 1920), Berne, pp. 188.

— On the asininity of the law.
The Aeroplane, Vol. 21, No. 10 (Sept. 7, 1921), London, pp. 209-211.

— Ordinance regulating the operation of aircraft in the city of Los Angeles.

— Plan to stop low flying by planes. Colonel Mapes, chief of New York aerial police force, to enforce aircraft rules rigidly.
The Navigator, Vol. 1, No. 24 (July 31, 1920), Pensacola, Fla., pp. 1, 8.

— Regelung des schweizer Luftverkehrs.
Luftweg, Nr. 8-9 (4. MÃ rz 1920), Berlin, p. 13.

— Réglementation générale actuelle . .
Aéronautique, 3e année, No. 21 (févr. 1921), Paris, p. 85.

— Regolamento sulla circolazione aerea, sui fuochi e sui segnali.
Rivista marittima (nov.-dic. 1920), Roma, pp. 25-29.

— Schweizerische Luftverkehr.

— Sporting instinct vs. air-traffic laws.
Literary Digest, Vol. 67 (Oct. 9, 1920), New York, pp. 82-84.

— Standardizing municipal air ordinances.

— Ein Streifzug durch die amerikanische Luftgesetzgebung.

— Trespass by Aircraft.
Aerial Age, Vol. 12, No. 16 (Dec. 27, 1920), New York, p. 418.

— Vögel als Flugzeugersatz.

— See American Bar Association.

— See Davis, W. Jefferson: Laws of the air.


— See Ebner, A.: Das englische Luftministerium und die air navigation bill.


— See Flandin, Pierre-Étienne: Le statut du personnel navigant.

— See France: French regulations issued.

— See Germany: German frontier aerial navigation rules.

— See Gorrell, Edgar S.: Rules of the air.

— See Harris, G. W.: Laws for air travel.

— See India: Prohibited areas in India.


— See Malone, William J.: Connecticut’s new laws of the air.


— See New York City: Aerial ordinance for New York City.

— See New York: New York regulates flying.

— See Rentschler, F. B.: Federal air regulations important.
Laws and regulations. See Rooker, William Velpeau.

— See Schwarzböck, Erwin: Das österreichische Luftgesetz.

— See Switzerland: Swiss air regulations.

— See Tauber, Ernst: Die neue Entwurf eines deutschen Luftverkehrsgesetzes.

— See Wilamowitz-Moellendorff, Hermann v.: Das deutsche Luftverkehrsgesetz.

— See Williams, W. C.: Law of the air.

— See Woodhouse, Henry: Textbook of aerial laws, and regulations for aerial navigation, international, national, and municipal, civil and military.

LAWSON. Le biplan Lawson.
Vie Aérienne, No. 165 (8 janv. 1920), Paris, p. 873.

— The Lawson L-4 transport airplane.

— The Lawson midnight airliner.
Aerial Age, Vol. 12, No. 16 (Dec. 27, 1920), New York, pp. 415-418, ill., diagr.
Flight, No. 646, Vol. 13, No. 19 (May 12, 1921), London, pp. 325-326, ill.

— Der neue Lawson-"Nachluftkreuzer."

LAWSON, ALFRED W. See Faunce, Cy Q.: The airliner and its inventor, Alfred W. Lawson, with a summary of the entire aeronautical movement.

LAWSON Aircraft Corporation. Airplane wing construction. Photograph showing a wing designed by the engineering force of the Lawson Aircraft Corporation, Green Bay, Wis., for the new MT-2 Lawson machine which is to be used for advanced training and reconnaissance work over the trenches.
Auto. Ind., Vol. 38, No. 10 (Mar. 7, 1918), New York, pp. 509.

LE BRUN, ROBERT. Hannes Kolehmainen et l'athlétisme Finlandais.
Vie Aérienne, 5e année, No. 17 (27 nov. 1920), Paris, pp. 267-268, ill.

LE PERE. A modified Le Pere fighter.
Aviation, Vol. 11, No. 8 (Aug. 22, 1921), New York, pp. 221-222, ill.

— Le Pere vacuum fuel feed system for airplanes.
Auto. Ind., Vol. 42 (June 24, 1920), New York, pp. 1450-1451, ill., diagr.

LE PRIEUR. Le correcteur de route.
Aéronautique, 2e année, No. 18 (nov.-déc. 1920), Paris, pp. 227-232, ill.

LE PRIEUR, YVES DE VAISSEAU. Correcteur de route à derivographe pour la navigation aérienne à l'estime.
L'Aérophile, 28. année, Nos. 22-23 (1er-15 nov. 1920), Paris, pp. 326-332, ill.

— Correcteur de route; nouvelle méthode de navigation aérienne à l'estime.

LE SUEUR, MAURICE. Procédés analytiques pour le calcul des polaires d'avions.

LE WALD, LÉON T., and GUY H. TURRELL. The aviator's heart—Roentgen ray studies under conditions simulating high altitudes.


“LEADER.” “Leader” cables for aircraft.

LEBLANC, ALFRED. Le grand espoir de 1921. Aeronautique, 3rd année, Nos. 18-19 (Janv. 1921), Paris, pp. 266.


Measurements by means of Venturi is preferred.

LECERF, PIERRE. Chez Landru en avion. Vie Aérienne, 5th année, No. 17 (27 nov. 1920), Paris, pp. 261, ill.


Sadi Lecointe porte le record de vitesse à plus de 313 km à l'heure. L'Aérophile, 28th année, Nos. 23-24 (1er-15 déc. 1920), Paris, pp. 333-354, ill.


LEFRANC. See Latham: Le voyage aérien du lieutenant de vaisseau Lefranc.


Avions métalliques. La Nature, 49th année, 1st sem., No. 2452 (2 avril 1921), Paris, pp. 221-224, ill.


LEGAL ACTION. Legal action started to bring to light pernicious misrepresentation of a vicious clique which has been making trouble in the aeronautic movement.
Aerial Age, Vol. 11, No. 15 (June 21, 1920), New York, p. 504.

LEGGE-POOLE, A. The defeat of Germany.

LEGISLATION. L’aéronautique devant de parlement.
Aéronautique, 3e année, No. 23 (avril 1921), Paris, p. 180.
—— See Pittard, Edmond: Législation aérienne.
—— See Villareal, Humberto Ramírez: La legislación aérea.

LEIGHTON, Otto. Berlin-San Franzisko.
Am. Flug., Nr. 8 (Aug. 1921), Berlin, pp. 303-305.

LEIGHTON, B. G. Nine months’ cruise of Atlantic fleet air force without mishap.
U. S. Air Service, Vol. 4, No. 2 (Sept. 1920), New York, pp. 8-10, ill.

LEITNER-WATTS. The Leitner-Watts all-metal propeller.
Aerial Age, Vol. 12, No. 24 (Feb. 21, 1921), New York, p. 694, ill.

LEITNER-WATTS. Der Metallpropeller von Leitner-Watt.
—— See Propellers: All-metal aircrews. The Leitner-Watts solution.
—— See Propellers: The Leitner-Watts metal aircrew.

LÉMONON, D. H. European sport planes.
Everyday Engineering Magazine, Vol. 9 No. 6 (Sept. 1920), New York, pp. 528-529, 533, ill.

LÉMONON, E. H. L’aile Handley-Page.
L’Aérophile, 28. année, Nos. 22-23 (1er-15 nov. 1920), Paris, pp. 333-334, ill.
—— Les appareils Fokker d’après-guerre.
—— L’avion de sport.
—— L’avion postal “Henry Potez, type XIV.”
—— Les avions de la coupe Gordon-Bennett.
Suisse Aérienne, 2e année, No. 21 (21 nov. 1920), Berne, pp. 315-317, ill.
—— Les avions nouveaux en France. La Berline Spad-Herbemont S 33. Moteur Salmon 250 HP., 6 places.
L’Aérophile, 29. année, Nos. 11-12 (1er-15 juin 1921), Paris, pp. 167-169, ill.
—— Le Bréguet “Léviathan” type XX.
L’Aérophile, 29. année, Nos. 2-3 (1er-15 févr. 1921), Paris, pp. 34-38, ill.
—— Le cinquième meeting de Monaco.
Suisse Aérienne 3e année, 1921, No. 8, Berne, pp. 105-108.
BIBLIOGRAPHY OF AERONAUTICS, 1920–1921.

LEMONON, E. H. La coupe internationale Deutsch de la Meurthe.
Suisse Aérienne, 3e année, 1921, No. 19, Berne, pp. 275-278, ill.

— Deux nouveaux appareils: Le Bréguet "Leviathan" et le Zeppelin-etaaken.
Suisse Aérienne, 3e année, 1921, Nos. 4-5, pp. 51-59, ill.

— L'hélicoptère serait-il l'appareil aérien de l'avenir?
Suisse Aérienne, 2e année, No. 11 (10 juin 1920), Berne, pp. 157-164, ill.

— Un hydravion géant le "Capronissimo." Triple-triplan Caproni.
L'Aérophile, 29e année, Nos. 9-10 (1er–15 mai 1921), Paris, pp. 136-138, ill.

— The Monaco meeting.

— Les moteurs d'aviation B. M. W.
Suisse Aérienne, 2e année, No. 14 (31 déc. 1920), Berne, pp. 263-267, ill.

— La navigation aérienne en Angleterre.
Suisse Aérienne, 2e année, No. 19 (30 oct. 1920), Berne, pp. 283-287, ill.

— Notes sur avions de la coupe.

— Les nouveaux avions allemands. L'avion commercial Sabilitag.
L'Aérophile, 29e année, Nos. 1-2 (1er–15 janv. 1921), Paris, pp. 8-12, ill.

— Les "nouveaux avions métalliques allemands. Le monoplan "Zeppelin-Staaken."

L'Aérophile, 28e année, Nos. 5-6 (1er–15 mars 1921), Paris, pp. 71-78, ill.

— Un nouveau mode de propulsion.
L'Aérophile, 28e année, Nos. 5/6 (1er–15 mars 1920), Paris, pp. xviii-xix, ill.

— Les nouvelles ailes pour avions.
Suisse Aérienne, 2e année, No. 24 (31 déc. 1920), Berne, pp. 363-367, ill.

— The Pescara helicopter.

— Les planeurs montés. Le Concours du "Rhôn" en Allemagne.

— Le 1er match aérien Oxford-Cambridge: Le 6e derby aérien de Londres.
Suisse Aérienne, 3e année, No. 12, Berne, pp. 177-179, ill.

— Le record mondial de la hauteur officieusement battu.
Suisse Aérienne, 3e année, 1921, No. 12, Berne, pp. 174-175, ill.

— La 7e exposition internationale de locomotion aérienne.
Suisse Aérienne, 3e année, 1921, No. 21, Berne, pp. 307-314.

LENT, L. B. The commercial airplane.
Aviation, Vol. 11, No. 7 (Aug. 15, 1921), New York, pp. 188-189.

— Fuel-feed systems for airplanes.

LEONHARDY. Deutschlands Luftverkehr.

— Flugzeug und wirtschaftlicher Grenzschutz.


LESCARBOUR, A. C. America's bid for the Gordon Bennett cup.
LESCARBOURA, A. C. Shall we fly tomorrow
Review of Reviews, Vol. 62 (July 1920), New York pp. 75-82, ill.

LEASEUR. See Gourdou: Les études de MM. Gourdou et Leseurre.
— See Gourdou, C., and J. Leseurre: Calcul des longerons d’une aile d’avion.

LESLEY, EVERETT PARKER. See Durand, William Frederick, and Everett Parker Lesley: Experimental research on air propellers.
— See Durand, William Frederick, and Everett Parker Lesley: Tests on air propellers in yaw.

LEVASSEUR. The Levasseur touring machine.
— See Blanchet, Georges: Un éclatant succès pour la technique française...

LEVASSEUR, PIERRE. Les avions et les hélices Pierre Levasséur.
Aéronautique, 3rd année, No. 30 (nov. 1921), Paris, pp. 463, ill.
— L’hélice à pas variables Pierre Levasséur.

"LEVIATHAN." "Leviathan"-Brégents.
Flugsport, 13. Jahrg., Nr. 6 (16. März 1921), Frankfurt, pp. 144-146, ill

LEVY, JOSEPH. Atlas météorologique de Paris.
Paris, Gauthier-Villars et Cie., 1921, ill.

LEVY, H. Scale effects in relation to aerodynamics.
— See Jones, R., and H. Levy: A study of the flow of air in the neighborhood of an airship shed and screens and the forces and moments brought into play.

LEWE, VIKTOR. Bemerkungen zu den Untersuchungen von A. Pröll über Tragflächenbespannung...
— Festigkeitsprüfungen eines Holz und eines Duralschwimmers.
Survey of India. Professional Papers No. 19. 
Dehra Dun, 1920, pp. 53, ill. 

LEWIS, GEORGE M. D. First American piloted airplane to cross the Alps. 

LEWIS, GWILYM HUGH. See Lewis, Hugh, and Gwilym Hugh Lewis: Aviation and insurance.

— See Lewis, Hugh, and G. H. Lewis: Aviation and insurance: Notes for underwriters.

LEWIS, HUGH, and GWILYM HUGH LEWIS. Aviation and insurance: Notes for underwriters. 

LEWITT, E. H. Circumferential wiring of rigids. 

— The distribution of bending stresses in a rigid airship. 

— The effect of distortion on the bending stresses in a rigid airship. 

— The hull of the rigid airship. 

— Temperature stresses in the rigid airship. 
Aeronautics, Vol. 21, n. s., No. 405 (July 21, 1921), London, pp. 48-49.

— The transverse wiring of the rigid airship. 

— Speed and endurance of the rigid airship. 

LEYAT, MARCEL. An autocar with an airscrew. 

LEYENSETTER, WALTHER. Luftschiffe als Verkehrsmittel. 
Berlin, R. Oldenbourg, 1920, pp. 31, ill. 
Inaugural dissertation of the Technische Hochschule, Berlin.

— Luftschiffe als Verkehrsmittel mit besonderer Berücksichtigung ihrer Wirtschaftlichkeit. 

LIBERTY. Centrifugal oil cleaner for installation in Liberty-12 engine. 
Engineering Division, Air Service, Technical Orders No. 17 (June 1920), Dayton, Ohio, pp. 18-26, ill.

— Einzelversuche an Liberty-Motor. 

— Liberty engine. 

— Die Leistung des 400 PS Liberty-Motors. 

— Standard engine report of the Liberty 6-cyl. engine. 

Technical Orders No. 9 (Oct. 1919), pp. 13-37, figs.
BIBLIOGRAPHY OF AERONAUTICS, 1920–1921.

LIBERTY. U. S. Liberty 4 engine.
— See Archer, R. S.: Some metallurgical features of the Liberty engine.
— See Couturier, Roger: Le moteur Liberty.
— See Engine equipment: Experimental centrifugal oil cleaner attached to Liberty engine.
— See Manifolds: Tests on Liberty, Benz, and Mercedes engine manifolds.

LIBERTY PLANES. First Liberty planes shipped.
Aut. Ind., Vol. 38, No. 8 (Feb. 21, 1918), New York, p. 422.

"LIBRA.” Running costs of flight. Suggested international formula.

LICENSE. The licensing of civil aerial navigators.

LICENSING. National registration and licensing.
Aviation, Vol. 10, No. 7 (Feb. 14, 1921), New York, p. 199.

LICENSES. See Bauer, L. H.: Why civilian air pilots should be licensed by the Federal Government.
— See Great Britain: British pilots required to pass examination in navigation.
— See Pilots: Licenses for air pilots.
— See Pilots: Pilots’ licenses.

LIEFMANN, ROBERT. Drei Ballonfahren nach Frankreich.

LIEVRE, JOE BEN. Consejos para los avióadores que quieran vivir mucho tiempo.
Tochtli, año 6, Núms. 1, 2 (enero y feb. de 1921), México, pp. 32-33, ill.

LIFE buoys. Aerial life buoys.

LIFE packs. See Parachutes.

LIFE raft. An aeroplane life raft.

LIFE saving. The launch of the first life-saving raft.
The Aeroplane, Vol. 20, No. 23 (June 8, 1921), London, p. 522.
— See Austin, W. J.: The Austin "life-float.”

LIFT. The effect of aspect ratio on lift.
Aerial Age, Vol. 12, No. 19 (Jan. 17, 1921), New York, p. 497.

LIFTING. New lifting element.

BIBLIOGRAPHY OF AERONAUTICS, 1920–1921.

Lighthouses. Aerial lighthouses.
—— Le balisage lumineux des routes aériennes pour la navigation nocturne.
—— Lighthouses guide planes shortly.
—— See Pharos: The aerial lighthouse.
—— See Wentworth, R. Preston: The lighthouse for aerial navigation.
Lighting. Lighting installations for night flying.
Aerial Age, Vol. 13, No. 5 (Apr. 11, 1921), New York, p. 110.
—— See Wilson, C. T. R.: Investigations on lightning discharges and on the electric field of thunderstorms.
Lilienthal, Gustav. Eine neue Flugtheorie.
Kosmos, Bd. 18, Heft 4, 1921, pp. 105–108, ill.
—— Der Segelflug der Vögel.
—— Der Segelflug, eine neue Flugtheorie.
Annalen für Gewerbe und Bauwesen, Bd. 88, No. 8 (Apr. 15, 1921), pp. 67–71, ill.
—— Zum 25-jährigen Todestage Otto Lilienthals.
Limousines. Air limousines. Luxurious flying machines to be featured at manufacturer’s exhibit.
—— Die Rumpler-Luft-Limousine.
Lindau. See Hildesheim, Erik: The Zeppelin-Lindau all-aluminum biplanes.
Lindemann, F. A. The northerly turning error of the magnetic compass.
Lincoln. The Lincoln standard cruiser.
—— The Lincoln standard speedeter.
—— See Beatty, I. J.: Lincoln motor production plan.
“Lincoln Imp.” On aerial map making.
Lind, Wallace L. Internal-combustion engines—their principles and application to automobile, aircraft, and marine purposes.

LINKE, FELIX. Peculiar visual phenomena revealed by airmen. Aerial Age, Vol. 12, No. 17 (Jan. 3, 1921), New York, pp. 441, 445.


Lioré et Olivier. Les avions Lioré et Olivier. Aéronautique, 3e année, No. 30 (Nov. 1921), Paris, pp. 466-467, ill.

Lioré and Olivier commercial seaplane. Aerial Age, Vol. 13, No. 3 (Mar. 28, 1921), New York, p. 62.


L’Air, No. 18 (5 août 1920), Paris, pp. 15-17, ill.


LLOYD, H. A. Classification of the ground from the air. Flying, Vol. 9, No. 11 (Dec. 1920), New York, pp. 680-682, ill.


Aviation, Vol. 10, No. 19 (May 9, 1921), New York, p. 607.


LOADS. See Case, John: The loads and stresses in aeroplanes. Part II. Tail unit and fuselage.


— See Stelmachowski, Ing.: Loads and calculations of army aeroplanes.


LOENING. The Loening model 23 flying yacht reaches 19,500 feet altitude with four on board.

Aviation, Vol. 11, No. 9 (Aug. 29, 1921), New York, pp. 246-250, ill., diagr.

The Loening monoplane flying boat.

Aerial Age, Vol. 13, No. 26 (Sept. 5, 1921), New York, p. 613, ill.

The Loening special monoplane.


LOENING, ALBERT PALMER. Handling over 3,000 planes at Orly.


LOENING, GROVER CLEVELAND. Commercial aspect of aviation.

Aircraft Journal, Vol. 6, No. 6 (Feb. 7, 1920), New York, pp. 3-4, ill.

The design requirements of commercial aviation.


Engine shape as affecting airplane operation.


LOENING. The Loening Model 23 flying boat.


Loening-Renn-Eindecker.


The Loening special racing monoplane.


LOESSEL, EUGEN V. Vom Segelfliegen.


LOESSEL, EUGEN RITTER, AND ELDER V. Eugen Ritter und Edler von Loessel.


LOG. See Klein, E.: Log of a Zeppelin journey.

LOGAN, PATRICK H. Patrick H. Logan.


LOGARITHMS. See Goldenberg, V.: Les diagrammes logarithmiques.

LOHANN, WALTER. Die "fetten und mageren Fenster" zur harmonischen Analyse nach dem Hermannschen Verfahren.

En glanant: Le parachute individuel d’aviation.
La Conq. L’Air, 3e année, No. 4 (15 févr. 1920), Bruxelles, pp. 46-47.

— La sustentation pulsatile.
Suisse Aérienne, 2e année, No. 13 (10 juil. 1920), Berne, pp. 192.

LONDRES. L’“air conference” de Londres.

— L’exposition aéronautique de Londres.
L’Air, No. 17 (20 juil. 1920), Paris, pp. 13-20, ill.

— Flying from London to Amsterdam.

— The London-Continental service.

— London-Paris air service.

— London-Paris as seen through the camera and the plane.

— London-Paris service.

— London terminal aerodrome.


— Resumption of London-Paris air service.

— La VIe exposition internationale d’aéronautique de Londres (9-20 juillet 1920).

— The Thames as London’s air port.

— See Aerial routes: Les transports aériens entre Paris et London.
— See Air routes: London-Cairo-the Cape by airplane.
— See Commercial aeronautics: By air from London to Australia.
— See Commercial aeronautics: London-Paris air express.
— See Commercial aeronautics: London-Paris air service.
— See Commercial aeronautics: Successful year’s flying on London-Paris route.
— See Smith, Ross: Captain Smith wins 11,500-mile London-Australia flight.
BIBLIOGRAPHY OF AERONAUTICS, 1920–1921. 251

LONG BEACH. Long Beach air tournament. Result of first winter meet.
The Ace, Vol. 2, No. 6 (Jan. 1921), Los Angeles, pp. 9, 20.

— National winter air tournament. Aeronautical exposition to be held at Long
Beach, December 25, 26, 27, 1920.

LONGITUDINAL airplane. The longitudinal airplane—is it practical?

LONGITUDINAL balance. Correcting the longitudinal balance of JN–6H airplanes.
Aviation, Vol 8, No. 9 (June 1, 1920), New York, pp. 357–358.

LONG, MAURICE BLAINE. See Edwards, Junius David, and Maurice Blaine Long:
Solar radiation and balloons.

LONG, S. H. In the blue.

LONGREN. The new Longren airplane.
Aviation, Vol. 11, No. 12 (Sept. 19, 1921), New York, pp. 336–337, ill.

— The new Longren biplane.
Aerial Age, Vol. 11, No. 3 (Sept. 26, 1921), New York, pp. 55–56, ill.

LOOPING. Le record du "looping" en avion.
L’Aerophile, 28. année, Nos. 11-12 (1er-15 juin 1920), Paris, p. 164.

LORENZ, H. Die Wirkungsweise der Tragflächen.

LORRAINE-DIETRICH. See Bradley, W. F.: Lorraine-Dietrich production of airplane
engines.

LOS ANGELES. Los Angeles to San Diego service opened.
The Ace, Vol. 2, No. 9 (June 1921), Los Angeles, p. 11.

— See Laws and regulations: Ordinance regulating the operation of aircraft in the
city of Los Angeles.

LOUGHEAD. An American single seater with novel features.

— The Loughead sport biplane.
Aerial Age, Vol. 11, No. 13 (June 7, 1920), New York, pp. 434–435, ill.
Aviation, Vol. 8, No. 9 (June 1, 1920), New York, pp. 367–368, ill.

LOW, A. R. A fundamental theorem in airscrew theory.

— Helicopters.


— Occasional papers on aeronautics. No. 2. A fundamental theorem in airscrew
theory.

— Optical determination of stress in airplane spars.

— Screw propellers.
LOW, DAVID ALLAN. Heat engines, embracing the theory, construction, and performance of steam boilers, reciprocating steam engines, steam turbines, and internal-combustion engines. A textbook for engineer students.

Low-Pressure indicators. See Kemble, E. C.: Calculation of low-pressure-indicator diagrams.


LUBRICATION. Correct lubrication.

Efficiency in lubrication.

Lubrication of internal-combustion engines.
Aerial Age, Vol. 12, No. 21 (Jan. 31, 1921), New York, p. 544.

Memorandum on solid lubricants.

Report of the lubricants and lubrication inquiry committee.


Testing lubricating oils.

See Parish, W. F.: Proper balancing of fuel, lubricant, and motor.

See Wells, Henry M., and James E. Southcombe: The theory and practice of lubrication: The "German" process.

Langenalza, Herman Beyer & Söhne, 1921, pp. 231, ill.

LUCAS, KEITH. On a new type of magnetic compass for use on aeroplanes.

The oscillations of an aeroplane in flight and their effect on the accuracy of bomb dropping.

Report on the errors of compasses on aeroplanes.

LUCIFER. See Cosmos: The Cosmos 100-horsepower "Lucifer" engine.

LUCKEISH, M. High lights of air travel.

Visibility of aeroplanes and the appearance of objects viewed from above; abstract.

LUDOWICI, W. Luftbildwesen.

LUGS. See Boulton, B. C.: Design of standard lugs.

BIBLIOGRAPHY OF AERONAUTICS, 1920–1921.

LUNDBERG, ILSE. Die Hochzeitsreise im Wandel der Zeiten. Aut. Flugv., Nr. 10 (Okt. 1921), Berlin, pp. 411-413, ill.


LUTZ, BRENTON, R. See Schneider, Edward C., Brenton R. Lutz, and Harold W. Gregg: The changes in the content of hemoglobin and erythrocytes of the blood in man during short exposures to low oxygen.

— See Schneider, Edward C., and Brenton R. Lutz: Circulatory responses to low-oxygen tensions.

— See Schneider, Edward C., Brenton R. Lutz, and Harold W. Gregg: Compensatory reactions to low oxygen.

— See Schneider, Edward C., and Brenton R. Lutz: The reactions of the cardiac and respiratory centers to changes in oxygen tension.

Mc.


MCCOMAS, HENRY C. Controlling the airplane at twenty thousand feet. The Scientific Monthly, Vol. 13, No. 1 (Jan. 1921), Garrison, pp. 35-46

McCOOK FIELD. Description of the McCook Field wind tunnel. Aerial Age, Vol. 13, No. 11 (June 13, 1921), New York, pp. 319-321, ill.


McCook Field. Résumé of McCook Field test reports.

---

Two years’ work at McCook Field.

Aviation, Vol. 10, No. 9 (Feb. 28, 1921), New York, pp. 263-265.

Velocity determination in McCook Field wind tunnel.


See Bane, T. H.: Illustrations of McCook Field.

See Caldwell, F. W.: Propeller-testing laboratory at McCook Field.


See Engines: Increase of power output with higher compression ratios; another of the McCook Field engine tests.

---

McCready, John A. Lieutenant McCready establishes new altitude record.


McCudden. Five years in the Royal Flying Corps.


McIlhiney, Donald W. Applying the figure of merit.

Aviation, Vol. 11, No. 19 (Nov. 7, 1921), New York, pp. 544-545.

A figure of merit for airplanes.

Aviation, Vol. 9, No. 8 (Nov. 8, 1920), New York, pp. 234-237, ill.

Multiengined commercial airplanes.

Aviation, Vol. 11, No. 18 (Oct. 31, 1921), New York, pp. 506-507.

Single-engined cabin airplanes.

Aviation, Vol. 11, No. 13 (Sept. 26, 1921), New York, pp. 364-365, ill.

McIntosh, J. The death of Lieutenant McIntosh.


Fatal accident to Lieut. J. McIntosh.


McKay, Hugh D. Training the commercial airplane mechanic.


Mackenthun, Walter. Männer der Luftfahrt—VIII.


McLachlan, N. W. Approximate method of testing aeroplane wing ribs.

Aviation, Vol. 8, No. 2 (Feb. 15, 1920), New York, pp. 59-63.


MacLake, William. Recent work in personality study.


McLennan, J. C. Helium, its production and uses.


McLennan, J. C., and others. The helium sources of the British Empire.

Ottawa, Canada, 1920, Department of Mines.

— Uses of helium.

MacReady, John A. Airplane reaches altitude of 7.75 miles. Using machine in which Major Schroeder made world record, Army flyer ascends to unprecedented height above the earth.

— MacReady's altitude flight.
Aerial Age, Vol. 14, No. 6 (Oct. 17, 1921), New York, pp. 127-128, ill.

— MacReady's altitude record.

— New altitude record: 40,800 feet.

— To 40,800 feet.

McMahon, John F. Elementary aeronautics and model notes.

— Model aeroplanes.


M.

L’Aérophile, 29. année, Nos. 9-10 (1er-15 mai 1921), Paris, p. 135, port.

M., E. Rentabilitätsmöglichkeiten beim Schiff, Luftschiff, Landfahrzeug und Flugzeug.
Technik für Alle, Bd. 12, Jahrg. 8, Heft 8, 1921-22, pp. 172-175, ill.

M., K. L. European air lines.
Aeronautics, Vol. 20, n. s., No. 238 (May 12, 1921), London, pp. 332-334, ill.

MB-3. Bids for MB-3 pursuit airplanes and spares.

Mache, H. Einführung in die Theorie der Wärme.

Macchi. New Macchi flying boats.


MacDonald, C. S. Instruments and commercial aviation.
Aviation, Vol. 11, No. 19 (Oct. 17, 1921), New York, p. 455.

Macedonia. See Shaw, Napier: Notes on the winds of Macedonia.
Machinery. The Ahcol band-polishing machine.

Machines. Modern cabin machines.

Macmillan, Norman. The present and future civilian pilot.

Suisse Aéronautique, 3e année, 1921, Nos. 22-23, Berne, p. 333.

Magaldi, G. Note sul calcolo delle strutture dei velivoli.
L'Aéronautique, anno 3, Num. 5-6 (luglio-agosto 1920), Roma, pp. 216-222.

Maggs Bros., London. . . . A descriptive catalogue of books and engravings illustrating the evolution of the airship and the aeroplane. Selected from the stock of Maggs Bros. . . . London . . .


Magneto. British magnetos.
— See Sillsbee, Francis Briggs: Simplified theory of the magneto.

Mahsuds. See R., F. A. de V.: Bombing the Mahsuds.

Mail. The aerial mail.
Aerial Age, Vol. 13, No. 2 (Mar. 21, 1921), New York, p. 27.

— The aerial mail achievement.
Aerial Age, Vol. 12, No. 26 (Mar. 7, 1921), New York, p. 651.

— Aerial mail and aviation.

— Aerial mail recommendation indorsed by President Wilson.
Aerial Age, Vol. 12, No. 22 (Feb. 7, 1921), New York, pp. 555-556.

— Aerial-mail stamps.
Aerial Age, Vol. 12, No. 18 (Jan. 10, 1921), New York, p. 460-461.

— Aerial mail to Holland.

— Air mail.

— The air mail and American aeronautics.
Aviation, Vol. 10, No. 3 (Jan. 17, 1921), New York, p. 68.

— The air mail—an economic revolution.
Aviation, Vol. 9, No. 7 (Nov. 1, 1920), New York, p. 232.

— Air-mail changes.
Aviation, Vol. 10, No. 25 (June 20, 1921), New York, p. 781.

— The air mail endangered.
Aerial Age, Vol. 12, No. 21 (Jan. 31, 1921), New York, p. 531.

— Air-mail mileage.
Aerial Age, Vol. 12, No. 26 (Mar. 7, 1921), New York, p. 661.

— Air-mail operation and maintenance.
MAIL. Air-mail operation costs for April.


Air-mail performance for May, 1920.

Aviation, Vol. 8, No. 11 (July 1, 1920), New York, p. 431.

Air-mail plane saves life.

Aviation, Vol. 11, No. 3 (July 18, 1921), New York, p. 79.

Air-mail policy, inland and foreign.

Aeronautics, Vol. 19, No. 11 (July 1, 1920), New York, pp. 93-94.

Air-mail reorganization.

Aviation, Vol. 11, No. 1 (July 4, 1921), New York, p. 23.

Air-mail routes include the South; 815-mile trip from New York to Atlanta via Capital.

The Navigator, Vol. 1, No. 22 (July 17, 1920), Pensacaola, Fla., p. 5.

Air-mail service.


Air-mail service. Report of operation and maintenance.


The air-mail service. Report of United States Air Service.


Air-mail service big saving to United States.

The Navigator, Vol. 1, No. 6 (Mar. 29, 1920), Pensacaola, Fla., pp. 1, 8.

Air-mail service is two years old.

The Navigator, Vol. 1, No. 16 (May 29, 1920), Pensacaola, Fla., pp. 1, 8.

Air-mail services.


Air-mail services from London.


Air-mail services. Routes and frequency of service.


Air mail starts to the Pacific coast.


Air mails.


Air mails and airships.


Air mails in Britain.


Air mails in the House.


Airships and empire air mails.

Flight, No. 601, Vol. 13, No. 24 (June 16, 1921), London, pp. 399-400.

American press commends airmail.

BIBLIOGRAPHY OF AERONAUTICS, 1920–1921.

MAIL. Air-mail operation costs for April.

— Air-mail performance for May, 1920.
Aviation, Vol. 8, No. 11 (July 1, 1920), New York, p. 434.

— Air-mail plane saves life.
Aviation, Vol. 11, No. 3 (July 18, 1921), New York, p. 79.

— Air-mail policy, inland and foreign.

— Air-mail reorganization.
Aviation, Vol. 11, No. 1 (July 4, 1921), New York, p. 23.

— Air-mail routes include the South; 815-mile trip from New York to Atlanta via Capital.
The Naviator, Vol. 1, No. 22 (July 17, 1920), Pensacola, Fla., p. 5.

— Air-mail service.

— Air-mail service. Report of operation and maintenance.
Aerial Age, Vol. 10, Nos. 14, 18–19; Vol. 11, Nos. 5, 7, 8, 10, 11, 16, 22, 24, 26; Mar. 22, Apr. 19, 26; May 3, 17, 24, 31, June 28, Aug. 9, 23, 30 (1920), New York, pp. 532, 660, 690; 57, 153, 218, 252, 322, 361, 393, 400, 414, 729, 883.

— The air-mail service. Report of United States Air Service.

— Air-mail service big saving to United States.
The Navigator, Vol. 1, No. 6 (Mar. 20, 1920), Pensacola, Fla., pp. 1, 8.

— Air-mail service is two years old.
The Navigator, Vol. 1, No. 16 (May 29, 1920), Pensacola, Fla., pp. 1, 8.

— Air-mail services.

— Air-mail services from London.

— Air-mail services. Routes and frequency of service.

— Air mail starts to the Pacific coast.

— Air mails.

— Air mails and airships.

— Air mails in Britain.

— Air mails in the House.

— Airships and empire air mails.

— American press commends air mail.
BIBLIOGRAPHY OF AERONAUTICS, 1920–1921.

Air Mail. Annual report on the aerial-mail service.
Aerial Age, Vol. 12, No. 16 (Dec. 27, 1920), New York, pp. 411–412.
Aircraft Journal, Vol. 6, No. 6 (Feb. 7, 1920), New York, p. 5.

— Are you bidding for aerial mail contracts?

— Are you pushing the extension of the aerial-mail service?
Flying, Vol. 9, No. 9 (Oct. 1920), New York, pp. 593–595.

— Can we fireproof aerial mail?

— Celerity shown by aerial mail.

— Consolidated statement of operations of air-mail service, July 1, 1918, to July 1, 1919.
Aerial Age, Vol. 10, Nos. 12–13 (Jan. 5–12, 1920), New York, pp. 441, 494.

— Continue the air-mail service.

— Conversion of the “daily mail.”

— Cost of operation of air mail.

— Die deutsche Flugpost.

— Effect of weather on the aerial-mail service.

— The engineering section of the air mail.
Aviation, Vol. 9, No. 10 (Nov. 22, 1920), New York, p. 319, ill.

— England-Holland air mail.

— England recognizes America’s great lead in aerial mail.

— England recognizes America’s lead in aerial mail.
Literary Digest, Vol. 64 (Feb. 7, 1920), New York, p. 122.

— Flugpost.

— Die Flugpost zur Leipziger Messe.

— Four air-mail routes will link New York with network over nation.

— How to use the air mail.

— In defense of the air-mail service.

— Inland air mails. Mr. Holt Thomas shows the way.

— Inland air mails. Remarkable figures of time saving.

— Jersey asks for air mail.
MAIL. Lignes aériennes postales en Syrie.
Aéronautique, 3e année, No. 23 (avril 1921), Paris, p. 174.
— Líneas postales aéreas.
Aire, Mar y Tierra, año 2, Núm. 15 (junio 1920), Madrid, pp. 342-343.
— Die Luftpost in Spanien.
— Mail delivery to ships at sea.
— Mail planes to land on post-office roof.
Aviation, Vol. 10, No. 21 (June 6, 1921), New York, p. 713.
— Mails and aerial defence.
— The Model J-2 mail plane.
Aviation, Vol. 8, No. 3 (Mar. 1, 1920), New York, pp. 105-106, ill.
— Monthly report of air-mail service.
— Monthly report of air-mail service. December, 1920.
— Monthly reports on air-mail service. August, September, 1920.
— N. A. C. A. praises air mail.
Aviation, Vol. 10, No. 6 (July 15, 1920), London, pp. 4-6.
— Needs of the air-mail service.
Flying, Vol. 10, No. 5 (June 1921), New York, p. 179.
— New air-mail services and rates.
— New York-San Francisco air-mail route will soon be a reality.
— New United States airplane, type DH-M2.
Aviation, Vol. 11, No. 17 (Oct. 24, 1921), New York, p. 476, ill.
— Official report on air-mail service. Third year of operation, May 15, 1920, to May 15, 1921.
Aviation, Vol. 10, No. 22 (May 20, 1921), New York, p. 682.
— Only American airplanes on new mail routes!
Ant. Ind., Vol. 43 (July 15, 1920), New York, p. 106.
— Peking-Shanghai air mail.
— Plane replaces pony riders. Sixty years after first transcontinental mail service comes transportation by air.
— Plea for continuance of air-mail service.
— The post office and the air mails to Ireland.
— Post Office Department issues call for proposals for operation of aerial mail routes.
Aerial Age, Vol. 11, No. 19 (July 19, 1920), New York, pp. 644, 648.
Mail. Posta aerea.

Rivista marittima (nov.-dic. 1920), Roma, pp. 34-35.

— Proposals for air-mail transportation.


— The reliability of the aerial mail.


— Reliability of air-mail service.


— Roster of the air-mail service.

Aircraft Journal, Vol. 7, No. 13 (Sept. 27, 1920), New York, pp. 5-6, ill.

— Second anniversary of the air-mail service.

Aircraft Journal, Vol. 6, No. 22 (May 31, 1920), New York, pp. 3-5, ill.

— Le service Paris-Geneve.


— Ship drops eggs, parcel post, by parachute in first post office test.


— Spirit of the old pony express now carries the air mail.

Literary Digest, Vol. 67 (Oct. 9, 1920), New York, pp. 76-82.

— State air mails.


— Striking facts about air mails. A business proposal for the post office.


— Der subventionierte Luftverkehr im Dienste der Post.


— Summary of results of R. A. F. mail services.


— Three years of air-mail service.

Aviation, Vol. 10, No. 18 (May 2, 1921), New York, pp. 559-561, 564, ill.

— Three years of the aerial mail.

Aerial Age, Vol. 13, No. 11 (May 23, 1921), New York, pp. 249, 262.

— The transcontinental aerial mail.

Aerial Age, Vol. 12, No. 1 (Sept. 13, 1920), New York, p. 5.

— Transcontinental air mail starts.


— Two months air mail United States Post Office Department.


Monthly reports of operation and maintenance April and May, 1920.

— Two years of the air mail.

Literary Digest, Vol. 65 (June 19, 1920), New York, pp. 30-31, Ill.


— United States air-mail contracts.


— United States air-mail prize awards.

Aerial Age, Vol. 13, No. 12 (May 30, 1921), New York, p. 275, Ill.

— United States air-mail survey flight.

United States Post Office Department air-mail service consolidated report of operation—fiscal year 1921.
Aerial Age, Vol. 14, No. 3 (Sept. 26, 1921), New York, p. 62.

United States Post Office Department air mail service consolidated statement of performance of the air-mail service fiscal year 1921 (July 1, 1920, to June 30, 1921).
Aerial Age, Vol. 14, No. 3 (Sept. 26, 1921), New York, p. 62.

United States Post Office Department air-mail service monthly report of operation and maintenance, August, 1920.
Aerial Age, Vol. 12, No. 11 (Nov. 22, 1920), New York, p. 293.

United States Post Office Department air-mail service monthly report of operation and maintenance, October, 1920.

United States Post Office Department air-mail service monthly report of operation and maintenance, September, 1920.
Aerial Age, Vol. 12, No. 12 (Nov. 29, 1920), New York, p. 317.

United States Post Office Department air-mail service monthly report of operation and maintenance, November–December, 1920.
Aerial Age, Vol. 12, Nos. 21, 24 (Jan. 31–Feb. 21, 1921), New York, pp. 533, 605.

United States Post Office Department air-mail service monthly report of operation and maintenance, January–October, 1921.

United States Post Office Department Cleveland-Omaha Division air-mail service monthly report of operations and maintenance, June, 1920.

United States Post Office Department Chicago-Omaha route air-mail service monthly report of operation and maintenance, May, 1920.
Aerial Age, Vol. 12, No. 3 (Sept. 27, 1920), New York, p. 74.

United States Post Office Department New York-Washington Division air-mail service monthly report of operations and maintenance, June, 1920.
Aerial Age, Vol. 12, No. 2 (Sept. 20, 1920), New York, p. 42.

La voie postale aérienne.
L’Aérophile, 28e année, Nos. 15-16 (1er-15 août 1920), Paris, pp. 240-245, ill.

Warsaw-Paris air service.

See Air-mail service: United States air-mail service.

See Armstrong, Douglas B.: Postage stamps of the air.

See Beggs, A. H.: Thomas-Morse mail plane.

See Burleson, A. S.: Mr. Burleson on the air mail.

See Burleson, A. S.: Story of our air mail.

See China: Air mail in China.

See Commercial aeronautics: Aerial mail as a promoter of commercial aeronautics.

See Congo: Aerial mails in the Congo.

See Edgerton, James C.: Radio as applied to air navigation in the air-mail service.

See Foster, A. B.: My flight with the aerial mail.
MAIL. See Gaulois, G.: Air bags for the airplane that lands on water.

— See Germany: German air mails.

— See Great Britain: Airplane has been put to work in Great Britain.

— See Great Britain: The Dominions and aircraft.


— See Holmes, P. L.: Mail transport. The cooperation of aircraft and surface craft.

— See Holt, H. S.: An air-mail suggestion.


— See Martin: Glenn L.: Scandalizing the air mail.

— See Mexico: Air-mail service for Mexico.

— See Mitchell, W.: Air-mail service.

— See Paganini, Robert: Perspektiven der Luftpost.

— See Praeger, Otto: Air-mail service saves public $100,000 a year. Performance better than 90 per cent.

— See Praeger, O.: Air mail shows commercial possibilities of planes.

— See Praeger, Otto: Cost of air-mail route from New York to San Francisco.

— See R., F. A. de V.: The Indian air mail.

— See Subsidies: Subsidies, air mails, and a territorial air force.

— See Turner, C. C.: Air-mail extension.

— See United States Post Office Department: United States air-mail service.

— See Vincent, J. G.: Aerial-mail service.

— See Wireless: Radio warns mail plane.


Includes discussion.

United States Air Service, Vol. 4, No. 6 (Jan. 1921), New York, pp. 22-36, ill.

— "The log of H. M. A. 'R. 34:' Journey to America and back."

London, Hodder & Stoughton (Ltd.), 1921, pp. 180, ill.


— Log of H. M. A. R-34; journey to America and back; with a letter from Rudyard Kipling.

New York, George H. Doran Co., 1921, pp. xii, 168, ill.


— Pioneers of British aviation—XXVII: Air Commodore E. M. Maitland, C. M. G., A. F. C., B. A.


— See Commercial aeronautics: Airship ton-miles. Air Commodore Maitland’s estimate criticised.
BIBLIOGRAPHY OF AERONAUTICS, 1920–1921. 263

MALAYA. Pioneering in Malaya.

MALGOHN, G. Les navires anglais et américains porteavions.

MALLOCK, A. Behaviour of levels when subject to vibration.
— Best altitude for aerial scouting at sea.
— Deviation of the compass due to vibration and friction between the cup and the pivot.
— Drifting smoke.
— Eddies and the diffusion of momentum.
— Flight by flapping wings.

MALONE, WILLIAM J. Connecticut’s new laws of the air.

MALTENER, S. N. Helicopter.


MAN power. Man-power flight.

Mandeville, J. B Aerial photography as applied to topographical surveys.
Aerial Age, Vol. 11, No. 3 (Mar. 29, 1920), New York, pp. 87-88, ill.

Manifolds Tests on Liberty, Benz, and Mercedes engine manifolds.

MANLY, CHARLES M. See Brewer, Griffith: The Langley machine and the Hammondsport trials.

MANNING, W. O. On power plants.

Manometer. Pioneer low-pressure manometer.

Mantelburger, Josef. Der Flugzeug-Modellbau.
Flug, Sondernummer (Dec. 1920), Wien, pp. 94-95.


Manufacture. Getting airplane details on a manufacturing basis.
Amer. Mach., Vol. 55 (Dec. 1, 1921), New York, pp. 886-887, ill.
— What is required to construct a modern airplane.
Machinery, Vol. 27 (Nov. 1920), New York, p. 250.

 Manufacturers’ Aircraft Association. Aircraft makers exhibit the 1920 commercial models; second national show of the Manufacturers’ Aircraft Association.
— Aircraft Yearbook, 1920.
MANUFACTURERS' AIRCRAFT ASSOCIATION. Attorney General asked to investigate Manufacturers' Aircraft Association. 
Aerial Age, Vol. 11, No. 7 (Apr. 26, 1920), New York, pp. 214, 234.

-- British air power and air policy. Analysis of British air appropriations, 1921-1922. 
Aviation, Vol. 10, No. 19 (May 9, 1921), New York, pp. 600-604.

-- Grand jury investigation of Manufacturers' Aircraft Association requested. 
Aerial Age, Vol. 11, No. 18 (July 12, 1920), New York, pp. 607-608, 626.

-- Manufacturers' Aircraft Association requests cooperation. 

-- Manufacturers' Aircraft Association misrepresents patent situation. 
Aerial Age, Vol. 11, No. 19 (July 19, 1920), New York, pp. 639-640.

-- United States commercial aircraft companies. 
Aviation, Vol. 10, No. 10 (Mar. 7, 1921), New York, pp. 291-301.

MAPPELLI, LUIGI. The Luigi Mapelli challenge cup. 

-- The Mapelli and Schneider cup competition. 

-- Results of the Mapelli competition. 
Aeronautics, Vol. 20, n. s., No. 381 (Feb. 3, 1921), London, p. 84.

MAPES, BRUCE A. Fokker model built by Bruce Mapes. 
Aerial Age, Vol. 14, No. 9 (Nov. 7, 1921), New York, p. 209, ill.

MAPS. Aerial map making is cheap and quick. 

-- Aerial photographic maps. 

-- Aeronautical maps. 
Aerial Age, Vol. 13, No. 20 (July 25, 1921), New York, p. 470. 

-- America seen as a great relief map. How geographical and geological formations will be visualized in a coast to coast flight. 
Aircraft Journal, Vol. 6, No. 24 (June 14, 1920), New York, p. 4.

-- Developing aeronautical maps. 
Aircraft Journal, Vol. 6, No. 18 (May 1, 1920), New York, p. 3.

-- International aeronautical maps. 
Aerial Age, Vol. 12, No. 25 (Feb. 28, 1921), New York, p. 638.

-- Photographic mapping of air routes. America to make a practical start. 

-- Wind maps for aviators. 


-- See Commercial aeronautics: Mapping air routes for commercial flying.

-- See Elton, Robert W.: Aerial mapping.


-- See 'The Lincoln Imp': On aerial map making.

-- See Mandeville, J. B.: Aerial photography as applied to topographical surveys.
MAPS. See Mitchell, William: General Mitchell on charting the air.

See Orinoco: Mapping the Orinoco Delta.

See Photographic surveying: Mapping with the squeeze of a bulb.

See Photography: Army balloon maps, San Francisco.

See Photography: Map making by air photography.

See Routes: Mapping the aerial routes.

See Sandifer, T. N.: Mapping the aerial routes.

MARANVILLE, A. G. The Goodyear automatic gas valve.
Aviation, Vol. 8, No. 3 (Mar. 1, 1920), New York, p. 111, ill.

MARCHAL, ANSELME. Pourquoi je n'ai pas tenté la traversée de l'Atlantique.

MARCHIS, LUCIEN RENÉ ANDRÉ EDMOND. L'aéronautique pendant la guerre mondiale. Publié avec l'appui du Sous-Secrétariat d'Etat de l'Aéronautique militaire et maritime et de la Chambre syndicale des Industries Aéronautiques, sous la direction de M. Marchis, professeur d'aviation à la Sorbonne.
Paris, 1920, pp. 750, ill.

Les avions actuels et le 6e salon de l'aéronautique.

See Brunoff, Maurice de: L'aéronautique pendant la guerre mondiale.

“MARCO POLO.” The case for the cantilever wing.

An immediate application of slotted aerofoils. Their use as interplane ailerons.

MARCONI. See Wireless: Wireless telephony for aircraft. Demonstration by Marconi Co.

MARCOTTE, EDMOND. Les matériaux de constructions mécaniques et aéronautiques.

Les moteurs d’aéronautique.
Paris, Librairie de l’Enseignement Technique, 1921, pp. 274, ill.

Pour la navigation aérienne nocturne. Le balisage lumineux.

MARGOULIS, W. L’aérodynamique expérimentale en 1920.

Les ailes Joukowski: La théorie de l’édifice de Joukowski et de ses élèves.
Aéronautique, 3e année, No. 27 (août 1921), Paris, pp. 329-337.

The Gordon Bennett airplane cup.

Aviation, Vol. 10, No. 22 (May 30, 1921), New York, pp. 691-692.

A new method of testing models in wind tunnels.

— Notes on specifications for French airplane competitions.
Translated from the French by Paris office, N. A. C. A.

— The steadiness in engine sets.

— The steadiness factor in engine sets.

— Value of model tests.
Aviation, Vol. 10, No. 2 (Jan. 10, 1921), New York, pp. 40–42.

Markers. Air service adopts location marker.
Aviation, Vol. 10, No. 17 (Apr. 25, 1921), New York, p. 527, ill.

Markiewicz, Ed. Un nouvel appareil Suisse.
Suisse Aéronomie, 2e année, No. 19, (20 oct. 1920), Berne, pp. 289, ill.

— Les types modernes de moteurs d’avions.
Suisse Aéronomie, 2e année, Nos. 9-10 (mai 1920), Berne, pp. 143.

— Le vol humain se perfectionne.
Suisse Aéronomie, 3e année, 1921, No. 12, Berne, pp. 179-180, ill.

Marks. See Insignias: Aero squadron insignias approved by War Department.

— See Orly, Ladislas d’: International aircraft marking.


Marolles, Quelques aspects du problème de l’aviette.
L’Aérophile, 29 année, Nos. 5-6 (1er–15 mars 1921), Paris, pp. 85–86, diagrs.

Mars I. Cleaning up a racer. The “Mars I” ready for Martlesham.

— The fastest aeroplane in the world.

— Mars I’s wonderful performance at Martlesham. 212 miles per hour.

— The winner of the London aerial derby.
Aerial Age, Vol. 14, No. 1 (Sept. 12, 1921), New York, pp. 7–8, ill., diagr.

Marsh, Lockwood. Aviators as despatch carriers.


Marshall, C. F. D. Evolution of the “heavier-than-air” flying machine.

Marshall, Dorothy. See Stanton, T. E., Dorothy Marshall and E. Griffiths: On the dissipation of heat from the surface of an air-cooled engine when running and when at rest.

— See Stanton, T. E., H. C. Booth, and Dorothy Marshall: On the effect of surface roughness on the heat transmitted from hot surfaces to fluids flowing over them, with special reference to the case of the gills of an air-cooled engine.
MARSHALL, DOROTHY. See Stanton, T. E., and Dorothy Marshall: Preliminary note on the effect of surface roughness on the heat transmitted from hot bodies to fluids flowing over them.

MARTELL, P. Zur Geschichte der Fallschirme.
Flug, Jahrg. 1920, Nr. 5 (Mai), Wien, pp. 42-48.

MARTEN, W. Strahlungsmessungen in zwei Ballonen.

MARTIN. The home of the Martin bomber.
Aviation, Vol. 10, No. 25 (June 20, 1921), New York, pp. 772-779, ill.

- The Martin exhaust silencer.

- New American torpedo plane.

- Un nouvel "avion lance-torpilles."

- Test of Martin torpedo plane.
Aerial Age, Vol. 10, No. 21 (Mar. 8, 1920), New York, p. 782, ill.
Air Power, Vol. 6, No. 3 (Mar. 1920), New York, p. 83, ill.

MARTIN, E. STOCKTON. Aircraft insurance and the aircraft industry.

- The cost of aircraft insurance.
Aviation, Vol. 11, No. 1 (July 4, 1921), New York, p. 12.

- Safety in aviation.

MARTIN, GLENN L. Aerial transportation as a business proposition.

- Airplane will compete with motor truck.

- The Glenn L. Martin commercial transport.

- The Glenn L. Martin commercial transport biplane.
BIBLIOGRAPHY OF AERONAUTICS, 1920–1921.

MARTIN, GLENN L. Glenn Martin-Flügel No. 2.
Flugsport, 13. Jahrg., Nr. 5 (2. März 1921), Frankfurt, p. 120, ill.


— New Glenn L. Martin airplanes.

— New Glenn L. Martin high-lift wing.

— New Glenn L. Martin Navy torpedo plane.
Aviation, Vol. 8, No. 9 (June 1, 1920), New York, pp. 359-360, ill.

— New York to San Francisco in 12 hours.

— Scandalizing the air mail.
U. S. Air Service, Vol. 5, No. 4 (May 1921), New York, p. 21, ill.

— See Hanscom, C. D.: Some experiments on thick wings with flaps.

MARTIN, HOWARD H. Relation of winds to temperature in central Ohio.

MARTIN, JAS. V. Retractable chassis as an aid to aeroplane speed and efficiency.
Aerial Age, Vol. 12, No. 10 (Nov. 15, 1920), New York, p. 274, ill.

MARTINOT-LAGARDE. Description technologique de quelques moteurs.

— Fonctionnement des moteurs en atmosphère raréfiée.
Aéronautique, 3e année, No. 22 (avril 1921), Paris, pp. 175-177, ill.

— Les moteurs d’aviation allemands.
Aéronautique, 3e année, No. 26 (juil. 1921), Paris, pp. 276-277, ill.

Aéronautique, 3e année, Nos. 19-30 (janv. 1921), Paris, pp. 296-305, ill.

— Note au sujet des moteurs d’aviation.
Aéronautique, 3e année, No. 31 (déc. 1921), Paris, pp. 497-504, ill.

— Les nouveaux moteurs d’aviation.

MARTINSYDE. Aeroplanes.
Aerial Age, Vol. 11, No. 1 (Mar. 15, 1920), New York, p. 22, ill.

— Milestones. The Martinsyde machines.


MARTINSYDE (Ltd.). Martinsyde (Ltd.).—Meeting of creditors.

— See Great Britain: Modern British aircraft.

MARTLESHAM. Meditations on Martlesham Heath.

— Progress of Martlesham competition. General notes on competition and the available results.

— See Air Ministry: The Air Ministry competition at Martlesham. A brief log of the progress made.

— See Air Ministry: The Air Ministry competition at Martlesham. Several tests still to be made by large machines.
BIBLIOGRAPHY OF AERONAUTICS, 1920–1921.

MARTLESHAM. See Amphibians: Amphibian undercarriages from Martlesham.


MASCOTS. Aerial mascots—How animals behave in the air. Flying, Vol. 9, No. 9 (Oct. 1920), New York, pp. 572-573, ill.

Paris, Dunod, 1920, pp. vi, 322, ill.
Tome I, published in 1918.

MASON, C. C. See Darwin, Horace, and C. C. Mason. Effect of wind on the time of flight from one place to another and back again.

MASTERY of the skies.

MASTROMATTEO, VITO. Escercizio di trasporti aereti.
L'Aeronautica, anno 3, Numa. 5-6 (luglio-agosto 1920), Roma, pp. 223-225.

— Materiale.
Rivista marittima (giugno 1920), Roma, pp. 19-23.
— Materials and chemistry.
— Temperature of laminations and time under pressure in gluing laminated construction.
Engineering Division Air Service, Technical Orders No. 7 (Apr. 1919), Dayton, Ohio, pp. 70-73, figs.


MATIENZO, BENJAMÍN. Muerte del teniente aviador Benjamín Matienzo.

MATTHEWS. Un document intéressant.

London, Crosby, Lockwood & Son, pp. 536.

MAXFIELD, L. H. Life in the hold of the ZR-2.
— Operation of a rigid airship.

Engineer, Vol. 129 (Feb. 6, 1920), London, pp. 138-139.

BIBLIOGRAPHY OF AERONAUTICS, 1920–1921.


MAYBACH. See Sparrow, S. W.: Performance of Maybach 300 horsepower.


MECHANICS. See McKay, Hugh D.: Training the co-recreation airplane mechanic.

MEALS. See Battle, George Gordon: Medals for service in war. The provisions of the Poll bill.

— See Tinker, Clifford Albion: Josephus Daniels and the medal muddle.

— See Wright, Orville: Orville Wright awarded John Fritz medal.

MEDICAL. The medical problems of flying.

Aerial Age, Vol. 12, No. 24 (Feb. 21, 1921), New York, p. 615.
Aviation, Vol. 10, No. 9 (Feb. 21, 1921), New York, p. 244.

— See Parsons, J. A.: The medical aspect of commercial flying.

— See Psychology: The medical aspects of flying.


MEDICINE. Medical officer’s impression of first flight.


— The medical examination of civilian pilots, navigators, and engineers.

— The medical problems of flying.

— La médecine et l’aéronautique.
Aéronautique, 1ère année, No. 12 (mai 1920), Paris, pp. 565.

— See Air Service: Work of Medical Division, Air Service.

— See Ferry, Georges: L’aviateur et le médecin.

— See Fossey, A. Mathieu de: Le point de vue médical dans la navigation aérienne.

“MEDWAY.” How to make a success of the aero show.


MEISINGER, C. Le Roy. Aviation and winds of the upper air.

— Climatological factors governing the selection of air routes and flying fields.

— Selection of air routes and flying fields.

MÉLANDRI, ANTONIN. Ceux qui disparaissent, Antonin Mélandri. L'Aérophile, 20. année, Nos. 9-10 (1er-15 mai 1921), Paris, p. 151.


MENONI, DOMENICO. II pallone sferico senza rete. L'Aeronautica, anno 3, Num. 9 (nov. 1920), Roma, pp. 318-320, ill.


—— General Menoher resigns Air Service post. Aerial Age, Vol 14, No. 3 (Sept. 26, 1921), New York, pp. 52-53.


—— See Air Service: Annual report of the Director of the Air Service.

—— See Pershing, John J., and Menoher, Charles: General Pershing’s air service views.


MERCEDES. The 180-horsepower Mercedes aircraft engine. Misch, W., Automobil-Industrie, Vol. 18, No. 11 (Sept. 15, 1918), Chicago, pp. 455-456, ill.

—— Notes on spindle correction. The Ace, Vol. 2, No. 6 (Jan. 1921), Los Angeles, p. 19.


—— See Manifolds: Test on Liberty, Benz, and Mercedes engine manifolds.

BIBLIOGRAPHY OF AERONAUTICS, 1920-1921.


MERRILL, ALBERT A. Notes on spindle correction. The Ace, Vol. 2, No. 6 (Jan. 1921), Los Angeles, p. 19.


— Some experiments with model airplanes. Aviation, Vol. 9, No. 11 (Nov. 29, 1920), New York, pp. 132-133.

— Variation in resultant pressure upon landing due to the proximity of the earth. The Ace, Vol. 2, No. 5 (Dec. 1920), Los Angeles, p. 19, ill.

MERIVALE, PHILIP. The wind over the water. The Contemporary Series, Boston, Four Seas Co., 1921, pp. 50.


— See Tennant, John Edward: In the clouds above Bagdad, being the records of an air commander.


— What the all-metal airplane can do. Scient. Amer., Vol. 123 (July 10, 1920), New York, p. 43, ill.

— See Germany: Design and structure of the German metal airplane.

— See Gradenwitz, Alfred: German all-metal commercial machines.

— See Hildesheim, Erik: The German all-metal aeroplanes.

— See JI: JL all-metal airplane comprises novel engineering features.

— See Junker: The Junker all-metal machines.

— See Junker: Junker metal airplanes.

— See Junkers, H.: Constructing metal aeroplanes.

— See Talbot, F. A.: All-metal biplane for all-round use.


— See An engineer: Metal construction.

— See Construction: Metal construction.
Metal construction. See Germany: German all-metal commercial machines.

- See Staaken monoplane: The new Staaken monoplane. An interesting German all-metal machine.
- See Stout, William B.: Veneer or metal construction.

Metal monoplanes. See Zeppelin-Staaken: The Zeppelin-Staaken all-metal monoplane.

Metal planes. Army officers see great possibilities in metal plane.


- See Dornier: A new German all-metal machine.

Metal ribs. See Winters, S. R.: Something new in the way of metal ribs.

Metals. See Dalby, W. E.: Researches on the elastic properties and plastic extension of metals.

- See Hanby, Wilfred: Metals in aircraft construction.
- See P. R. Corona metal: A new yellow metal.

"Meteor." Weather and aviation.


Meteorology. Aerial navigation and meteorology.


- Atlantic weather conditions.


- Behavior of eddies over mountain tops.


- Cinematografos meteorologicos.

L’Aeronautica, anno 3, Num. 5-6 (luglio-agosto, 1920), Roma, p. 231.

- Cloud and visibility signals.


- Daily weather report for aviators by radio.

Aerial Age, Vol. 13, No. 13 (June 6, 1921), New York, pp. 286-299.

- Effect of abnormal weather on aeroplane performance.


- Flying over clouds.


- Hourly meteorological reports.


- Memorandum by the Director of the Meteorological Office. Special inquiry for the Air Service into the conditions for the occurrence of fog.


- Meteorological reports.


- Meteorological reports reveal curious facts.

Aviation, Vol. 9, No. 9 (Nov. 15, 1920), New York, p. 268.
Meteorology. Meteorology.


---

Meteorology in the service of aviation.


---

Meteorology in the war.


---

Note on the tail method of observing pilot balloons.


---

Use of aeroplanes for studying the atmosphere.


---

The Weather Bureau and aeronautics.


---

Weather data available for aviators.

Aerial Age, Vol. 12, No. 18 (Jan. 10, 1921), New York, p. 461.

---

Weather reports and aviation.

Aviation, Vol. 9, No. 7 (Nov. 1, 1920), New York, p. 234, map.

---

What airman can do for meteorology.


---

Work of the meteorological section of the Signal Corps.


---

See Brooks, Charles F.: Effect of winds and other weather conditions on the flight of airplanes.

---

See Buckwald, H. M.: Atmospheric data.

---


---

See Baldi, Albert: Études élémentaires de météorologie pratique.

---


---

See Clarke, George A.: Clouds.

---

See Dobson, G.: Meteorology in the service of aviation.

---

See Dobson, G. M. B.: Observations of wind structure made at Upavon in 1914.

---


---


---

See France: Aerodromes and meteorological stations.

---

See France: L'office national météorologique.

---


---

See Gold, E.: Aerial navigation and meteorology.

---

See Grant, Hugh Duncan: A contribution to the meteorology of the English Channel.

---

See Jacquerod, M. A.: Recherches négatives sur un nouveau constituant de l'air atmosphérique.

---

See Johnson, N. K.: A report on two pilot balloon ascents made at Shoeburyness.

---

See Joyce, Temple N.: Effects of wind upon the stability and maneuverability of an airplane in flight.
BIBLIOGRAPHY OF AERONAUTICS, 1920–1921.


See Meisinger, Clarence Le Roy: Climatological factors governing the selection of air routes and flying fields.

See Meisinger, Clarence Le Roy: The weather factor in aeronautics.

See Newnham, E. V.: Note on examples of katabatic wind in the valley of the upper Thames at the aerological observatory of the Meteorological Office at Benson, Oxon.

See Poles: The poles, aircraft and the weather forecast.

See Rouch: Examples de prévision du temps.

See Rouch, J.: Les caractères Météorologiques de la haute atmosphère.


See Schereschewsky, M. Ph.: La météorologie militaire pendant la guerre; historique sommaire.


See Schools: Meteorology and aerology schools.

See Shaw, Napier: The artificial control of weather.

See Shaw, Napier: Notes on the winds of Macedonia.

See Taylor, G. I.: Phenomena connected with turbulence in the lower atmosphere.

See Taylor, G. I., and C. J. P. Cave: Variation of wind velocity close to the ground.

See Taylor, Thomas Griffith: Australian meteorology.

See Tetens, Otto: Luftverkehr und Wetter.

See Upson, Ralph H.: The weather factor in long-range aerial navigation.

See Wilson, C. T. R.: Investigations on lightning discharges and on the electric field of thunderstorms.

Method of navigating aircraft.


Mexico. Actualidades.

Tohtli, año 5, Núm. 1 (agosto de 1920), México, pp. 5–6, ill.; Núm. 3 (oct.), pp. 88–89, ill.

Air-mail service for Mexico.


Escuela militar de aviación. Edificio para la escuela.

Tohtli, año 5, Núm. 2 (sept. 1920), México, pp. 41–42.

Exposición nacional de aviación.

Tohtli, año 5, Núm. 3 (oct. 1920) México, pp. 86–87, ill.

Mexican aero show.


Meyer, A. J. De constructie van luchtvaartuigen.

Avia, 8e jaarg., No. 8 (1 Sept. 1920), Rotterdam, pp. 91–94.
Meyer, E. Die Avro-Sypen 504 K, 504 L und 504 M.

— Die Bedeutung der verspannungsfreien Flugzeuge.
Berlin, Gustav Braumbeck.

— Der Fortschritt im deutschen Flugzeugbau als Wirkung von Versailles.
Aut. Flugw., Nr. 6 (Juni 1921), Berlin, pp. 216-218, ill.

— Flugwesen und Luftverkehr in der Schweiz.
Luftweg, Nr. 14-15 (22. Apr. 1920), Berlin, pp. 6-10, ill.

— Fünfmotoren-2000-PS-Caproni-Dreidecker.

— The motorless airplane, or glider, in Germany. Forced abandonment of powered aircraft causes a return to first principles and the scientific development of heavier-than-air machines, sustained in flight by the internal work of the wind.
U. S. Air Service, vol. 5, No. 5 (June 1921), New York, pp. 25-34.

— Praxis des Fliegenlebens und Fliegens.

— Vuelos sin motor.
Tothli, año 5, Núm. 4 (nov.-dic. 1920), México, p. 202, ill.

Meyjes, F. Ls. Het nieuwe verkeersvliegtuig.
Vliegveld, 5e jaarg., No. 3 (29 Jan. 1921), Amsterdam, pp. 40-42.

Miami. From Miami to Washington.
Aviation, Vol. 10, No. 18 (May 2, 1921), New York, p. 572.


— “Micarta” Liberty propeller. Manufactured by Westinghouse Electric & Manufacturing Co. (Destructive whirling test No. 261.)

— See Propellers: Micarta propellers under test.

Miche, Paul. Het hotel-restaurant op schiphol.
Vliegveld, 5e jaarg., No. 18 (27 Aug. 1921), Amsterdam, pp. 251-253, ill.

Michelin, André. Die Bedingungen für den Michelin (500,000 frs.) Preis.

— Discours de M. Michelin.

— International Michelin cup.
Aerial Age, Vol. 14, No. 4 (Oct. 1, 1921), New York, p. 86.

— The international Michelin cup contest.
Flying, Vol. 10, No. 4 (May, 1921), New York, pp. 144, 146.

— The international Michelin cup. Gained by Poiree on a Caudron.

L’Aérophile, 28. année, Nos. 5/6, (1er-15 mar. 1920), Paris, p. 75.

— Prix Michelin.

— La propagande de M. Michelin et l‘emploi des fonds.
L’Aérophile, 29. année, Nos. 2-3 (1er-15 févr. 1921), Paris, pp. 56-57.
BIBLIOGRAPHY OF AERONAUTICS, 1920–1921.


— Air Service requests $60,000,000. Aviation, Vol. 9, No. 15 (Dec. 27, 1920), New York, pp. 475–477.

— Aircraft and political craft. Literary Digest, Vol. 64 (Mar. 6, 1920), New York, pp. 21–22.


— Army balloonists in trial flight. Have thrilling experience when their balloon drops into forest. The Navigator, Vol. 1, No. 18 (June 12, 1920), Pensacola, Fla., p. 1.


— Dodging searchlights and shrapnel in the old air-raid days. Literary Digest, Vol. 67 (Nov. 6, 1920), New York, pp. 61–66.


MILITARY aeronautics. Explosion days. A German diary of life (and death) in a captive balloon.


The first artillery fire adjustment by airplane.

The first decisive air war. British aircraft, acting as main striking force, ends mad Mullah's power in three weeks.
Aircraft Journal, Vol. 6, No. 17 (Apr. 24, 1920), New York, pp. 4-5, ill.

First pursuit group training.
Aviation, Vol. 9, No. 10 (Nov. 22, 1920), New York, p. 520.

First target firing from air at national rifle matches.

The first decisive air war. British aircraft, acting as main striking force, ends mad Mullah's power in three weeks.
Aircraft Journal, Vol. 6, No. 17 (Apr. 24, 1920), New York, pp. 4-5, ill.

First pursuit group training.
Aviation, Vol. 9, No. 10 (Nov. 22, 1920), New York, p. 520.

First target firing from air at national rifle matches.

The first decisive air war. British aircraft, acting as main striking force, ends mad Mullah's power in three weeks.
Aircraft Journal, Vol. 6, No. 17 (Apr. 24, 1920), New York, pp. 4-5, ill.

First pursuit group training.
Aviation, Vol. 9, No. 10 (Nov. 22, 1920), New York, p. 520.

First target firing from air at national rifle matches.
BIBLIOGRAPHY OF AERONAUTICS, 1920–1921.

MILITARY aeronautics. Ruling for enlistments.

— Scuola di aviazione militare.
Rivista marittima (giugno 1920), Roma, pp. 2-3.

— Story of the famous 22nd aero squadron.

— The surrender of “L 71.”

— Umfang und Kosten der Beteiligung Amerikas am Luftkrieg.

— U. S. Army air service.
Aviation, Vol. 9, No. 9 (Nov. 15, 1920), New York, pp. 289-290.

— United States erecting big coast air defense base.

— United States plans a flying tank unit.

— Was die Entente als militärisches Luftfahrzeugmaterial ansieht.

— See Barnard, W. N.: U. S. Army school of military aeronautics at Cornell University.

— See [Clapp, Frederick Mortimer]: A history of the 17th aero squadron. . .
December, 1918.

— See Dumesnil, H.: Dans l’aéronautique militaire . . .


— See Echols, O. P.: Aerial artillery observation in mobile warfare.

— See Great Britain: British military and naval airplanes on which authentic data have been released since November 11, 1918; tabulation.

— See Great Britain: Cooperation of aircraft with artillery.

— See Great Britain: Cost of the air war.

— See Hicks, Frederick C.: Aircraft versus dreadnoughts.

— See Middleton, Edgar. Introduction by Lord Montagu: The great war in the air.

— See Mitchell, William: Our air force, the keystone of national defense.

— See Mitchell, William: Our Army’s air service.


— See Oger, Marcel: Comment on entre dans l’aéronautique militaire.

— See Orthlieb: . . . L’aéronautique, hier-demain.

MILLER, OSKAR v. Im flugzeug zum Walchensee-Kraftwerk.
Aut. Flugv., Nr. 10 (Okt. 1921), Berlin, pp. 407-408.

— The Miller amphyglider.

MILLER, R. A. Effect of variation in load factor on structural weight of wings.
Aerial Age, Vol. 14, No. 8 (Oct. 31, 1921), New York, pp. 177-178.

MILLER, ROY GILMAN . . . Torsion of wing trusses at diving speeds.
MILLER, ROY GILMAN. See Warner, Edward P., and R. G. Miller: Analysis of wing truss stresses, including the effect of redundancies.


MILLER-METCALF amphyglider. The Miller-Metcalf amphyglider. An air-propeller-driven light car, readily adapted to aquatic use.


MILLS, C. H. French military aviation criticised.

U. S. Air Service, Vol. 6, No. 5 (Dec. 1921), New York, pp. 25, 32.

MILNE, E. A. Sound waves in the atmosphere.


MINEOLA. The air transport demonstration at Mineola.

Aviation, Vol. 11, No. 19 (Nov. 7, 1921), New York, pp. 536-537, ill.

--- Army wins trophy race at Mineola.


--- The aviation day at Mineola.

Aviation, Vol. 11, No. 17 (Oct. 24, 1921), New York, pp. 483-484.

--- Aviation Day, Mineola, October 16.


--- Collegiate flying competition at Mineola.

Aircraft Journal, Vol. 6, No. 20 (May 17, 1920), New York, pp. 5-6, ill.

MINES. See Bailey, F. J.: Airplanes in mine rescue work.

--- See Bisbee, E. S.: Airplanes in mining operations.

--- See Bisbee, E. S.: Pack train of eagles; use of aircraft in mining operations.

MINE rescue work. Use of airplanes in mine rescue work.


--- See Bailey, F. J.: Airplanes in mine rescue work.

MINGOS, H. L. Cities preparing for future air traffic.

American City, Vol. 22 (Feb. 1920), New York, pp. 107-109, ill.

MINNEAPOLIS. Aero Club of Minneapolis.

Flying, Vol. 9, No. 12 (Jan. 1921), New York, p. 279.

MIROUET, HENRI. Impressions d’ensemble d’un “ancien.”


Mises, R. V. Zur Theorie des Tragflächenauftriebes.


MITCHELL, WILLIAM. Air mail service.


--- Aviation over the water.


--- Brigadier General Mitchell’s startling testimony.

Aviation, Vol. 10, No. 6 (Feb. 7, 1921), New York, pp. 164-167.

--- Criticism of General Mitchell expressed by aeronautical board of the Army and Navy.

The Navigator, Vol. 1, No. 18 (June 12, 1920), Pensacola, Fla., p. 5.

--- General Mitchell attacks bomb test findings.


--- General Mitchell courageously defends Air Service.

Aerial Age, Vol. 14, No. 3 (Sept. 26, 1921), New York, p. 63.
MITCHELL, WILLIAM. General Mitchell on bombing.

General Mitchell on charting the air.
Aerial Age, Vol. 13, No. 2 (Mar. 21, 1921), New York, p. 39.

General Mitchell on the aero show.

General Mitchell on the Air Service appropriations.
Aerial Age, Vol. 12, No. 22 (Feb. 7, 1921), New York, p. 562.

General Mitchell on the foreign aircraft invasion.
Aircraft Journal, Vol. 6, No. 24 (June 14, 1920), New York, p. 3.

General Mitchell retained in Air Service. Secretary of War Weeks adjusts differences between chief Air Service officers.
Aviation, Vol. 10, No. 26 (June 27, 1921), New York, p. 800.

General Mitchell tells House committee airplanes can destroy battleships. States 1,000 airplanes can be built for cost of one battleship.

Has the aeroplane made the battleship obsolete?
World's Work, Vol. 41, No. 6 (Apr. 1921), New York, pp. 550-553, ill.

Law of the air.

The mission of an air force in the military organization of the United States.

Our air force, the keystone of national defense.
New York, E. P. Dutton & Co. [1921], pp. xxvi, 223, ill.

Our Army's air service.

What General Mitchell claimed.
Aviation, Vol. 11, No. 5 (Aug. 1, 1921), New York, pp. 133-134, ill.

See United States Congress; House; Committee on Naval Affairs: Naval policy of the United States.

MITTEILUNGEN des Oestereichischen Aero-Clubs, zugleich Mitteilungen des Oesterreichischen Luftschiffer-Verbandes und der Oesterreichischen Aeronautischen Kommission.
Jänner, 1920, April, 1921.

MODEL testing. See Bacon, D. L.: The advantages and limitations of model testing in wind tunnels.

MODELS. The classification of model aeroplane types.
Aerial Age, Vol. 13, Nos. 5-6 (Apr. 11-15, 1921), New York, pp. 113, 137.

A compressed-air driven model.

Early model aeroplanes.

Exhibits at the aero show.
Olympia show.

Geschichte der Flugmodelle.
Aut. Flugv., Nr. 11 (Nov. 1921), Berlin, pp. 456-457, ill.

A light-weight hydro model.
Aerial Age, Vol. 13, No. 9 (May 9, 1921), New York, p. 399, ill.

44439—25—19
MODELS. Model aeroplanes.


Model firms at the forthcoming Olympic aero show.

Plans for building compressed-air model.

Some consideration on model contests.
Aerial Age, Vol. 13, No. 15 (July 20, 1921), New York, p. 353.

Some experiments with model aeroplanes.


See Bryant, L. W., and H. B. Irving: Tests on model “Bristol” twin tractor biplane.

See Cowley, W. L., L. G. Simmons, and J. D. Coales: Tests on the complete model of F. E. 5 aeroplane.

See Finsbury: Finsbury and district model research association.


See Johnston, V. E.: Model aeroplane—its practice and principles.

See Karman, Th. v.: Mechanische Modelle zum Segelflug.


See Merrill, Albert A.: Some experiments with model airplanes.


See Relf, E. F.: Effect of body of F. E. 2B on the characteristics of the main planes.

See Relf, E. F.: Tests on the head resistance of a modification of the Astra Torres airship form.

MODELLFLUG-VEREIN. Modellflug-Verein, Berlin.

MOFFETT, WILLIAM ADGER. Aircraft and the scientist. The airship will provide limitless knowledge of the great stretches of unknown lands about the world.

Aviation, Vol. 10, No. 21 (May 23, 1921), New York, p. 664, ill.

Naval aviation.


MOLLA. See Spark plugs: An air-cooled spark plug—the Molla.

MOLYBDENUM. Molybdenum steels.
Aviation, Vol. 8, No. 7 (May 1, 1920), New York, pp. 281-282.

MONACO. Après le meeting de Monaco.
Aéronautique, 3e année, No. 34 (mai 1921), Paris, pp. 187-188, ill.
MONACO. Au meeting de Monaco.
L'Aérophile, 28e année, Nos. 7-8 (1er-15 avril 1921), Paris, p. 98; 29e année, Nos. 9-10 (1er-15 mai), pp. 133-134, ill.

— Concorso di idro-aviazione.
Revista marittima (giugno 1920), Roma, pp. 9-14.

— Grand prix de Monaco.

— Der grosse Preis von Monaco.

— Hydravions et hydroglisseurs au meeting de Monaco.
L'Aérophile, 28e année, Nos. 9-10 (1er-15 mai 1920), Paris, pp. 150-152.

— Hydroaeroplane contests at Monaco April 13-20, 1921.

— Le meeting de Monaco.
Aéronautique, 1re année, No. 12 (mai 1920), Paris, pp. 523-524, ill.

— Le meeting de Monaco en 1921.

— The Monaco meeting.

— The Monaco meeting, 1921.

— The Monaco seaplane meeting, 1920.

— The Monaco seaplane meeting. No British machines entered.

— The Monaco seaplane meeting. A "fly-over" for Caudrons.

— Regulations for the Monaco meeting, 1921, organized by International Sporting Club of Monaco.

— See Birlé, G.: Le XIIe meeting de canots automobiles de Monaco.
— See Épreuves et concours aéronautiques. Les épreuves d'hydravions de Monaco.

— See G., C. G.: On the Monaco meeting.
— See Hydroaeroplanes: The hydroaeroplanes at Monaco.
— See Lémonon, E. H.: The Monaco meeting.
— See Mortane, Jaques: L'histoire du meeting de Monaco.
— See Prade, Georges: Le règlement des épreuves d'hydravions.

Monel. Monel for engine valves.
Aerial Age, Vol. 11, No. 10 (May 17, 1920), New York, p. 331.

— Test of Monel metal valves in Liberty single-cylinder engine. (Power plants report No. 74.)

Monocoque. See Elmendorf, Armin: The design of Monocoque fuselages.
**BIBLIOGRAPHY OF AERONAUTICS, 1920–1921.**

**MONOCOQUE.** See Seymour, Lester D.: The Monocoque fuselage.

**MONOPLANES.** Monoplane as revolutionary as the first iron ship. 
Current Opinion, Vol. 69 (Nov. 1920), New York, pp. 699-700, ill.

— Monoplanes or biplanes?
Aviation, Vol. 11, No. 15 (Oct. 19, 1921), New York, pp. 420-422, ill.

— A new light-weight monoplane.

— Speedy monoplanes.
Aerial Age, Vol. 14, No. 11 (Nov. 21, 1921), New York, p. 245.

**MONO-SOUPAPE.** See Hall'tney, II. R.: Notes on running Mono-Soupape engine.

**MON'TJOU, GUY DE.** L'avion dans la guerre de demain.

— See Blanchet, Georges: Aviateurs contemporains. Guy de Montjou.

**MONTREAL.** Merger of two Montreal aircraft firms.

Aerial Age, Vol. 13, No. 17 (July 4, 1921), New York, p. 383.

— World-wide aviation.


— See Middleton, Edgar. Introduction by Lord Montagu: The great war in the air.

**MOORE, RICHARD B.** L'hélium: Son histoire, ses propriétés et son emploi.
Moniteur Scientifique, 65. année, 5e ser., T. 11, 954. Livraison (Sept. 1921), Paris, pp. 177-185

— Helium: Its history, properties, and commercial development.


**MOORE, WILLIS L.** Exploring the atmosphere.


**MOORING pontoon.** Bristol mooring pontoon for hydroaeroplanes.


**MOORING.** Airship mooring masts of the U. S. Air Service.


— An American system of airship mooring.

— Les grands mâts d'amarrage.
Aéronautique, 3e année, No. 24 (mai 1921), Paris, p. 205, ill.

— Mooring masts for airships.
Aviation, Vol. 10, No. 21 (May 23, 1921), New York, p. 665, ill.

— A mooring pontoon.

— A portable airship mooring mast.
Aviation, Vol. 11, No. 26 (Dec. 26, 1921), New York, p. 782, ill.
BIBLIOGRAPHY OF AERONAUTICS, 1920–1921. 285

Mooring. Prize for mooring mast.

— See Airships: The mooring of airships.
— See Butcher, F. L. C.: Airship mooring and handling.
— See Grissell prize: Airships and architects.
— See Moor: The mooring mast at Pulham.
— See Pulliam: A visit to Pulham. Successful mooring tests.
— See Sumner, P. H.: A stabilising raft for mooring airships over the sea.
— See Sumner, P. H.: The principle of the captive balloon, with reference to its application for the mooring of airships.
— See Ullman, E. S.: Le campement des dirigeables en plein air. Le dispositii d'amarrage Ullmann pour aéronefs.
— See Whale, George: The mooring and handling of airships on the ground.

Morane, Robert. Le pilotage des avions.
Aéronautique, 1st année, No. 10 (mars 1920), Paris, pp. 417-423, ill.

Morane-Saulnier. Les aéroplanes Morane-Saulnier.
Aéronautique, 3rd année, No. 30 (nov. 1921), Paris, pp. 443, ill.

— Morane-Saulnier R mit freitragenden Flügeln ...

Morawsky, O. Subway, elevated, and airplanes from a sentimental point of view.

Morgantown. The Morgantown crash.
Aviation, Vol. 10, No. 24 (June 13, 1921), New York, pp. 742-744, ill.

Morison, O. C. Pioneers of British aviation—XLVIII: Mr. O. C. Morison.

Morlay, Gaby. Impressions d’une pilote de dirigeables.


— Theory of structures.

Morocco. Commercial aviation in Morocco.

— Morocco aerial patrol greatly deters banditry.
Aerial Age, Vol. 12, No. 19 (Jan. 17, 1921), New York, p. 496.

— Morocco air mail extended.

— See Commercial aeronautics: Commercial service between France and Morocco

Morris, J. Elementary principles of aeroplane design.

— The sense of direction.

Morse, Robert V. The future of antiaircraft artillery. Aviation, Vol. 11, No. 4 (July 25, 1921), New York, p. 100.


L’historique du meeting de Monaco. Vie Aérienne, No. 181 (29 avril 1920), Paris, pp. 1183-1184, ill.

Il y a loin du ... Cap aux lèvres! Vie Aérienne, No. 175 (18 mars 1920), Paris, pp. 1039-1041, ill.


See Saladin, Raymond: Hommage a Jacques Mortane.


See Pulitzer trophy: Army flier winner of America’s greatest race. Lieutenant Moseley and Captain Hartney, first and second in contest for Pulitzer trophy at Mitchel Field.

Moss, Sanford A. General Electric turbo supercharger for airplanes. Aviation, Vol. 8, No. 4 (Mar. 15, 1920), New York, pp. 146-151, ill.

Motion. See Norton, F. H.: The photographic recording of small motions.


See Gsell, Robert: Das motorlose Flugzeug.

Motors. See Engines.


MOULTON, R. H. Detective aeroplane for discovering forest fires and outlaw cotton fields. Travel, Vol. 34 (Feb. 1920), New York, p. 40, Ill.


MOVIES. Aerial thrillers for the movies. The Ace, Vol. 2, No. 6 (Jan. 1921), Los Angeles, p. 8.

— Movie queens who fly. California celebrities who are aviation enthusiasts. The Ace, Vol. 1, No. 12 (July 1920), Los Angeles, pp. 8-9, ill.


MUMMERT. Mummert biplane tested successfully. Aerial Age, Vol. 13, No. 20 (July 26, 1921), New York, p. 473, ill.

MUNK, MAX MICHAEL. Absolute coefficients and the graphical representation of aerofoil characteristics. Technical Notes, National Advisory Committee for Aeronautics, No. 58, June 1921, Washington (mim.-), pp. 11, diags.

---


---


---


---


---


N.


---


---


---

Benjamin Garavaglia parachutiste. Suisse Aérienne, 3e année, 1921, No. 20, Berne, pp. 266-266.

---


---

La deuxième journée d'aviation de l'école "Aéro." Suisse Aérienne, 3e année, 1921, No. 9, Berne, pp. 121-122, ill.

---

L'école d'aviation Aéro. Suisse Aérienne, 3e année, 1921, No. 8, Berne, p. 114.

---

Le Goliath F 60 à Lausanne. Suisse Aérienne, 3e année, 1921, No. 20, Berne, p. 298.

---

Les hauts faits de la quinzaine. Suisse Aérienne, 3e année, 1921, No. 13, Berne, pp. 185-186, ill.

---

BIBLIOGRAPHY OF AERONAUTICS, 1920-1921.


— Notre défense aérienne.
Suisse Aérienne, 3e année, 1921, No. 12, Berne, pp. 181-182; No. 13, 191-192, ill.

— Un record d'aviation.
Suisse Aérienne, 3e année, No. 11, Berne, 1921, p. 157.

— Visite à Dübendorf, Horgen et Zurich.
Suisse Aérienne, 3e année, 1921, No. 18, Berne, pp. 257-259, ill.

— Une visite à Dübendorf.
Suisse Aérienne, 2e année, No. 16, (25 août 1920), Berne, pp. 238-239.

Nägele, K. Fr. "Der Adlershofer Höhenprüfstand.

Nagaoka. Réception de M. le Général Nagaoka.

Napier, The 450-horsepower Napier aero engine.
Aerial Age, Vol. 11, No. 1 (Mar. 15, 1920), New York, pp. 19, 29, ill.

— The 450-horsepower Napier Lion engine.

— The Napier "Cub.

— The Napier engine at altitudes.

— The Napier 450-horsepower Aero engine.

— The Napier 1,000-horsepower aero engine.
Aerial Age, Vol. 12, No. 25 (Feb. 25, 1921), New York, pp. 637, 643, ill.

— The Napier 1,000-horsepower Cub.
Aeronautics, Vol. 20, n. s., No. 382 (Feb 10, 1921), London, p. 95, ill.

— Some new Napier "Lion" necessities and "The Cub.
Flight, No. 633, Vol. 13, No. 6 (Feb. 10, 1921), London, pp. 93-95, ill.

Napier, Montagu S. Mr. Montagu S. Napier, chairman of Napier's (Ltd.).

— See Bourbon, M. W.: Napier aero engine with new arrangement of cylinders.

Napier and Son (Ltd). See Great Britain: Modern British engines.

Nappes, Marcel. Un raid sensationnel.
Suisse Aérienne, 2e année, No. 16, (25 août 1920), Berne, pp. 238.

National Advisory Committee for Aeronautics. Aeronautics. Fourth annual report of the National Advisory Committee for Aeronautics, 1918. (Technical reports Nos. 24 to 50.)

aerodynamic properties of thick aerofoils.


22. Report No. 75. The aerodynamic properties of thick aerofoils suitable for internal bracing.


25. Report No. 78. The limiting velocity in falling from a great height.


Aeronautics: Seventh annual report of the National Advisory Committee for Aeronautics, 1921. Administrative report without technical reports.


"Paragraph 13" left out. Minority views outvoted in writing N. A. C. A. report to President Harding.

Aviation, Vol. 19, No. 19 (May 9, 1921), New York, pp. 588-590.

Photograph taken at the White House.

Flying, Vol. 19, No. 5 (June 1921), New York, p. 183, ill.


Report No. 43. Synopsis of aeronautical radiator investigations for the years 1917 and 1918. By H. C. Dickinson and R. V. Kleinschmidt.


BIBLIOGRAPHY OF AERONAUTICS, 1920–1921.


— Report No. 109. Experimental research on air propellers, IV. By W. F. Durand and E. P. Lesley.

— Report No. 111. The variation of aerofoil lift and drag coefficients with changes in size and speed. By Walter S. Diehl.


Washington, Government Printing Office, 1921, pp. 61, ill.


— Report No. 120. Practical stability and controllability of airplanes. By F. H. Norton.

— Report No. 121. The minimum induced drag of aerofoils. By Max M. Munk.


— Report No. 124. Aerodynamic characteristics of aerofoils—II.

— The Advisory Committee for Aeronautics,

— Der amerikanische Landesbeirat für Luftfahrt,

— National Advisory Committee makes its annual report.

— National Advisory Committee presents annual report to Congress.

— National Advisory Committee report for 1920.
BIBLIOGRAPHY OF AERONAUTICS, 1920-1921. 295

National Advisory Committee for Aeronautics. A national aviation policy. The National Advisory Committee for Aeronautics recommends to Congress a bureau of aeronautics in the Department of Commerce.


— Report of the National Advisory Committee for Aeronautics. Message from the President of the United States, transmitting special report of the National Advisory Committee for Aeronautics dealing with federal regulation of air navigation, air routes to cover the whole United States and cooperation among various departments of the Government concerned with aviation.


— Special report of the National Advisory Committee for Aeronautics. Federal regulation of air navigation. Air routes to cover the whole United States. Cooperation among Government departments.


— See Accelerometer: Notes on the theory of the accelerometer.

— See Borah, William E.: Senator Borah wants N. A. C. A. abolished.


— See Flanders, L. Howard: The flight of the Albatross.


— See Idrac, P.: Soaring flight in Guinea.

— See United States Advisory Committee for Aeronautics.

National Aircraft Underwriters' Association.

Aerial Age, Vol. 13, No. 3 (Mar. 28, 1921), New York, p. 54.

National balloon race. Probable winners of national balloon race.


National defense. Aviation and national defense.


National Physical Laboratory. The national Physical Laboratory report.


— A new wind tunnel.


— Report for 1919.


National Southern Air Tournament. The National Southern Air Tournament.


Naval aeronautics. Aeroplane v. warship.


— Aircraft to be deciding factor in all future naval battles.


— Airplane torpedo boat of future.

NAVAL aeronautics. Aviation in Naval Academy courses.


— Appropriations for naval aviation.
Aerial Age, Vol. 12, No. 22 (Feb. 7, 1921), New York, pp. 592-594

— Construction for Navy aviation.

— Eyes of the Navy.

— Naval aviation.
Aerial Age, Vol. 12, No. 19 (Jan. 17, 1921), New York, p. 470.

— Naval aviation activities in 1921.

— The naval aviation appropriation.
Aerial Age, Vol. 11, No. 14 (June 14, 1920), New York, p. 470.

— The Navy and the air.

— A naval air service.
Aerial Age, Vol. 12, No. 20 (Jan. 24, 1921), New York, p. 507.

— Naval aircraft production, 1918-1919.
Aircraft Journal, Vol. 6, No. 13 (Mar. 27, 1920), New York, pp. 3-5, ill.

— Needed: A bureau of naval aeronautics.
Aviation, Vol. 9, No. 11 (Nov. 29, 1920), New York, p. 332.

— New field of naval warfare.

— New naval fleet development.

— Sale of Navy surplus equipment.

— Seagoing air fleet now a permanent part of the U. S. Navy.

— Situation in naval aviation.

— Submersible or flying battleships. Visions of the far future.

— Torpedoplanes likely to thrust naval craft into the background.
The Naviator, Vol. 1, No. 18 (June 12, 1920), Pensacola, Fla., p. 2, ill.

— U. S. naval air program for 1921.

— U. S. navy's air program for 1921.
The Naviator, Vol. 1, No. 2 (Feb. 21, 1920), Pensacola, Fla., pp. 1, 8, ill.

— See Colvin, F. H.: Naval air station at Pensacola.


— See Wilson, E. E.: How the Navy trains air mechanics.

NAVAL air service. For an independent naval air service.

NAVAL aircraft. Characteristics of leading aero engines used in allied naval aircraft.
Aerial Age, Vol. 9, No. 11 (May 29, 1919), New York, pp. 542-543, ill.

NAVAL architecture. See Hunsaker, Jerome C.: Naval architecture in aeronautics.

NAVY estimates. Aircraft and the Navy estimates.


— Naval appropriation bill passed.

Aviation, Vol. 11, No. 4 (July 25, 1921), New York, p. 111.

— Naval aviation estimates for 1922.

Aviation, Vol. 10, No. 4 (Jan. 24, 1921), New York, pp. 101-104.

NAVAL Reserve Flying Corps. Proposed naval personnel bill provides Naval Reserve Flying Corps of 500.

Air Power, Vol. 6, No. 2 (Feb. 1920), New York, pp. 50-51.

NAVAL war. Aircraft in naval war.


“NAVIGATOR.” Aerial navigation: The possible and impossible.


— Civil aviation and the supply of navigators.


— Modern air navigation progress.


NAVY. All Naval Reserve aviators must be fliers.


— “Aviation” editor’s success in Navy competition.


— Examination of Navy Reserve officers.

Aviation, Vol. 11, No. 20 (Nov. 14, 1921), New York, p. 577.

— Naval air legislation.

Aviation, Vol. 11, No. 7 (Aug. 15, 1921), New York, p. 196.

— Naval aircraft sink submarine U-117.

Aviation, Vol. 10, No. 26 (June 27, 1921), New York, p. 513, ill.

— The naval bombing tests.

Flying, Vol. 10, No. 6 (July 1921), New York, pp. 199-201, ill.

— Naval Bureau of Aeronautics.

Aviation, Vol. 11, No. 9 (Aug. 29, 1921), New York, pp. 251-252.

— The naval controversy.


— The Navy building program.

Aviation, Vol. 10, No. 6 (Feb. 1, 1921), New York, pp. 165-169.


Aviation, Vol. 10, No. 3 (Jan. 17, 1921), New York, pp. 76-77.

— Navy design competition for shipplane.

Aviation, Vol. 10, No. 3 (Jan. 17, 1921), New York, pp. 69-72, ill.

— Navy releases aircraft material.

Aviation, Vol. 10, No. 4 (Jan. 24, 1921), New York, pp. 112-113.

— Navy releases $4,000,000 worth of aircraft for commercial flying.


— New naval catapult launching device.

Aviation, Vol. 11, No. 19 (Nov. 7, 1921), New York, p. 545, ill.
NAVY. Organization of Naval Bureau of Aeronautics.
Aviation, Vol. 11, No. 22 (Nov. 28, 1921), New York, pp. 633-634.

— Report of Navy general board.
Aviation, Vol. 10, No. 7 (Feb. 14, 1921), New York, pp. 198-199.

— See Hicks: Hicks' bill for Bureau of Aeronautics in Navy.
— See United States Navy.
— See Wardrop, G. Douglas: The future defensive navy.

NAVY DEPARTMENT. See United States, Navy Department.

NAYLER, J. L. The control of a laterally stable and of a laterally unstable aeroplane.

NAYLER, J. L., and F. G. Woodford. Experiments on the most efficient form and distribution of wind screens for Bessoneau hangars.

NAYLER, J. L., and R. Jones. The determination of the forces on two struts in close proximity to one another.


NAYLER, J. L. The lateral stability of large kites.

NAYLER, J. L., and E. A. Griffiths. Test on R. A. F. 14 wing section.


NEL, Chr. A. C. Een ballon-opstijging in 1786.
Vliegeldig, 5e jaarg., No. 24 (20 Nov. 1920), 's-Gravenhage, pp. 405-406.

— Beschouwingen over den mist.
Vliegeldig, 5e jaarg., No. 5 (26 Feb. 1921), Amsterdam, pp. 71-73; No. 6 (12 Maart), pp. 91-92.

NELSON, John H. The strength of one-piece solid, built-up and laminated wood aeroplane wing beams.
Aerial Age, Vol. 10, No. 18 (Feb. 16, 1920), New York, pp. 661-663, 673, diagr.

NEMIROWSKY-TILMANT. L'aérochir Nemirowsky-Tilmant.
Suisse Adrienne, 3e année, 1921, No. 11, Berne, p. 161.
BIBLIOGRAPHY OF AERONAUTICS, 1920–1921.

NEPHOSCOPE. The nephoscope and aviation.
Aviation, Vol. 10, No. 4 (Jan. 24, 1921), New York, p. 111, ill.

— The Weather Bureau nephoscope.

NETHERLANDS. Dutch service aircraft markings.

— De opleiding van vliegtechnici in Nederland.
Avia, 8e jaarg., No. 6 (15 Feb. 1920), Rotterdam, pp. 66–67.

— Verslag betreffende den marine luchtaardienst.

NETZEN, CLARENCE. See Dean, E. W., and Clarence Netzen: An investigation of airplane fuels.

NEUBURGER, AWERT. Die Brenstoffrage.

NEUMAN, GEORG PAUL. Die deutschen Luftstreitkräfte im Weltkriege.
Berlin, E. S. Mittler & Sohn, 1920, pp. 600.

— Das europäische Luftverkehrsnetz.

— German air force in the great war; from the records and with the assistance of 29 officers and officials of the naval and military air services; translated by J. E. Gurdon.

NEW MEXICO. The New Mexico from the air. The U. S. S. New Mexico, pride of the Pacific.
The Navigator, Vol. 1, No. 9 (Apr. 10, 1920), Pensacola, Fla., p. 6, ill.

New type of airplane being built.

NEW YORK. Aerial ordinance for New York City.

— The New York aero show.

— The New York aeronautical exposition.

— The New York aeronautical show.

— New York aeronautical show opens March 6.
Aircraft Journal, Vol. 6, No. 9 (Feb. 28, 1920), New York, p. 3, ill.

— New York's aeronautical exposition.
NEW YORK. New York air police force.

— New York regulates flying.
    Aviation, Vol. 10, No. 3 (Jan. 17, 1921), New York, p. 78.

— Seaplane landing stations in New York.
    Aerial Age, Vol. 14, No. 7 (Oct. 24, 1921), New York, p. 150.

— See Aeromarine: Aeromarine flying boats at the New York aero show.

— See Air routes: From New York to Nome and Siberia by air.

— See Commercial aeronautics: From Paris to New York in one day.

— See Martin, Glenn L.: New York to San Francisco in 12 hours.

— See Streett, St. Clair: 14th heavy bombardment squadron attacks New York City.

NEW YORK EVENING WORLD. See Wireless: How it feels to cover race from aeroplane by wireless, told by Evening World man. For first time in history of yacht contest is described from the air—Hero of NC–3 is pilot.

NEW ZEALAND. New Zealand favors aviation.
    Aerial Age, Vol. 14, No. 5 (Oct. 10, 1921), New York, p. 112.

NEWCOMB, SIMON. What did Newcomb say?

— See Slosson, Edwin E.: What did Newcomb say?
    Flying, Vol. 9, No. 10 (Nov. 1920), New York, p. 642

NEWCOMBE, S. F. The practical limits of aeroplane photography for mapping.

NEWELL, F. B. See Dickinson, H. C., and F. B. Newell: High-speed engine pressure indicator of the balanced diaphragm type.

NEWNHAM, E. V. Note on examples of katabatic wind in the valley of the upper Thames at the aerological observatory of the Meteorological Office at Benson, Oxon.


NICHOLSON, J. S. Development of metal construction in aircraft.

— Tests of metal struts and beams for airplanes.

NICOLSON, DAVID. Flying-boat construction.
    Glossary of terms used in flying-boat hull construction, pp. 407-412.

NIEEMANN, ERICH. Die Bedeutung der Funkentelegraphie für den Luftverkehr.

NIEUPORT. The Nieuport and General Aircraft Co. (Ltd.).

— The Nieuport “London” night bomber.
NIEUPORT. The Nieuport two-seater Nighthawk.
Aerial Age, Vol. 10, No. 18 (Feb. 16, 1920), New York, pp. 664-665, ill.

NIEUPORT-Delage. Les avions Nieuport-Delage.
Aéronautique, 3e année, No. 30 (nov. 1921), Paris, pp. 478-479, ill.

— The Nieuport-Delage biplane, type 30. T.
Aerial Age, Vol. 14, No. 2 (Sept. 19, 1921), New York, p. 37, diagr.

NIEUWENHUIS, H. Bij de indische foto’s.
Vliegveld, 5e jaarg., No. 19 (10 Sept. 1921), Amsterdam, pp. 266-268.

— Die M. L. D. (?).

— Het vliegkamp te Schellingwoude en het burger luchtverkeer.
Vliegveld, 4e jaarg., No. 21 (9 Oct. 1920), ’s-Gravenhage, pp. 333-335, ill.

— Hoe is de verbinding tussen schiphol en Amsterdam?
Vliegveld, 4e jaarg., No. 26 (15 Dec. 1920), ’s-Gravenhage, pp. 441-442.

NIGHT. The night observation airplane U. S. X. B. 1-A.
Aviation, Vol. 10, No. 10 (Mar. 7, 1921), New York, pp. 292-293, ill.

NIGHT flying. Lights to guide flyers at night.

— Night flying arrangements.

— Voli notturni.
Rivista marittima (nov.-dic. 1920), Roma, pp. 36-38.

— See Baker, Cecil: Night flying.
— See Great Britain: British night flying.
— See Frintrop, Erich: Nachtluftjagd.
— See Lighting: Lighting installations for night flying.
— See Marcotte, Edmond: Pour la navigation aérienne nocturne. Le balisage lumineaux.

NIGHT landing. See Germany: German night-landing scheme.

NIGHT signals. See Bentivegni, Richard v.: Das Signalwesen im nächtlichen Luftverkehr.

— See Zentzytiski, Stanislaus M.: Lichtzeichen im nächtlichen Luftverkehr.

NIKEL, HUGO L. Denkwürdigkeiten der Flugtechnik: vierzig Jahre Oesterreichischer Flugtechnischer Verein.

NILES, A. S.; and L. V. KERBER. Determination of the best wing loading for single-seater pursuit aeroplanes.
Aerial Age, Vol. 14, No. 11 (Nov. 21, 1921), New York, pp. 231-232.

NILES, A. S., and B. C. BOULTON. Location of interplane struts.
Aerial Age, Vol. 12, No. 3 (Sept. 27, 1920), New York, pp. 75-82, diagr.

NILES, A. S. See Boulton, B. C., and A. S. Niles: Structural analysis and design of aeroplanes.

NIMFUHR. The Nimführ syndicate.

NIMFUHR, RAIMUNDE. Nochmals Herr Nimführ!


— See Amans: L’aérovoilier Nimfuir.

— See Baudisch, Hans: Bemerkungen zur Flugtheorie von Dr. Nimfuir.

— See Gradenzitz, Alfred: Dr. Nimfuir’s solution of the soaring flight problem.

— See Pulsating wing: That “pulsating” wing.


— Review of aviation in 1920.

1921. Our prospects in 1921.
Aeroplane, Vol. 20, No. 2 (Jan. 12, 1921), London, pp. 31-32, 80-81.

— See Benn, Ernest J. P.: The outlook for 1921.


— Flugzeugbäume

— Der Höhenprüfstand des “Bureau of Standards” in Amerika.

— Ist in Luftfahrzeugen der Benzinmotor durch andere Antriebsvorrichtungen ersetzbar?

— Tests of the Daimler D-IVa engine at a high altitude test bench.
Translated from: Technische Berichte, Vol. 3, Sec. 1.

— Turbinen und verwandte Probleme in der Flugtechnik.


Nobile, Umberto. L’avvenire dei transporti aerei nei servizi pubblici.
Giornale del Genio Civile, Vol. 59 (31 maggio, 1921), Roma, pp. 270-304, ill.

— The employment of airships for the transport of passengers. Indications on the maximum limits of their useful load, distance covered, altitude, and speed.
BIBLIOGRAPHY OF AERONAUTICS, 1920–1921.

Nobile, Umberto. Semirigid versus rigid airships.

Noble, Walter. With a Bristol fighter squadron.
London, A. Melrose (Ltd.), 1920, pp. 156, ill.

Nome. An Army flight to Nome.
The Navigator, Vol. 1, No. 22 (July 17, 1920), Pensacola, Fla., p. 4.
— See Air routes: From New York to Nome and Siberia by air.
— See Tinker, Clifford A.: To Nome and back.

Nomenclature. Flying adds many words to language.
The Navigator, Vol. 1, No. 16 (May 29, 1920), Pensacola, Fla., p. 3.
— Naming and classifying airplanes.
— Nomenclature for aeronautics.
— See Dander, M. Mele: International dictionary of aeronavigation.
— See National Advisory Committee for Aeronautics: Nomenclature for aeronautics.
— See Nicolson, David: Flying boat construction.
— See Royal Aeronautical Society: A glossary of aeronautical terms prepared by the technical terms committee of the Royal Aeronautical Association.
— See United States Advisory Committee for Aeronautics: Nomenclature for aeronautics.


Nordenswan, G. V. Das unterteilte Flächenprofil.

Nordstern. Le dirigeable "Nordstern" en France.
— Le Zeppelin "Nordstern" livré à la France.
Aéronautique, 3e année, No. 26 (julii 1921), Paris, p. 297.

Norfleet, Joseph P. How airships such as our ZR–2 are handled.
U. S. Air Service, Vol. 5, No. 6 (July 1921), New York, pp. 18-21, ill.
— One rigid airship has military value of two battle cruisers.
— Shall we abolish the battleship?

Norman, C. A. Possibilities of an aeronautical gas turbine.
Aut. Ind., Vol. 41 (Nov. 6, 1919), New York, pp. 914-917, chart, diagr.

Norman, Geoffrey H. The late squadron leader Geoffrey Norman.

Normand, C. W. B. Meteorological conditions affecting aviation in Mesopotamia.

North, John D. Aircraft undercarriages.
NORTH AMERICAN AERIAL TRANSPORTATION CO. Airway facts.

— Big airship company being formed. North American Aerial Transportation Co. to start with $5,000,000 capital.

NORTH POLE. See POLES: The poles, aircraft and the weather forecast.

NORTON AND BACON. N. A. C. A. Langley Field wind tunnel apparatus. The tilting manometer.

NORTON, FREDERICK HARWOOD, AND EDWARD P. WARNER. Accelerometer design.

NORTH, FREDERICK HARWOOD. The aerodynamic properties of thick aerofoils suitable for internal bracing.

— Construction of models for tests in wind tunnels.

NORTON, FREDERICK HARWOOD, AND EDMUND TURNER ALLEN. Control in circling flight.

NORTH, FREDERICK HARWOOD. The effect of elevator weight.

— The effect of staggering biplane.
Aerial Age, Vol. 14, No. 5 (Oct. 10, 1921), New York, pp. 103-104.

— The efficiency of small bearings in instruments of the type used in aircraft.
Norton, Frederick Harwood. The factors that determine the minimum speed of an airplane.

Technical Notes, National Advisory Committee for Aeronautics, No. 54, Mar. 1921, Washington (mim.), pp. 9, diagrs.

Aerial Age, Vol. 13, No. 3 (Mar. 28, 1921), New York, pp. 57-60.

---

An investigation on the effect of raked wing tips.

Technical Notes, National Advisory Committee for Aeronautics, No. 69, Nov. 1921, Washington (mim.), pp. 2, diagrs.


---

A mechanical device for illustrating airplane stability.


---

N. A. C. A. recording air speed meter.


Aerial Age, Vol. 14, No. 7 (Oct. 24, 1921), New York, pp. 151, 154, ill.

Aviation, Vol. 11, No. 22 (Nov. 28, 1921), New York, p. 623, diagr.

---

The optical wing-aligning device of the Langley Field tunnel.


Aerial Age, Vol. 12, No. 24 (Feb. 21, 1921), New York, p. 610, diagr.

---

Norton, Frederick Harwood. The photographic recording of small motions.


---

The possibilities of the large airplane.

Aviation, Vol. 16, No. 2 (Jan 10, 1921), New York, pp. 48-50, diagr.

---

Practical stability and controllability of airplanes.


---

The pressure distribution over the horizontal tail surfaces of an airplane.


---

Norton, Frederick Harwood, and D. L. Bacon. The pressure distribution over the horizontal tail surfaces of an airplane—II.


---

Norton, Frederick Harwood. The slow-speed airplane.

Aviation, Vol. 9, No. 3 (Sept. 1, 1920), New York, pp. 80-82, diagr.

---

Some modern tests on full-sized airplanes at the Langley Memorial Aeronautical Laboratory.


---


Aerial Age, Vol. 12, No. 23 (Feb. 14, 1921), New York, p. 585, diagr.

---


---


---

See Warner, E. P., and F. H. Norton: Preliminary report on free flight tests.

---

NORWAY. Commercial aviation in Norway.

Norway's experience of commercial aviation.
Flight, No. 633, Vol. 13, No. 6 (Feb. 10, 1921), London, pp. 96-97, ill.

Proposed air services in Norway.

Notes on branch intelligence. Notes on branch intelligence. Issued by second section, general staff, American Expeditionary Forces, Nov. 1, 1918.
Printed at the base printing plant, 29th Engineers, U. S. Army, 1918, pp. 31, ill.

NUNGESESSER, CHARLES. Needed in America—more landing fields and pilots.

Un combate dramático.

NÜRNBERG. Die dritte Fliegertagung in Nürnberg.

NUTTING, WILLIAM WASHBURN. The "Hd-4." A 70-miler with remarkable possibilities developed at Dr. Graham Bell's laboratories on the Bras d'Or Lakes.

O'GORMAN, MERVYN. The object of tabulating engine data.


Standardized stability terms.
Aeronautical Research Committee Reports and Memoranda, No. 745, June 1921.

O'MALLEY, J. M. Characteristics of the airplane engine.

Handling the engine in the air.

The Liberty engine.
The Ace, Vol. 2, No. 6 (Jan. 1921), Los Angeles, pp. 11, 22.

OBEAR, G. B. A note on oxygen supply for aviators.

A note on the low-pressure chambers installed in the medical research laboratory of the Air Service.

OBENAUS, E. Bau und Führung von Ballonfahrzeugen unter besonderer Berücksich­tigung der Motoraluftsichte.
Leipzig, Moritz Schäfer, 1921.


OBSERVERS. See Training: Training of aerial observers.

OCEAN. The aerial crossing of the ocean.
BIBLIOGRAPHY OF AERONAUTICS, 1920—1921. 307

OCEAN. Plan flight over sea in 24 hours in giant planes.

—— Transoceanic flying.
The Ace, Vol. 2, No. 4 (Nov. 1920), Los Angeles, p. 8, ill.

OCEAN flying. An American point of view.

ODDY. See Buckwald, A. M.: The Oddy variable pitch and reversing propeller.

OEDENTHAL, H. J. Aircraft will save millions annually protecting national forests from fire.

—— A year of civilian aviation.

ODIER. Le démarreur Odier.

—— The Odier portable starter for aircraft engines.
Aviation, Vol. 8, No. 11 (July 1, 1920), New York, p. 440, ill.

ODYSSEY. See Hinkler, Bert: The Odyssey of Bert Hinkler.

OEHMICHEN, ÉTHERNE. Nos maîtres les oiseaux, étude sur le vol animal et la récupération de l'énergie dans les fluides.
Paris, Dumod, 1920, pp. ii, 190, ill.

—— The Oehmichen helicopter.
Aviation, Vol. 11, No. 11 (Sept. 12, 1921), New York, p. 319, ill.

—— The Oehmichen helicopter flies.

OEHMICHEN-PEURGEOIT. The Oehmichen-Peurgeot helicopter.

OERTZ. The Oertz flying boats.
Aerial Age, Vol. 11, No. 13 (June 7, 1920), New York, pp. 440-441, 454, ill.

OESTERREICHISCHE Aéro-Club. Mitteilungen.
Wien, 1921.
Erscheint vierteljährlich.

OESTERREICHISCHE Flugtechnische Verein. K10,000 für österreichische Forschungsarbeit.
Flug, Jahrg. 1920, Nr. 5 (Mai), Wien, pp. 11.

—— See Nikel, Hugo L.: Denkwürdigkeiten der Flugtechnik . . .

OESTERREICHISCHEN Aéronautischen Kommission. See Mitteilungen des Oesterreichischen Aéro-Clubs.

OESTERREICHISCHEN Luftschifferverbandes. See Mitteilungen des Oesterreichischen Aéro-Clubs.

OESTERREICHISCHER Aéro-Club.

OFFERMANN, E. Elementare Praxis des Segelfluges.

—— Start von Segelflugzeugen.

—— Die technischen Grundlagen des Riesenflugzeuges für den Luftverkehr.
Berlin, Braunbeck, 1919.
OFFERMANI', E. Technik und Oekonomik im Luftverkehr mit Flugzeugen.

— Ueber die natürliche Geschwindigkeit von Segelflugzeugen.

OFFICERS. Training reserve air officers.
Aviation, Vol. 10, No. 3 (Jan. 17, 1921), New York, pp. 81-82.

OGER, MARCEL. Comment on entre dans l’aéronautique militaire.
Vie Aérienne, 5<sup>e</sup> année, No. 6 (11 sept. 1920), Paris, pp. 91-92, ill.

— Le ministère de l’air.
Vie Aérienne, 5<sup>e</sup> année, 1920, Paris, pp. 310-311, ill.

OGILVIE, A. Pioneers of British aviation—XLIII: Lieutenant Colonel A. Ogilvie, C. B. E., F. Ae. S.

— See Brewer, Griffith: The Langley machine and the Hammondsport trials.

OHIO. First State convention of organized aero clubs. Associated clubs of Ohio formed.

— The first State convention of organized aero clubs in the United States of America. Associated clubs of Ohio formed at Columbus convention.

OIL fields. See Canada: Aeroplanes and the Canadian oil fields.

Oil prospecting. See Supermarine: Oil prospecting by supermarine.

OLIVER. The Oliver profiler.
Aviation, Vol. 10, No. 22 (May 30, 1921), New York, p. 695, ill.

OLIVIER, H. Le biplace blindé bimoteur “Liore et Olivier.”
Aéronautique, 2<sup>e</sup> année, No. 15 (août 1920), Paris, pp. 114-118, ill.

— See Liore and Olivier: Liore and Olivier’s flying boat.

OLDROYD, C. A. Is Germany bluffing?

OLYMPIA. The aeroplanes and engines at Olympia.

— Aeroplanes at Olympia.

— The Air Ministry exhibits at Olympia.

— Air transport and efficiency. Two interesting papers read at Olympia.

— Aircraft exhibited at the recent Olympia show in London.

— Commercial development rules Olympia aero show.

— La exposición de aeronáutica de Olympia.
Aire y Tierra, año 2, Núm. 16 (Julí 1920), Madrid, pp. 393-395, ill.

— A forecast of the exhibits of accessories and material at Olympia.
— See Engines: Aero engines at Olympia.

Omaha. The aviation meeting at Omaha. Aviation, Vol. 11, No. 20 (Nov. 14, 1921), New York, pp. 565-570, ill.
— See Pulitzer race: The second annual Pulitzer race at Omaha.


— The planning of public air transport. Aircraft Journal, Vol. 7, Nos. 11-12 (Sept. 13-20, 1920), New York, pp. 3-4, 5-6, ill.
— The world's airship types in 1921. Aviation, Vol. 11, No. 10 (Sept. 5, 1921), New York, pp. 286-287.

— Orenco commercial and military types. Aerial Age, Vol. 11, No. 3 (Mar. 29, 1920), New York, pp. 84-86, 98, ill.
Ordinance type "D." Performance test of Ordnance type "D" with 300-horsepower Hispano-Suiza engine.


Ordinances. See Laws and regulations.

Oregon. Oregon aeronautic board.

Aerial Age, Vol. 13, No. 17 (July 4, 1921), New York, p. 388.

Orelli, Hans Friedrich. Unsere Luftpolitik: Fiasco?


Oreno. Die amerikanischen Oreno-Militärlflugzeuge.


— A flying model of the Oreno fighter.


— Oreno aeroplanes.

Aeronautics, Vol. 18, No. 332 (Feb. 26, 1920), London, p. 175, ill.

— Oreno military airplanes.


— Oreno "Tourister II" makes successful trials.

Aviation, Vol. 11, No. 20 (Nov. 14, 1921), New York, pp. 571-572, ill.

— The Oreno type "F" tourister aeroplane.

Aerial Age, Vol. 11, No. 8 (May 3, 1920), New York, pp. 253-256, ill., diagr.

Aviation, Vol. 8, No. 7 (May 1, 1920), New York, pp. 278-281, ill., diagr.


— The Oreno type F-4 five-place tourister.

Aerial Age, Vol. 14, No. 11 (Nov. 21, 1921), New York, pp. 246-248, ill., diagr.

— The Oreno type F-4-seater tourist plane.

Aviation, Vol. 8, No. 3 (Mar. 1, 1920), New York, p. 102, ill.

— Some "Oreno" (U. S. A.) aeroplanes.


— See Ordnance Engineering Corporation: Oreno aeroplanes.

— See Ordnance Engineering Corporation: Oreno commercial and military types.

Organization. Making an unworkable organization go.

Flying, Vol. 10, No. 4 (May 1921), New York, p. 145.


— See Le Frieur, Yves de Vaisseau: Correcteur de route à derivographe pour la navigation aérienne à l’estime.

— See Wille, H.: Ce qu’il connaît pour compenser une boussole aérienne.

Orinoco. Mapping the Orinoco delta.

Aerial Age, Vol. 13, No. 10 (May 16, 1921), New York, p. 232.

Ormont. See Markiewicz, Ed.: Un nouvel appareil Suisse.

Ornithopters. See Chatley, Herbert: Application of theory to ornithopters. The action of the flapping wing.

Ors, Jean. La parachute d’aviation Jean Ors, type 1921.

L’Aérophile, 29. année, Nos. 11-12 (1er-15 juin 1921), Paris, pp. 165-166, ill.
BIBLIOGRAPHY OF AERONAUTICS, 1920–1921.

ORTLIEB. . . L'aéronautique, hier-demain.
Paris, Masson et Cie., 1920, pp. xii, 292, ill.
Préface par Ct. Wateau.

OSCILLOSCOPE. The oscilloscope.

OSPREY. The “Osprey” distance type model.
Aerial Age, Vol. 12, No. 22 (Feb. 7, 1921), New York, p. 560, diagr.

OSTFRIESLAND. See Bombs: Depth bombing from the air; results and lessons of the sinking of the Frankfurt and Ostfriesland off the Virginia coast.


OTTE, R. Nach drei Jahren.
Luftweg, Nr. 27-18 (5. Mai 1921), Berlin, pp. 130-132, ill.

OTTEN, P. A. C. Voorloopers der vliegmachines.
Vliegveld, 5e jaarg., No. 21 (8 Oct. 1921), Amsterdam, pp. 294-295.

OUR latest aerial creations.

OUTRAM, H. W. S. Ground engineering.

— See Garden, P. T.: Ground engineering.

OUWERKERK, L. A. De militaire gebouwen en werken behorende tot de luchtvaartafdeeling te Soesterberg.
Vliegveld, 5e jaarg., No. 21 (8 Oct. 1921), Amsterdam, pp. 382-393, 414-421, ill.

OYINGTON, ADELAIDE (ALEXANDER). An aviator’s wife.

OWEN, E. A. See Barr, Guy, and E. A. Owen: Note relative to the weight of hydrogen.

OXFORD. The Oxford v. Cambridge race.

— See Derby: The sixth aerial derby and the Oxford v. Cambridge air race.

OXYGEN. See Bagby, English: Psychological effects of oxygen deprivation.

— See Equipment: General instrument and oxygen equipment.
P. R. Corona metal. A new yellow metal.

**PACIFIC.** Flying the Pacific.
The Naviator, Vol. 1, No. 18 (June 12, 1920), Pensacola, Fla., p. 8.

---
Pacific to Amazon air route reconnaissance.
Aerial Age, Vol. 13, No. 3 (Mar. 28, 1921), New York, p. 61.

---
Trans-Pacific airplane flight difficult.
Journ. Soc. Automotive Engineers, Vol. 6, No. 6 (June 1920), New York, p. 401.

---
The trans-Pacific flight.
Aviation, Vol. 9, No. 7 (Nov. 1, 1920), New York, p. 255.

---
Trans-Pacific flight will be difficult.

---
La traversía aérea del océano Pacífico.
Toiti, año 6, Núm. 4 (nov.-dic. 1920), México, p. 199, ill.

---
The truth about the trans-Pacific race.

---
See Westervelt, G. C., and H. B. Sanford: Possibilities of a trans-Pacific flight.

**PACIFIC HAWK.** The Pacific Hawk commercial airplane.
Aerial Age, Vol. 11, No. 17 (July 5, 1920), New York, p. 578, ill.

**PACKARD.** The 500-600 horsepower Packard aircraft engine.
Aircraft Journal, Vol. 7, No. 3 (July 19, 1920), New York, pp. 3-4, ill.
Aviation, Vol. 8, No. 12 (July 15, 1920), New York, pp. 470-472, ill., chart.

---
The Packard aero engine.

---
Packard aero engine type 2025.
Aerial Age, Vol. 11, No. 18 (July 12, 1920), New York, pp. 612-615, ill.

---
Packard engine test.
Aviation, Vol. 11, No. 1 (July 4, 1921), New York, p. 21.

---
The Packard fuelizer.
Aviation, Vol. 8, No. 3 (Mar. 1, 1920), New York, p. 106, ill.

---
Packard to develop dirigible engine.
Aut. Ind., Vol. 43 (July 22, 1920), New York, p. 189.

---
Standard engine report of the Packard model 1A–116 aviation engine.
Engineering Division, Air Service, Technical Orders No. 17 (June, 1920), Dayton, Ohio, pp. 27-65, ill.

---
Standard engine report on Packard model 1A–744 aviation engine.
Engineering Division, Air Service, Technical Orders No. 16 (May 1920), Dayton, Ohio, pp. 16-55, ill.

---
See Verville-Packard: The Verville-Packard biplane.

---
See Vincent, Jesse Gurney: The Packard "altitude" aero-engine.

---
See Vincent, Jesse Gurney: Special Packard aero engine for altitude work.

**PAGANINI, ROBERT.** Perspektiven der Luftpost.
Suisse Aèreienne, 2e année, No. 13 (18 juil. 1920), Berne, pp. 187-188, ill.

---
Der Propaganda- und Nachrichtendinstdurch die Luft während dem Weltkriege.
Suisse Aèreienne, 2e année, No. 24, (31 déc. 1920), Berne, pp. 385-370.

**PAGE, A., H. E. COLLINS, and T. H. FEWSTER.** Description of apparatus for measurement in a wind tunnel of the performance of an airscrew or the windage torque of a rotary engine.
Aerial Age, Vol. 11 No. 4 (Apr. 8, 1920), New York, pp. 118, 123, diagr.
BIBLIOGRAPHY OF AERONAUTICS, 1920—1921.

PAGE, A. J. Gas turbines. 

PAGE, ARTHUR WILSON. Our 110 days' fighting. 

PAGE, FREDERICK HANDLEY. See Handley Page, Frederick.

PAGE, RAY. Ray Page. 
The Ace, Vol. 3, No. 2 (Nov. 1921), Los Angeles, p. 10, ill.

PAGE, VICTOR W. Aviation engines. 

— Operating principles of rotary engines. 

— Some new developments in aviation. 

PAINLEVÉ, PAUL. La connaissance du monde et l'aviation. 
Aéronautique, 3e année, No. 30 (Nov. 1921), Paris, pp. 426-428.

PAINTING. Spray painting. 

PALERMO. Corso universitario di diritto aereo. 
L'Aeronautica, anno 3, Num. 1 (Marzo 1920), Roma, pp. 57.


PALMA, GOFFREDO DI. Note sull'elicottero. 
L'Aeronautica, anno 3, Num. 1 (Marzo 1920), Roma, pp. 52-54, Ill.

PALMER. Palmer broad tread aero tyres. 

PAN-AMERICAN Aeronautic Congress. Brilliant gathering marks opening of third Pan-American Aeronautic Congress. 
Aerial Age, Vol. 11, No. 11 (May 24, 1920), New York, pp. 355-357.

— Notable gathering attends opening of third Pan-American Aeronautic Congress at Atlantic City. 
Flying, Vol. 9, No. 5 (June 1920), New York, pp. 309-322, Ill.

— One hundred sixty-two delegates arrived at aero congress by air. 
Aerial Age, Vol. 11, No. 13 (June 7, 1920), New York, pp. 429.

— President Wilson to open third Pan-American Aeronautic Congress by radio from the White House. 

— Report of the third Pan-American Aeronautic Congress. 
Flying, Vol. 9, No. 6 (July 1920), New York, pp. 370-376, Ill.

— Third Pan-American Congress to be greatest aeronautic event ever held. 

— See McAlmon, Robert M.: The Pan-American Congress.

PANNELL, E. V. Aluminum in airship construction. 
Metal Industry, Vol. 18 (June 1920), New York, p. 262, Ill.

PANNELL, J. R., and N. R. CAMBPELL. The balancing of wing flaps. 

PANNELL, J. R. Calibration of tube anemometers at high velocities. 

— The Chattock tilting manometer for measurement of small pressure differences. 

44429—25—21
PANNELL, J. R., J. D. COALES, and N. R. CAMPBELL. A comparison of biplanes with equal and unequal chords.

PANNELL, J. R., and N. R. CAMPBELL. Design of fins for the body of R. E. S.

PANNELL, J. R., and E. A. GRIFFITHS. Determination of the forces and moments acting on a model of a flying boat hull.

PANNELL, J. R., and N. R. CAMPBELL. The direction and velocity of the air flow behind a biplane composed of wings of variable section.

PANNELL, J. R., and E. A. GRIFFITHS. The effects of the variation of gap, stagger and angle between the chords of a biplane.

PANNELL, J. R., and R. JONES. Experiments on a model of the German rigid airship L33.

PANNELL, J. R. Experiments on heat transmission in the case of air flowing through a heated pipe.

PANNELL, J. R., E. A. GRIFFITHS, and J. D. COALES. Experiments on the interference between pairs of aeroplane wires of circular and lenticular cross-section.


PANNELL, J. R. Experiments on the resistance of spheres.

PANNELL, J. R., and N. R. CAMPBELL. Forces and moments on a biplane at various speeds.

PANNELL, J. R., and E. A. GRIFFITHS. Forces and moments on upper and lower planes of a biplane.

PANNELL, J. R., and N. R. CAMPBELL. The flow of air round a wing tip.

PANNELL, J. R. Fluid resistance of streamline bodies.
Aviation, Vol. 9, No. 7 (Nov. 1, 1920), New York, pp. 220-221, diagr.

Fluid resistance on bodies of approximately streamline form.

PANNELL, J. R., and R. JONES. An investigation into the nature of the flow in the neighbourhood of an airscrew.

PANNELL, J. R., and N. R. CAMPBELL. Methods of supports for models during the measurement of their aerodynamic resistance.

PANNELL, J. R.; and N. R. CAMPBELL. The resistance of certain streamline-shaped bodies.


Tests on an aerofoil suitable for airscrew design (A. D. No. 1).

The variation of static pressure in a natural wind, as the velocity changes.

The variation of the resistance of rigid airship models with the scale and wind speed.

PAPPAFAYA, VLADMIRO. Ricerche bibliografiche sull aviazione.
Firenze, Leo S. Olschki, 1920, pp. 7.

PAQUITO. The Paquito ignition system.

PARACHUTE jumps. Regulations governing parachute jumps.

PARACHUTES. Aviation parachute.

Drops 19,800 feet from an airplane. San Antonio aviator sets new world record for parachute jump.
The Navigator, Vol. 1, No. 18 (June 12, 1920), Pensacola, Fla., p. 1.

The future “lifeboat.”

Geschichtliches über den Stufen- und Bremfalschirm.

More about parachutes.

Notes on parachutes.

Los paracaidas usados en el ejército americano.
Tuhiil, 5, Núm. 4 (nov.-dic. 1920), México, p. 217.

Le parachute Heinecke.
Suisse Aérienne, 2e année, No. 17 (10 sept. 1920), Berne, pp. 231-232.

Parachute 100 per cent efficient.

Parachute tests. (Equipment section test report No. 63.)

Parachute records, forced and otherwise.

Parachute saves mail pilot.

Parachuting.

Releasing parachutes from models.
Aerial Age, Vol. 13, No. 12 (May 20, 1921), New York, p. 281.
Parachutes. Les parachutes d’aviation et d’aérostation.

— The requirements for a parachute.

— The sky hook.

— Teaching the art of parachute jumping.

— Tests on new types of parachutes.

— Thrilling experience with parachute.

— Der Unz-Fallschirm.

— The utility of the parachute.
Aerial Age, Vol. 13, No. 6 (Apr. 18, 1921), New York, p. 123.

— When to use a parachute.
Aerial Age, Vol. 13, No. 10 (May 16, 1921), New York, p. 231.

— World’s record parachute jump.

— See Arnold, Felix: Fallschirm und Luftverkehr.

— See Bateman, H.: Stability of the parachute and helicopter.

— See Braun, Ludwig: Fallschirm und Fallschirmhose.

— See Brenner, Leopold: Ein ideales Luftrettungsmittel . . .


— See F., L.-D.: Agrafage de sûreté pour parachutiste.


— See Frantzen, L. P.: Les parachutes d’avions.

— See Frantzen, L.-P.: La sécurité par le parachute. L’école de parachutistes d’avion de Jean Ors.

— See Gradewitz, Alfred: New types of parachutes.

— See Hardin: Hardin package parachute at world series.

— See Helicopters: Helicopters and parachutes.


— See Irvin: The Irvin air chute.

— See Italy: New Italian parachutes.
PARACHUTES. See L., P. F.: Le parachute dans le services aériens postaux.

See Lees, T. Orde: Parachutes.

See Lees, T. Orde: Parachutes—Positive and nonpositive.

See Lees, T. Orde: Synopsis for paper on parachutes to be read before the Royal Aeronautical Society. Title, Reducing loss of life in air wrecks.

See Martell, P.: Zur Geschichute der Fallschirm e.

See Ors, Jean: Le parachute d'aviation Jean Ors, type 1921.

See Rockenfeller, Theo: Der Heincke-Fallschirm.


See Smith, Floyd: The Floyd Smith aerial life pack.

See Smith, Floyd: Parachutes and life packs.

See Smith, Floyd: Recent data on parachutes.

See Sperry, Lawrence B.: Lawrence Sperry on parachutes.

See Triebner, W.: Der Fallschirmabsprung.

See Unz, Max: The parachute problem.

See Van Meter: The Van Meter parachute release.

See Van Meter: Van Meter parachute releasing device.

PARE, AD. In memoriam.

Vliegveld, 5e jaarg., No. 6 (12 Maart 1921), Amsterdam, p. 92, ill.

PARIS. Aeroplane details from the Paris show (Plate VII).


Aeroplanes at the Paris show (Plate VI).


On the Paris aero show.

The Aeroplane, Vol. 21, No. 20 (Nov. 16, 1921), London, pp. 461-466, diarr.

Paris aero show.

Aerial Age, Vol. 14, No. 14 (Dec. 12, 1921), New York, pp. 319-322, ill.

Ant. Iml., Vol. 45 (Dec. 15, 1921), New York, pp. 1156-1157.

The Paris aero show at a glance.


Tabulated particulars of the machines.

The Paris aero show, 1919.


The Paris aero show, 1921.


The Paris aeronautical exposition.


The Paris aeronautical show.

Automobile Engineer, Vol. 10, No. 135 (Feb. 1920), pp. 53-56, figs.

Paris aviation show.

Engineer, Vol. 129 (Jan. 9-16, 1920), London, pp. 37, 63-64, ill.


— The Paris show.

— Pariser Salon, 1921.

— El salón de aeronáutica de Paris.
Aire, Mar y Tierra, año 2, Num. 11 (feb. 1920), Madrid, pp. 99-105.

— The seventh Paris aero show.

— Some big machines at the Paris show.

— See Aerial routes: Les transports aériens entre Paris et Londres.
— See B., R.: To Paris by air.
— See Bradley, W. F.: Reflection of the Paris aero show.
— See Commercial aeronautics: From Paris to New York in one day.
— See Commercial aeronautics: London-Paris air express.
— See Commercial aeronautics: London-Paris air service.
— See Commercial aeronautics: Time table and tariff of air companies operating at Paris.

— See Engines: Engines at the Paris show.
— See Races: The Paris to Croydon and back race.


London, 1920, Chapman & Hall (Ltd.).

— A treatise on airscrews.
Reviewed in: Vliegveld, 5e jaarg., No. 5 (26 Feb. 1921), Amsterdam, pp. 74-77.

Parker. The Parker variable-pitch airscrew.
PARKER, BILLY. Parker variable-pitch airscrew. Aerial Age, Vol. 12, No. 24 (Feb. 21, 1921), New York, pp. 610-611, ill.


PARKER, STANLEY V. Coast Guard aviation. Aircraft Journal, Vol. 6, No. 16 (Aug. 17, 1920), New York, pp. 7-9, ill.


PARLIAMENT. In Parliament.


--- See Hildesheim, Erik: The development of the Parseval airships.


Parsons, Samuel R. Pressure drop in radiator air tubes.

Properties of special types of radiators.

Turbulence in the air tubes of radiators for aircraft engines.


Partridge, William. The San Diego naval air station.
Aircraft Journal, Vol. 6, No. 17 (Apr. 24, 1920), New York, pp. 5-7, ill.

Pascal, Mario. Force di pressione su un montante di aeroplano. Nota II di Mario Pascal.

Passat, M. J. B. A new helicopter.

The Passat "Helicopter."
Aerial Age, Vol. 13, No. 11 (May 23, 1921), New York, p. 254.

Passenger. On passenger worthiness.

The physiology of passenger carrying.
Aviation, Vol. 11, No. 8 (Aug. 1, 1921), New York, p. 140.

Patents. The aeronautic patents situation.
Aerial Age, Vol. 11, No. 17 (July 5, 1920), New York, pp. 573-574.

See Weismann, Charles: Au sujet des brevets Wright.

Patrick, Mason M. Colonel Patrick nominated as Air Service chief.
Aerial Age, Vol. 11, No. 4 (Oct. 3, 1921), New York, pp. 75-77, ill.

General Patrick appointed Chief of Air Service.

General Patrick makes long airship flight.
Aviation, Vol. 11, No. 22 (Nov. 28, 1921), New York, p. 624.

Patrol. See Aerial patrol.

See Fisheries: Aerial fish patrol.

Cambridge, 1920, W. Heffer and Sons (Ltd.).

Paul, George F. Boats driven by airplane propellers.

A French surgery airplane.
Aviation, Vol. 11, No. 18 (Oct. 31, 1921), New York, p. 513, ill.

Pearson. Recovering the Pearson plane.
Aviation, Vol. 11, No. 7 (Aug. 15, 1921), New York, pp. 198-199.

Pega, Georges Aribal de. L’aviette a-t-elle un avenir?
Aéronautique, 3e année, No. 27 (août 1921), Paris, pp. 319-330.
PEGNA, GIOVANNI. High efficiency of seaplanes. Aviation, Vol. 11, No. 11 (Sept. 12, 1921), New York, p. 308.

— L'Italia e l'aeronautica. L'Aeronautica, anno 3, No. 1 (marzo 1920), Roma, pp. 6-10, ill.


PELL bill. See Battle, George Gordon: Medals for service in war. The provisions of the Pell bill.


— See Woodford, F. G., and G. N. Pell: The variation in the wind above an airship shed, due to the presence of the shed.


PENSACOLA. See Colvin, F. H.: Naval air station at Pensacola.


— See Blanchet, Georges: Aéronautes contemporains. Yves Périsse.

PERNAMBUCO. See Commercial aeronautics: Aerial service between Buenos Aires and Pernambuco.


— Von den meteorologischen Bedingungen des Luftverkehrs in Oesterreich. Flug, Sondernummer (Dez. 1920), Wien, pp. 21-34, ill.


PERSHING, JOHN J. See Rickenbacker, Edward V.: Is General Pershing wrong?

PERSIN, ONTHULLINGEN van schiphol. Vliegveld, 5e Jaarg., No. 21 (3 Oct. 1921), Amsterdam, pp. 287-288; No. 22 (22 Oct.), p. 304; No. 26 (24 Dec.), pp. 359-360, ill.


PESCARA. L'hélicoptère Pescara. Aéronautique, 3e année, No. 30 (nov. 1921), Paris, p. 473, ill.
BIBLIOGRAPHY OF AERONAUTICS, 1920–1921.

PELLA, L.: The Pescara helicopter.
Aerial Age, Vol. 13, No. 6 (Apr. 18, 1921), New York, p. 134.
Aviation, Vol. 10, No. 17 (Apr. 25, 1921), New York, p. 331, ill.


PETRA Fil. Potencia de los motores de gasolina en función de la presión barométrica.
Tohtli, año 5, Núm. 3 (oct. 1920), México, p. 130.

PETIT, F. R. Manuel de construcción aeronáutica (aviation).
Paris, Librairie J.-B. Baillièrè et fils, 1921, pp. 100-117, ill.

PETRÉ. Phenix fireproof dope.
Aerial Age, Vol. 11, No. 26 (Sept. 6, 1920), New York, p. 870.
Aviation, Vol. 9, No. 11 (Nov. 29, 1920), New York, p. 358.

PHILBIN, S. H. The need of Federal control in commercial aviation.
Flying, Vol. 10, No. 5 (June 1921), New York, pp. 174-177, ill.
PHILIPPINE ISLANDS. Commercial air service begins in Philippines.

— Philippine Government establishing an air service.
Aerial Age, Vol. 13, No. 9 (May 9, 1921), New York, p. 208.

PHIL. Les avions modernes. Le monoplan trimoteur R. Saulnier.
L’Aérophile, 29e année, Nos. 5-6 (1er-15 mars 1921), Paris, pp. 67-70, ill., port.

PHOENIX. The Austrian two-seater Phonix biplane.

— Phoenix No. VII flying boat. Long range patrol or passenger carrier.
Engineering Division, Air Service, Technical Orders No. 16 (May 1920), Dayton, Ohio, pp. 93-97, diagr.

PHOTOGRAMMETRY. Ein Photosinsitzer.
Flug, Jahrg. 1920, Nr. 5 (Mai), Wien, p. 53.

— La photo-topographie par avion au Maroc.
Aéronautique, 3e année, No. 24 (Mai 1921), Paris, pp. 209-212, ill.

— See Valier, Max: Schweizer Reiseeindrücke.

PHOTOGRAPHY. Aerial photography.

— Aerial photography a growing industry.
The Ace, Vol. 2, No. 4 (Nov. 1920), Los Angeles, p. 10, ill.

— Aerial photography in British Guiana.

— Aerial photography in farm management.
Aerial Age, Vol. 13, No. 17 (July 4, 1921), New York, p. 399.

— Aerial photography of Baltimore.

— L’aéro-téléphote Cantoni.
Suiss Aérienne, 3e année, 1921, No. 13, Berne, p. 163, ill.

— Application of photography in hydrography.
Aerial Age, Vol. 13, No. 7 (Apr. 25, 1921), New York, p. 158.

— Army balloon maps San Francisco.

— Cadastre et photographie aérienne.
L’Aéronautique, 2e année, No. 16 (sept. 1920), Paris, pp. 144-147, ill.

— Commercial aerial photography.

— Commercialization of aerial photography.

— The Eastman aerial cameras.

— Luchtfotografie.
Vliegveld, 5e jaarg., No. 19 (10 Sept. 1921), Amsterdam, pp. 269-270.

— Map making by air photography.

— Mapping with the squeeze of a bulb.
Scient. Amer., Vol. 122 (Jan. 10, 1920), New York, p. 34, ill.
PHOTOGRAPHY. Notes on the interpretation of aeroplane photographs. Issued by the Division of Military Aeronautics, U. S. Army.


— Photography from aeroplane.
  Aerial Age, Vol. 12, No. 22 (Feb. 7, 1921), New York, p. 566.

— Stati Uniti: fotografia aerea.

— To photograph eclipses by airplane.
  Literary Digest, Vol. 64 (Mar. 27, 1920), New York, p. 35.

— See Bello, Carlos: La fotografía y la aviación.

— See Bouché, Henri: Les applications de la photographie aérienne; carte et cadastre, agriculture, travaux publics.

— See Bouché, Henri: La photographie aérienne . . .

— See Bouché, Henri: La photographie aérienne, arme de guerre, outil de la paix.

— See Bouché, Henri: La photographie aérienne et la restauration des provinces dévastées.


— See Carpenter, F. A.: Photographing clouds from an airplane.

— See Chapmen, J. S.: Shooting pictures of the Rockies from an airplane.


— See Clerc, L. P.: Applications de la photographie aérienne (lecture et interprétation, stéréoscopie aérienne, appareils et méthodes pour la photographie aérienne.

— See Eastman Kodak: Eastman Kodak aerial cameras.

— See Elton, Robert W.: Mounting of cameras in airplanes.

— See Ewald, Erich: Die Flugzeug-Photographie . . .

— See Ewald, Erich: Die stereoskopische Untersuchung des Fliegerbildes.

— See Fairchild: The Fairchild automatic camera.

— See Haggvist, F. E.: Aerial photography and its application to modern industries.

— See Ives, Herbert E.: Airplane photography.

— See Jones, E. Lester: Surveying from the air.

— See L. B.: The “L. B.” aero camera.

— See Lefranc, Jean-Abel: Sur la photographie aérienne.

— See Lloyd, H. A.: Classification of the ground from the air.

— See Mandeville, J. B.: Aerial photography as applied to topographical surveys.

— See Norton, Frederick Harwood: The photographic recording of small motions.

— See Porter, Harold E.: Photographic interpretation from the air.

— See Roussilhe, H.: La photographie en avion appliquée à la reconstruction des régions dévastées.

— See Smith, Seymour Wemyss: Kodaking from an aeroplane.
—— See Woodhouse, Henry: How the world found 100 uses for aeroplanes.

PHYSICS. See Webster, D. L.: Physics of flight.

PHYSIOLOGY. See Ears: Have you ears to fly.

Piaz, J. Dal. Les transports maritimes et l'aéronautique.
Aéronautique, 3e année, No. 20 (Nov. 1921), Paris, pp. 429-430.

Piel, Harry. Unfreiwillig auf 3000 Meter über der Erde.
Luftweg, Nr. 41-42 (30. Okt. 1921), Berlin, pp. 265-297.

Pierrot, Émile. La navigation aérienne commerciale en 1920.
—— L'organisation financière de l'aéronautique marchande.
Aéronautique, 3e année, No. 27 (Aout 1921), Paris, pp. 305-309.
—— Les primes à la navigation aérienne.
Aéronautique, 3e année, No. 26 (Juli 1921), Paris, pp. 265-274.
—— Réflexions sur l'aéronautique allemande.

Pigeaud. Toegepaste aerodynamica.
Vliegvl, 4e Jaarg., No. 22 (23 Okt. 1920), 's-Gravenhage, pp. 366-370, ill.

Pigeons. Pigeons in naval aviation.
—— Use of carrier pigeons.
Aircraft Journal, Vol. 6, No. 24 (June 14, 1920), New York, pp. 5-6.

Pilcher, Percy S. Pilcher memorial prize for students.
Aeron, Journ., Vol. 25, No. 126 (June 1921), London, pp. 261-262.

Pilot balloons. See Sherry, Bertram John: The rate of ascent of pilot balloons.

Piloting. Airship piloting.
Aerial Age, Vol. 13, No. 7 (Apr. 25, 1921), New York, p. 158.
—— Airship piloting and mooring.
—— Something new in balloon piloting.

Pilots. American aeronautic pilots.
—— An automatic pilot.
Aerial Age, Vol. 13, No. 3 (Mar. 28, 1921), New York, p. 62.
—— “The automatic pilot.” New airplane stabilizer that is part electric, part pneumatic, and part aerodynamic.
—— Flugzeugkutscher oder Luftkapitän.
Luftweg, Jahrg. 4, Heft 46-47 (2. Dez. 1920), Berlin, pp. 8-10, ill.
Pilots. Do pilots become stale away from the game?
The Navigator, Vol. 1, No. 22 (July 17, 1920), Pensacola, Fla., p. 6.

— Information for pilots, giving the practical characteristics of the land along various air routes.

— Irrwege des Luftverkehrs.

— Licenses for air pilots.
Flying, Vol. 10, No. 5 (June 1921), New York, p. 170.

— Pilots’ licenses: Compulsory examination in navigation.

— Why pilots should be officers.

— See Bauer, L. H.: Why civilian air pilots should be licensed by the Federal Government.


— See Fokker, A. H. G.: Certificaten van luchtvaardigheid.

— See Great Britain: British pilots required to pass examination in navigation.

— See Morane, Robert: Le pilotage des avions.

Pimental, Benito Loygorri. Aviadores españoles.
Tohtil, año, 6, Núms. 1 y 2 (enero y febrero de 1921), México, pp. 8-9, ill.

PinSENT, D. H. Exploration of the slipstream velocity in a pusher machine.


Pioneer. Pioneer aircraft instruments.
Aerial Age, Vol. 11, No. 8 (May 3, 1920), New York, pp. 257-258, ill.

— The “Pioneer” single-seater sportplane.
Aerial Age, Vol. 11, No. 11 (May 24, 1920), New York, pp. 370-371, ill.

— Turn and pitching indicators for airships.
Aviation, Vol. 9, No. 6 (Oct. 15, 1920), New York, p. 196, ill.


Pioneer turn and pitching indicator. See Pioneer: Turn and pitching indicators for airships.

Pioneers. The pioneers.


— Note on an empirical formula for aeroplane strength.

Pipe. Flexible petrol pipe at last.

Pischof. L’avionnette de Pischof...
Aéronautique, 2e année, No. 17 (oct. 1920), Paris, pp. 201-203, ill.
PISCHEF. Considérations sur les hélicoptères.

---

Een nieuw sportvliegtuig van de Pischof.
Vliegveild, 5e jaarg., No. 26 (24 Dec. 1921), Amsterdam, pp. 337-338.

---

L'homme voleta-t-il il a volé comme l'oiseau?
Aéronautique, 3e année, No. 29 (oct. 1921), Paris, pp. 409-413.

---

La nouvelle avionette "estafette" de Pischof.
Aéronautique, 3e année, No. 30 (nov. 1921), Paris, pp. 474-475, ill.

---

The Pischof "Avionnette."
Aerial Age, Vol. 12, No. 24 (Feb. 21, 1921), New York, p. 614.

---

The Pishof 16-horsepower "Avionnette."

PISTOLESI, ENRICO. Il metodo di Drzewiecki e i metodi da esso derivati per la teoria dell' elica propulsiva.
L'Aeronautica, anno 3, Num. 1 (marzo 1920), Roma, pp. 36-47.

---

Studi sulle eliche.
L'Aeronautica, anno 3, Num. 5-6 (luglio-agosto 1920), Roma, pp. 228-229.

---

La tecnologia del legno.
L'Aeronautica, anno 3, Num. 5-6 (luglio-agosto 1920), Roma, p. 233.

---

La teoria generale dell' elica di Drzewiecki.
L'Aeronautica, anno 3, Num. 5-6 (luglio-agosto 1920), Roma, pp. 226-227.


PITOIS, E. Utilisation scientifique et contrôle des bois dans l'aviation et l'industrie . . . Ouvrage à l'usage de MM. les ingénieurs, constructeurs, contrôleurs, et de tous ceux qui s'intéressent au développement de l'industrie du bois et de l'aviation.


PITTARD, EDMOND. Législation aérienne.
Suisse Aérienne, 3e année, 1921, No. 11, Berne, pp. 159-160.

---

Suisse Aérienne, 2e année, No. 18 (30 sept. 1920), Berne, pp. 274-280.

PITTNER, HANNS. Internationales Luftverkehrssyndikat.
Flug, sondernummer (Dez. 1920), Wien, pp. 50-54.

---

Wien als Zentrale des europäischen Luftverkehrs.
Flug, Sondernummer (Dez. 1920), Wien, pp. 5-6, ill.

---

Zum Jubiläumsfest des Oesterreichischen Flugtechnischen Vereines.

PIXTON, C. HOWARD. Pioneers of British aviation—XXXIV: Capt. C. Howard Pixton.

PLAISANT, G.-H. Electricité et aviation.
BIBLIOGRAPHY OF AERONAUTICS, 1920–1921.

PLAISANT, Gustave. Tourne-t-elle?
Paris, L. Béranger, 1921, pp. 38.


PLANTEY. Les avions sanitaires.
Aéronautique, 3e année, No. 29 (oct. 1921), Paris, pp. 398-400, ill.

PLATT, JR., R. H. Transportation through the air; significant and recent developments of commercial flying.
World's Work, Vol. 40 (May 1920), Garden City, N. Y., pp. 72-93, ill.

PLANTZ, Reinhold. See Büttner, Kurt Alex: Ein neues Reiseflugzeug.

PLESMAN, A. Cijfers en gevolgtrekkingen.
Vliegveld, 5e jaarg., 1921, Amsterdam, pp. 298-299, 312-314.

PLYMETL. A new American aircraft material—"Plymetl."

PLYWOOD. Shear strength of plywood webs.
Engineering Division Air Service Technical Orders No. 14, Mar., 1920, Dayton, Ohio, pp. 47-60, ill.

POLAND. Aviation in Poland.

POLAR curves. Methods for calculating aeronautical polar curves.
Aerial Age, Vol. 12, No. 22 (Feb. 7, 1921), New York, p. 560.

POLAR flight. Kangaroo that is expected to hop to the South Pole.

POLES. The poles, aircraft and the weather forecast.

POLICE. Austria: Servizio di polizia aerea.
Rivista marittima (luglio-agosto 1920), Roma, p. 5.

GERMANY: Polizia aerea.
Rivista marittima (luglio-agosto 1920), Roma, pp. 12-16.

—— See Aerial patrol.

—— See Pollock, Granville A.: Major Pollock purchases new plane for the "aerial police of New York City."

POLK, JR., George W. Fires in airplanes.
Pollock, Granville A. Major Pollock purchases new plane for the "aerial police of New York City."
The Navigator, Vol. 1, No. 7 (Mar. 27, 1920), Pensacola, Fla., pp. 1, 8.

Polster, H. Kinematik.
Berlin und Leipzig, 1920, pp. 149, ill.

San Diego, Calif., Dove and Robinson, 1921, pp. 63, ill.

Pony blimp. The "Pony blimp."

Pony blimp for commercial use.

See Commercial aeronautics: Pony blimp service.

Porter, Harold Everett. Aerial observation; the airplane observer, the balloon observer, and the Army Corps pilot.

Photographic interpretation from the air.

Posch, E. Das homogene Stabeck.

Potez, Henry. Les avions Henry Potez.
Aéronautique, 3e année, No. 30 (Nov. 1921), Paris, pp. 444-446, ill.

The Henry Potez aeroplanes.
Aerial Age, Vol. 11, No. 19 (July 19, 1920), New York, pp. 645-646, ill.

Les nouveaux Henry Potez.

Some new H. Potez aeroplanes.

Pouain. Avi ette Pou lain.

Pou lain, Gabriel. Pou lain's air bicycle.

See Peugeot Prize: L'essor de l' "Aviette." Le prix Peugeot gagné par Pou lain.


The effect of grooves down the face of an aerofoil.

Forces and moments on a wing caused by cross winds.

On the effect of cutting a hole in the top plane of a biplane.

The resistance of struts.

Tests on an Empson suction tube and wind gauges.
Powell, C. H. Tests on two aerofoils for the British and Colonial Aeroplane Co. (Ltd.).


--- See Bairstow, L., E. F. Relf, and C. H. Powell: Notes on the performance of aeroplanes, based on a reduction of the observations made at the Central Flying School during the acceptance tests of aeroplanes.


--- See Griffiths, E. A., and C. H. Powell: Further experiments on wing (A) of the previous section to obtain a comparison with standard wing sections, eliminating the effect of plan form and aspect ratio.


--- See Griffiths, E. A., and C. H. Powell: Tests on two aerofoils for the Aircraft Manufacturing Company (Ltd.).


--- See Relf, E. F., and C. H. Powell: Tests on smooth and stranded wires inclined to the wind direction, and a comparison of results on stranded wires in air and water.

Powell, Garland W. The Maryland State Aviation Commission.


Power. Power required to drive aeronautic engine magnetos and generators.

Prepared by Engineering Division, Air Service.

--- See Engines.

Poynting, John Henry. The changes in the length and volume of an india-rubber cord when twisted.

India-Rubber Journal (Oct. 4, 1913).

--- On the changes in the dimensions of a steel wire when twisted and on the pressure of distortional waves in steel.

BIBLIOGRAPHY OF AERONAUTICS, 1920–1921.

POYNTING, JOHN HENRY. Recent studies in gravitation.
Address Royal Institution of Great Britain, Feb. 23, 1900.

PRADE, GEORGES. Ceux qui disparaissent: mort de Georges Prade.

— Georges Prade.
Vie Aérienne, No. 190 (1 Juill. 1920), Paris, p. 1210, port.

— Le règlement des épreuves d’hydravions.
Vie Aérienne, No. 171 (19 févr. 1920), Paris, pp. 975–976, ill.

PRADO, MAX. Hidros y aviones.
Tohlti, año 6, Núms. 1 y 2 (enero y febrero de 1921), México, p. 64.

PRAEGER, OTTO. Air mail service saves public $100,000 a year. Performance better than 90 per cent.

— Air mail shows commercial possibilities of planes.

— Cost of air mail route from New York to San Francisco.

— Mr. Praeger honored.
Aviation, Vol. 11, No. 10 (Sept. 5, 1921), New York, p. 290, ill.

— The safety of American civil aviation.
Aviation, Vol. 11, No. 24 (Dec. 12, 1921), New York, p. 689, map.

PRAETORIUS. Vergaser.

PRAEGER, OTTO. Air mail service saves public $100,000 a year. Performance better than 90 per cent.

— Air mail shows commercial possibilities of planes.

— Cost of air mail route from New York to San Francisco.

— Mr. Praeger honored.
Aviation, Vol. 11, No. 10 (Sept. 5, 1921), New York, p. 290, ill.

— The safety of American civil aviation.
Aviation, Vol. 11, No. 24 (Dec. 12, 1921), New York, p. 689, map.

PRAGUE. The aero show at Prague.

— The first international aero exhibition, Prague.
(Nov. 17, 1920), London, p. 792, ill.

— Le premier meeting aeronautique de Prague 1921.
Suisse Aérienne 3e année, 1921, No. 20, Berne, p. 297, ill.

— Second Prague aero show.
Aviation, Vol. 11, No. 24 (Dec. 12, 1921), New York, p. 691, ill.

PRANDTL, LUDWIG. Application of modern hydrodynamics to aeronautics.

— Bemerkungen über den Segelflug.

— Effects of varying the relative vertical position of wing and fuselage.
Technical Notes, National Advisory Committee for Aeronautics, No. 75, December, 1921,
Washington (mim.), pp. 6, diagrs.

— Ergebnisse der aerodynamischen Versuchsanstalt zu Göttingen.
München und Berlin, R. Oldenbourg.

— Göttingen wind tunnel for testing aircraft models.
Technical Notes, National Advisory Committee for Aeronautics, No. 66, November, 1920,
Washington (mim.), pp. 20, diagrs.

— Mutual influence of wings and propeller.
Technical Notes, National Advisory Committee for Aeronautics, No. 74, December, 1921,
Washington (mim.), pp. 6, diagrs.
PRANDTL, LUDWIG. Die neueren Fortschritte der flugtechnischen Strömunglehre. 

Soaring flight.
Aviation, Vol. 11, No. 16 (Oct. 17, 1921), New York, p. 459, ill.

Some remarks concerning soaring flight.

Standardization and aerodynamics.

Theory of lifting surfaces. Parts 1 and 2.

Translated from the German and abstracted by W. Margoulis.

PRATT, EDWIN A. Railways and air-raids, forming Part V of "British Railways and the Great War."
London, Selwyn & Blount (Ltd.), 1921, pp. 96, ill.

PRATT, H. B. Commercial airships; with an introduction by Sir A. Trevor Dawson.


PRATT, H. G. Developing trade with South America by air.

PRESSURE. Pressure distribution on Model F. E. 9 wings.

Sulla previsione della pressione barometrica.
L'Aeronautica, anno 3, Num. 9 (nov. 1920), Roma, pp. 311-316, ill.

See Stettbacher: Die Erforschung der Atmosphäre im Flugzeuge.

Pressure gages. See Instruments: Pressure gages for airplanes.

Pressure indicator. See Dickinson, H. C., and F. B. Newell: A high-speed engine pressure indicator of the balances diaphragm type.


PRICE, OWEN A. The cost of an aeroplane.

PRIEST, H. M. See Boulton, B. C., H. M. Priest: The graphical method for the deflection of beams of nonuniform section.

PRIMAULT, ED. Propos en l’air.
Suisse Aérienne, 3e année, 1921, No. 13, Berne, pp. 190-191.

PRINCE, C. E. Wireless telephony on aeroplanes.

Pritchard, J. E. M. Rigid airships and their development.

---
Size of airships.

---
See Pippard, A. J. S., and J. L. Pritchard: Aeroplane structures.

Prizes. Applications for sanction made to A. C. A. for three aerial contests with over $100,000 in prizes.

---
Das Ergebnis des Wettbewerbs zur Hebung der Sicherheit auf Verkehrsluftfahrten (M. 40,000-Preis).

---
Over $2,000,000 in prizes for 1920.

---
Prizes, official and private.

---
Seventeen aerial contests being organized with $2,000,000 in prizes.

---
United States to be represented in four international aerial contests—Aero Club of Texas notifies Aero Club of America of entry in Gordon-Bennett cup race—United States aviators to have opportunity to compete for $2,000,000 in prizes.

---
See Pilcher, Percy S.: Pilcher memorial prize for students.

Problems. Some technical problems in aeronautics.
Aviation, Vol. 11, No. 12 (Sept. 19, 1921), New York, pp. 345-346.

Prodger, Clifford. The death of Clifford Prodger.

Pröll, A. Druckmessungen am fliegenden Flugzeug.

---
Eine Alpenübersquerung im Ballon "Tirol."

Flugtechnik: Grundlagen des Kunstfluges.
München und Berlin, R. Oldenbourg, 1919, pp. x, 332, ill.

---
Untersuchungen über Tragflächenbespannung.

---
Versuche mit gegränten Stoffbespannungen.

---
Zur Berechnung von Tragflächenholmen.

Progin, Léon. Le chute mortelle de Progin.
Suisse Aéron, 2e année, No. 22 (30 nov. 1920), Berne, pp. 332-333, Ill.

Progress of aviation.
BIBLIOGRAPHY OF AERONAUTICS, 1920–1921.

Propellers. The absorption of moisture by propellers during gluing.
Engineering Division Air Service, Technical Orders No. 7 (Apr. 1919), Dayton, Ohio, pp. 73–78, figs.

---

Air drive for motor cars.

---

Air-propelled automobile of French design.
Pop. Mech., Vol. 34 (Nov. 1920), Chicago, p. 685, ill.

---

Air propellers for cars.

---

All-metal airscrews. The Leitner-Watts solution.

---

Americanische verstellbare Luftschraube.

---

Bakelite Micarta propellers.
Aviation, Vol. 8, No. 9 (June 1, 1920), New York, pp. 354–357, ill., chart.

---

The construction of the R. A. E. experimental variable-pitch airscrew.

---

Cranking propellers by flask of air.

---

The design of screw propellers for aircraft.

---

Destructive whirling test of “Micarta” propeller (manufactured by the Westinghouse Electric and Manufacturing Co.) and rubber-covered propellers with hard and soft rubber leading edges (manufactured by Brunswick-Balke Collender Co.) (Destructive whirling test No. 227.)

---

Experiments on the rotation of a propeller slipstream in a pusher aeroplane.

---

Exploration of the airspeed in the airscrew slipstream of a tractor machine.

---

Die Haw-Stahlskelett-Luftschraube.

---

L’hélice à pas variable.
Aéronautique, 2e année, No. 16 (sept. 1920), Paris, pp. 170–172, ill.

---

Hubschrauber.

---

Indirect propeller drives

---

Land- und Wasserflugzeuge, mit Luftschraubenantrieb.

---

The Leitner-Watts metal airscrew.

---

The metal airscrew.
Aerial Age, Vol. 12, No. 20 (Jan. 24, 1921), New York, p. 518.

---

Micarta propellers under test.
Propellers. Model propellers tested in wind tunnel.
Aerial Age, Vol. 13, No. 4 (Apr. 4, 1921), New York, p. 89.

New propeller gives good results in Army tests, molded bakelite construction.
Aer. Ind., Vol. 42 (June 17, 1920), New York, p. 1497.

New type of airplane propeller.
Aviation, Vol. 11, No. 7 (Aug. 15, 1921), New York, pp. 203, ill.

On manufacturing airscrews. An industry in which craftsmanship is still required.

Propeller blade outline.

Shroud to increase propeller efficiency.

Some foreign aerodynamic propeller balances.
Aviation, Vol. 9, No. 1 (Feb. 1, 1920), New York, pp. 15-17, diagr.

Some notes on propeller stresses—I and II.

Superspeed propellers. Airscrews with blade-tip velocity above that of sound.

Testing airplane propellers.

Theory of propulsive screws, marine and aero.
Aerial Age, Vol. 13, No. 11 (May 23, 1921), New York, p. 254.

Unusual airplane propeller defies current practice.

The variable pitch propeller—Experiments conducted at the Royal Aircraft Factory.

Warping of aircraft propellers.
Aerial Age, Vol. 11, No. 8 (May 3, 1920), New York, p. 259.

Wheel propeller for aircraft.
Aeronautes, Vol. 20, n. 8, No. 399 (June 9, 1921), London, p. 414, diagr.

See Aeronautical Research Committee: Reports and memoranda: 697. The attachment of wooden airscrew blades to metal centers.

See Bakelite: Bakelite for aeroplane propellers.

See Betz, A.: Development of the inflow theory of the propeller.

See Borck, Hermann: Die Abhängigkeit des Propellerwirkungsgrades von Anstellwinkel des Propellerblattes.

See Bothezat, George De: A few remarks concerning some fundamentals of the theory of blade screws.

See Bourke: The Bourke turbine propellers.


See Buckwald, A. M.: The Oddy variable pitch and reversing propeller.

See Caldwell, F. W., and E. N. Fales: Physical basis of air-propeller design.

See Caldwell, F. W.: Propeller testing laboratory at McCook Field.


— See Drzewiecki, S.: Théorie générale de l’hélice.

— See Durand, William Frederick, and Everett Parker Lesley: Experimental research on air propellers, IV.

— See Durand, William Frederick, and Everett Parker Lesley: Experimental research on air propellers, III.

— See Durand, William Frederick, and Everett Parker Lesley: Tests on air propellers in yaw.


— See Fage, Arthur: Airscrews in theory and experiment.

— See Fage, Arthur: An analysis of the energy account of an airscrew with an application to the case of the tandem airscrew.

— See Fage, Arthur, and H. E. Collins: Dependence of the efficiency of an airscrew on the speed of rotation and the diameter, with a direct reference to the question of engine gearing.

— See Fage, Arthur: The effect of inflowing velocity of the air on the efficiency of an airscrew, with a special reference to the case of a tandem airscrew of large machine.

— See Fage, Arthur, and H. E. Collins: An investigation of the mutual interference of the airscrew, body, and wings of the tractor aeroplane V. E. 2E.

— See Fage, Arthur, and H. E. Collins: An investigation of the mutual interference of an airscrew and body of the "tractor" type of aeroplane.

— See Fage, Arthur, and H. E. Collins: A preliminary investigation of the mutual interference of an airscrew and a tractor body, as affected by the fairing of the nose of the body.

— See Fage, Arthur, and H. E. Collins: The "scale-speed" effect on a model airscrew of small diameter.

— See Fage, Arthur, and H. E. Collins: Some experiments with tandem combinations of airscrews.

— See Fage, Arthur, and H. E. Collins: Some notes on the calculation of the working stresses of an airscrew.

— See Fage, Arthur: The whirling and transverse vibrations of a rotating airscrew and its shaft.

— See Gaulois, G.: Cranking airplane propellers with a flask of air.

— See Germany: German propellers have steel core rods with wood fillings.


— See Hart: Hart reversible pitch propeller.

— See Harris, R. G.: Forces on a propeller due to sideship.

— See Henry, M. A.: Varying the airplane propeller pitch.

— See Horn, E. F.: Density classification of laminations for aeroplane propellers.

— See Jäger, K.: Haw-Flugzeug- und Bremspropeller.


— See Katzmayr, R.: Die Luftschaubenprüfanstalt in Fischamend bei Wien.
Propellers. See Klemin, Alexander: Introduction to propeller theory.

— See Klemin, Alexander: Notes on propeller theory and design.

— See Knauss, A. C.: Efficiency of aluminum leaf on airplane propellers.

— See Kutzbach, K.: Experience with geared propeller drives for aviation engines.

— See Lamé, M.: Étude sur la résistance fournie par les hélices tournant dans un courant d'air.


— See Laprele, A. Résultats aquis sur la question de l' hélice aérienne.

— See Leitner-Watts.

— See Leitner-Watts: The Leitner-Watts all-metal propeller.

— See Levasseur, Pierre: L'hélice à pas variable Pierre Lévasseur.

— See Low, A. R.: Screw propellers.


— See Micarta: Micarta airplane propellers. Slipstream.

— See Morris, J.: The vibrating, whipping and whirling of an airscrew shaft.

— See Norton, Frederick Harwood, and Edward P. Warner: Design of wind tunnels and wind-tunnel propellers, II.

— See Pannell, J. R., and R. Jones: An investigation into the nature of the flow in the neighborhood of an airscrew.

— See Parker, Billy: Parker variable pitch airscrew.


— See Park, Whyrill E.: A treatise on airscrews.

— See Paul, George F.: Boats driven by airplane propellers.

— See Rateau, A.: Théorie des hélices propulsives . . .

— See Riach, M. A. S.: The metal airscrew.


— See Riach, M. A. S.: Screw propellers.


— See Seekatz, Friedrich Wilhelm: Schraubenflieger.

— See Seymour, L. D.: Superchargers and variable pitch propellers.

— See Strong, John: The inefficiency of commercial aircraft in its relation to airscrew design.

— See Torque: The correction of propeller torque.

— See Toussaint, A.: Drag or negative traction of geared-down supporting propellers in the downward vertical glide of a helicopter.

— See Warner, Edward P.: Approximating bending moments in air propellers.

— See Watts, Henry C.: The design of screw propellers for aircraft.


PROPELLERS, wind driven. See Munk, Max Michael: Ueber vom Winde getriebene Lüfthschrauben.


— Research in the psychology of aviation. Scient. Amer. Monthly, Vol. 2 (July 1920), New York, p. 84.

— See Johnson, H. M.: Research in the psychology of aviation during the year 1919.

PSYCHOLOGY of fear. See Hoffman, C. G.: Ordeal by fire; a note on the psychology of fear.


PULITZER trophy. Army flyer winner of America’s greatest race. Lieutenant Moseley and Captain Hartney, first and second in contest for Pulitzer trophy at Mitchel Field.


— Contests committee’s report of Pulitzer trophy aeroplane race. Aerial Age, Vol. 12, No. 18 (Jan. 10, 1921), New York, p. 462.


Pulitzer trophy. The Pulitzer trophy race.
Aviation, Vol. 9, No. 12 (Dec. 6, 1920), New York, pp. 378-384, ill.
—— The Pulitzer trophy race and American achievement.
—— Das Rennen um die Pulitzer trophäe.
—— Rules for Pulitzer trophy contest.
—— Rules for the second annual contest for the Pulitzer trophy.
Flying, Vol. 10, No. 3 (Apr. 1921), New York, pp. 91-95, map.
—— Rules of second Pulitzer trophy race.
—— The second annual Pulitzer race at Omaha. Won by Acosta on the Curtiss-Navy racer.
—— See Chase, H.: Curtiss navy racer which won the Pulitzer trophy.
—— See Contests: First aerial contest for the Pulitzer trophy and Valentine Liberty bond prizes.
—— See Richardson, W. D.: Pulitzer trophy air race supplies engineering data.
Pulsating wing. That “pulsating” wing.
Pursuit machines. United States ask for "pursuit machine" tenders.
Pusher type. Why “pusher” type model aeroplanes are more prevalent than tractors.
Pyatt, K. R. Diary of a flying cadet.

Q.
Queensland. Aviation in Queensland.
Quarantine. Quarantine regulations for aircraft.
Questier, E. V. Air transport in Belgium.
Question. Question de titre.
Suisse Aérienne, 2e année, No. 17, (10 sept. 1930), Berne, pp. 250.
Quisenberry, G. E. Commercial airplane in its present day development.

R.
R. L. La coupe Michelin.
R-33. Aircraft for road traffic control.
R. 33.  R. 33's log.
Aeronautics, Vol. 20, n. s., No. 399 (June 9, 1921), London, p. 469.

R. 34.  Famous airship R 34 wrecked.
Aerial Age, Vol. 12, No. 23 (Feb. 14, 1921), New York, pp. 580-581.

— R. 34's accident.

— R. 34's Atlantic flight.

— Rigid airship R 34.

— Die Vernichtung des englischen Luftschiffes R 34.

— The wreck of the "R. 34."

— See Maitland, E. M.: "The log of H. M. A. 'R. 34': Journey to America and back."

R. 36.  Airship G. F. A. A. F.

— Britain's first passenger airship. The "R. 36" (G F. A. A. F.).

— Britain's first rigid passenger airship. The "R. 36" completed at Inchinnan.

— A day out in the "R. 38."


— Launch of "R. 36."

— Das neue englische Passagier-Luftschiff R. 36.

— On board R. 36.

— The R. 36.
Aerial Age, Vol. 13, No. 129 May 30, 1921), New York, p. 278.

— The trials of R. 36.

R. 38.  The airship disaster.

— The coming trans-Atlantic voyage of "R. 38." Departure toward end of August.

— Design of R. 38.

— The disaster to the airship R. 38.

— La fin du "R. 38."
Aéronautique, 3e. année, No. 28 (sept. 1921), Paris, pp. 369-370, ill.

— Fitting the R. 38 for Atlantic trip.
Aerial Age, Vol. 13, No. 14 (June 15, 1921), New York, p. 327.
BIBLIOGRAPHY OF AERONAUTICS, 1920–1921.

    Engineer, Vol. 131, No. 3415 (June 10, 1921), London, pp. 610-611, 620, ill.
---
Honouring the dead. Funeral of "R. 38" victims.
---
Loss of the R. 38.
    Aviation, Vol. 11, No. 10 (Sept. 5, 1921), New York, pp. 275, 285.
---
Das neue englische Luftschiff ZR. 2 ("R. 38").
---
On the R. 38 disaster.
---
"R. 38" court of enquiry.
---
The R. 38 disaster.
    (Oct. 12, p. 322.
---
"R. 38" disaster.
---
R. 38 memorial fund.
---
R. 38 memorial research fund.
---
Rudder pressures and airship R. 38,
---
See Z. R. 2: First flight trial of ""Z. R. 2"" (""R. 38").
---
---
R. 80. Aerial cruiser; details concerning the latest British rigid dirigible R–80.
---
The airship R. 80.
---
Le dirigeable britannique rigide R. 80.
---
H. M. airship R. 80.
---
    pp. 933-939.
---
Launch of the R. 80.
---
The R. 80.
---
The ""R. 80"" launched.
---
R. 80's successful trial.
---
""R. 80"" takes the air again.
---
Successful trial of R. 80.
    Aerial Age, Vol. 13, No. 2 (Mar. 21, 1921), New York, p. 40.


R. , A. La radiogoniométrie et la navigation aérienne.

R., F. A. de V. Bombing the Mahsuds.

—— The Indian air mail.

—— The upper plane. Some current barbarisms.

—— The West Indies.

Racing. The aerial derby 1920.
Flight, Vol. 12, No. 31 (July 29, 1920), London, pp. 831-841, ill.

—— The approach of two classic races. The Schneider and the Gordon-Bennett.

—— Deux grandes épreuves d’aéronautique de 1920.

—— The fifth aerial derby.

—— The new international championship race.

—— Official record of finish of the national balloon race from Birmingham, Ala., May 21, 1921.

—— The Oxford and Cambridge air race.
The Aeroplane, Vol. 21, No. 3 (July 20, 1921), London, pp. 61-62.

—— The Paris to Croydon and back race.

—— Plans to hold aerial derby around South America, aerial derby ground of the world, and aerial circuits of the Atlantic annually.
Aerial Age, Vol. 11, No. 4 (Apr. 3, 1920), New York, pp. 112, 123.

RADIATORS. The Lamblin radiator.

—— Testing of airplane radiators.

—— See Bryant, L. W., and H. B. Irving: Investigation of the flow of air through the cowl ing of R. E. 7 aeroplane and the resistance of a honeycomb radiator.

—— See Bryant, L. W., and H. B. Irving: On the cooling of a honeycomb radiator.

—— See Bryant, L. W., and H. B. Irving: On the resistance of a honeycomb radiator.

—— See Bryant, L. W., and H. B. Irving: Report on an oil-cooling honeycomb radiator taken from a German Zeppelin.

—— See Dickinson, H. C., W. S. James, and R. V. Kleinschmidt: General analysis of aeroplane radiator problems.

—— See Dickinson, H. C., W. S. James, and R. V. Kleinschmidt: Heat dissipation and other properties of radiators.
RADIATORS. See Dickinson, H. C., and R. V. Kleinschmidt: Synopsis of aeronautical radiator investigations for the years 1917 and 1918.

— See Germany: Typical German radiator practice.


— See Lamblin: Le froidissement des moteurs d'avions. Les radiateurs.

— See Liptrot, R. N.: Radiators and cooling systems for aircraft engines.


— See Parsons, Samuel R.: Design factors for airplane radiators.

— See Parsons, Samuel R.: The investigation of aircraft radiators at the Bureau of Standards.

— See Parsons, Samuel R.: Properties of special types of radiators.

— See Parsons, Samuel R.: Pressure drop in radiator air tubes.

— See Parsons, Samuel R.: Turbulence in the air tubes of radiators for aircraft engines.

RADIO. Aeroplane direction finding.

Aerial Age, Vol. 12, No. 21 (Jan. 31, 1921), New York, p. 545.

— Aerial route traffic control by radiotelephony.

Flying, Vol. 9, No. 9 (Oct. 1920), New York, p. 596.

— Determination of position of aircraft by radio.

Flying, Vol. 10, No. 5 (June 1921), New York, p. 178.

— Principles of radio communication for aircraft.


— Radio from airplane sent 175 miles.

Aviation, Vol. 8, No. 5 (Apr. 1920), New York, p. 204.

— Recent application of radio to military aeronautics.

Aerial Age, Vol. 12, No. 23 (Feb. 14, 1921), New York, p. 591.


— See Boone, H.: New radio method guides airplanes through darkest night.

— See Edgerton, James C.: Radio as applied to air navigation in the air-mail service.

— See Kean, J. B.: Radio compass and automatic pilot developed for naval flying boats.

— See Johnson, T.: Naval aircraft radio.


— See Tinker, Clifford Albion: Radio versus Mercury and Neptune.

RADIO compass. See Compass: Radio compass.

— See Kean, J. B.: Radio compass and automatic pilot developed for naval flying boats.


RADIOTELEGRAPHY. Motorluftschifffahrt; die Entwicklung der Luftsiff-FT Stationen.

Radiotelegraphia y aviacion.
Aire, Mar y Tierra, año 2, 1920, Madrid, pp. 82-84, 107-109, 163-172, 247-249, ill.

RADIUS. Cruising radius of aeroplanes.
Mechanical Engineering, Vol. 42, No. 6 (June 1920), New York, p. 364.

RAFEX. The story of the S. S. airship (blimp).

RAIDS. See Sarret, S.: Préparation technique d’un raid aérien.

RAILROADS. Aeroplanes and the railroad strike.

— Railroad reconnaissance by aeroplane.
Aeriah Age, Vol. 13, No. 17 (July 4, 1921), New York, p. 399.

RAINES, M. A. Wings.

RAINMAKING. Rainmaking per aeroplane.


RATEAU, A. Considérations sur le vol aux très grandes altitudes.

— Principes de la théorie analytique des avions en vol rectiligne; application au calcul des plus grandes distances franchissables.
L'Aérophile, 28. année, Nos. 9-10 (1er-15 mai 1920), Paris, pp. 130-137, ill.

— Quelques considérations sur les vols aux très grandes altitudes et sur l’emploi du turbo-compresseur.

— The rectilinear flight of aeroplanes.

— Sur l’altitude de vol qui correspond au minimum de consommation kilométrique, et sur le calcul de la meilleure hélique pour un avion donné.

— Sur les plus grandes distances franchissables par les avions et les plus grandes vitesses réalisables.

— Théorie analytique des avions en vol rectiligne et application au calcul de plus grandes distances franchissables.

— La théorie de l’hélice propulsive.
L’Aérophile, 29. année, Nos. 5-6 (1er-15 mars 1921), Paris, p. 93.
Rateau, A. Théorie des hélices propulsives, marines et aériennes et des avions en vol rectiligne.
— See Drzewiecki, S.: Théorie générale de l'hélice propulsive.


Rates. Rates on the Berlin-Brunswick-Dortmund service.

Rathbun, John B. Aeroplane engines in theory and practice, including notes on the design, thermodynamic calculations, and constructional details of all types of aeronautic engines and their accessories. A comprehensive illustrated manual of self-instruction for designers, aeroplane constructors, and students. Adapted either for schools or home study courses. Details and dimensions of the Liberty twelve engine.
Chicago, Stanton & Van Vliet Co. [1921], pp. 7-464, ill.

Ratzersdorfer, Julius. Berechnung der Tragflächenholme.
— Zur Festigkeitsberechnung der Tragflächenholme.

— Rausie E-6 airplane engine designed for commercial work.
Av. Ind. Vol. 43 (July 29, 1920), New York, pp. 201-205, ill., diagr.


Ray, A. B. Incendiaries in modern warfare; aircraft bombs.

Rayleigh, Lord. The blue sky and the optical properties of air.
Royal Institution of Great Britain, weekly evening meeting, Friday, May 7, 1920, London, pp. 9.
— The color of the light from the night sky.
— Lord Rayleigh’s exposition of Fitzgerald’s theory of flapping flight.
— On the suggested analogy between the conduct of heat and momentum during the turbulent motion of a fluid.

44439—25—23
RAYMOND, ARTHUR E. Ground influence on aerofoils.

READ, ALBERT C. Read tells of his famous flight.

REBERNIGG, FRANZ. Wien—der zukünftige mitteleuropäische Hauptflughafen.
Flug, Sondernummer (Dec. 1920), Wien, pp. 40-42.

RECORDS. Balloon records of interest.
— Bericht über die deutschen Rekord-Höhenflüge, Juli bis Dezember 1919.
Luftweg, Nr. 8-9 (4 März 1920), Berlin, pp. 3-5, ill.
— Etat des records.
Suisse Aérienne, 2e année, No. 15 (10 août 1920), Berne, pp. 226.
— F. A. I. aviation records.
— Farman “Goliath” goes for a world’s record.
— London to Australia. The longest flight on record.
— New British record.
Altitude record with load.
— New records and performances officially recognized.
Aerial Age, Vol. 11, No. 10 (May 17, 1920), New York, p. 326.
— Über die technische Wertung von Höhenrekorde.
— Die Weltrekorde.
— See Kirsch, Georges: Georges Kirsch ascends to 10,000 meters.
— See Kostiwal, Hans: Der amerikanische Höhenweltrekord.
— See MacReady, John A.: New altitude record, 40,800 feet.
REDDEN, C. F. Influence of aviation on cities and farms.

REDDINGTON, PAUL G. Airplanes and forest fires.

REDDWAY, ALBERT J. Jr., Aviation insurance—What is it and what it offers the ex-service man.


REED, P. D. Biplane and triplane wing structure.

REED, STANLEY B. Aerial advertising. The future of the airplane in the advertising world.

REED, THOMAS R. The beloved rival. A story of the last raid of the famous Ninety-sixth.
U. S. Air Service, Vol. 3, No. 6 (July 1920), New York, pp. 8-12, ill.
BIBLIOGRAPHY OF AERONAUTICS, 1920-1921.


REGO, MARC. L’aéronautique allemande. Vie Aérienne, 5e année, No. 6 (11 sept. 1920), Paris, pp. 93-94; No. 7 (18 sept.), pp. 107-108, ill.


See Laws and regulations.


REIJNEKER, FRED. H. Over het verband tusschen motorsterkte, snelheid en gewicht van vliegtuigen. Avia, 5e jaarg., No. 8 (1 Sept. 1920), Rotterdam, pp. 89-93, ill.


RELF, E. F. Test of a propeller with its axis of rotation at right angles to the wind direction.


RELF, E. F., and C. H. POWELL. Tests on a model B. E. 2c body in different wind channels.

RELF, E. F. Tests on a model of the body of B. E. 9, having a car for mounting a gun in front of the propeller.


RELF, E. F., and C. H. POWELL. Tests on smooth and stranded wires inclined to the wind direction, and a comparison of results on stranded wires in air and water.

RELF, E. F., and R. JONES. Tests on the drag of a model bomb rack fitted to R. E. 8 machine.

RELF, E. F. Tests on the head resistance of a modification of the Astra Torres airship form.

— See Bairstow, L., and E. F. Relf: Multiple-engined aeroplanes.

— See Bairstow, L., E. F. Relf, and C. H. Powell: Notes on the performance of aeroplanes, based on a reduction of the observations made at the Central Flying School during the acceptance tests of aeroplanes.

— See Bairstow, L., and E. F. Relf: Proposals for experiments on aeroplanes in flight.


— See Bairstow, L., E. F. Relf, and R. Jones: The stability of kite balloons: Mathematical investigation.

— See Bairstow, L., E. F. Relf, and R. Jones: Tests on a model kite balloon.

REMMINGTON-BURNELL. The Remington-Burnelli airliner.
Aerial Age, Vol. 13, No. 19 (July 11, 1921), New York, pp. 416-420, ill., diagr.
Aviation, Vol. 11, No. 4 (July 25, 1921), New York, p. 161.

— The Remington-Burnelli “Airliner” twin-engine commercial biplane.

— Remington-Burnelli twin-engine biplane.
The Ace, Vol 3, No. 1 (Aug. 1921), Los Angeles, p. 9, ill.

— Das zweimotorige Remington-Burnelli-Grossflugzeug.

RÉNARD, PAUL. L’évolution de l’aéronautique pendant la guerre.

— En mémoire de J. Janssen.

RENO. See Hangars: New type of door at Reno hangar.
BIBLIOGRAPHY OF AERONAUTICS, 1920–1921.

RENTSCHLER, F. B. Federal air regulations important.


REPORTING. New and lively job of air reporting.
Literary Digest, Vol. 64 (Jan. 31, 1920), New York, pp. 77-79.

RESEARCH. Education and research in aeronautics.
— Future of aeronautical research committee.
— The future of research.
— Is air research work to stop?
— The need for aircraft research.
— The relationship of education to research in aeronautics.
Gives constitution of the Aeronautical Research Committee.
— Some problems in aeronautical research.
— See Aeronautical research committee: Future of the aeronautical research committee.
— See Brooke-Popham, H. R. M.: Some problems in aeronautical research.
— See Ellington, E. L.: The present position of aircraft research and contemplated developments.
— See Fales, E. N., and F. W. Caldwell: The scope of wind-tunnel research.


RESISTANCE. Air and speed.
Literary Digest, Vol. 65 (Apr. 3, 1920), New York, pp. 131-134.
— Effect of appendages in ship resistance.
— See Goubert, Louis: La traction sur route par hélice aérienne.
— See Wieselberger, C.: Some extraordinary resistance tests.

RESPIRATION. See L'appareil respiratoire automatique.
— See Guglielminetti: Les hautes altitudes et l'organisme humain.

REUSS, HANS. Luftfahrt und Esperanto.
Luftrweg, Nr. 3-4 (27. Jan. 1921), Berlin, pp. 21-22.

REYNEKER, FRED. H. De ontwikkeling van het verkeersvleugtuig.
Avia, 5e jaarg., 1920, Rotterdam, pp. 71-72, 79-82, ill.
— De ramp van de R 38.
Vliegveld, 5e jaarg., No. 20 (24 Sept. 1921), Amsterdam, p. 277.
BIBLIOGRAPHY OF AERONAUTICS, 1920–1921.


Rhön. Die Engländer über den Rhön-Segelflug.


— Rhön-Erfolge.


— Die Rhön-Flugzeuge.


— The Rhön soaring flight meeting.


— Schlafkoje type Rhön.


— On the resistance of the air at high speeds and on the automatic rotation of projectiles.

Technical Notes, National Advisory Committee for Aeronautics, No. 49, Apr. 1921, Washington (mim.), pp. 8, diagrs.

Riach, M. A. S. The Helicopter, I, II.

Aeronautics, Vol. 20, n. s., Nos. 399-393 (Mar. 31-Apr. 21, 1921), London, pp. 223-224, 280-282

— The metal airscrew.


— A new model Aeroplane.


— A new theory of the screw propeller.


— A note on the "inflow" theory of the airscrew.


— Screw propellers.


— Soaring flight.


Rib spacing. See Zahm, Albert Francis: Relation of rib spacing to stress in wing planes.

Ribs. Relation of rib spacing to stress in wing planes.


— Types of airplane rib fastenings.

Aeronautics, Vol. 43 (July 28, 1919), New York, p. 231, diagr.

— See McLauchlan, N. W.: An approximate method of testing airplane wing ribs.

— See Winters, S. R.: Something new in the way of airplane metal ribs.

Ricardo, Harry R. Some experiments in supercharging in a high-speed engine.


---


---

Hydravion commercial Ricci. Vie Aérienne, No. 184 (20 mai 1920), Paris, pp. 1161-1162, ill.

---

Les petits triplans Ricci. Aéronautique, 3e année, No. 31 (dec. 1921), Paris, pp. 495-496, ill.

---

The Ricci commercial seaplane R-I. Aviation, Vol. 8, No. 9 (June 1, 1920), New York, pp. 365-366, ill.


---

Hydromechanic experiments with flying boat hulls. [Washington, National advisory committee for aeronautics]. Reviewed in: Flug, Jahrg. 1920, Nr. 5 (Mai), Wien, p. 60.

---

Some lessons of the trans-Atlantic flight. Aviation, Vol. 8, No. 11 (July 1, 1920), New York, pp. 445-446.


---


---


---


--- Fighting the flying circus. New York, 1920, F. A. Stokes Co.


RIGGIO. See Halliwell, F. W.: Rigging—the erection and trueing up of aeroplanes.

--- See Speed: Rigging and speed.


--- Size and performance of rigid airships. Aviation, Vol. 9, No. 3 (Sept. 1, 1920), New York, p. 82.


--- See Domnett, W. E.: Detail design of rigid airships.

--- See Lewitt, E. H.: The distribution of bending stresses in a rigid airship.

--- See Lewitt, E. H.: The effect of distortion on the bending stresses in a rigid airship.

--- See Lewitt, E. H.: The transverse wiring of the rigid airship.


--- See Rankin, A. E.: Rigid airship construction: A suggestion.

--- See Reed, P. L.: Future developments of the rigid airship.


RIVETING. Riveting of narrow tubes.


RIZINUSÖL (Das) als Schmiermittel.

ROBBINS, L. B. Three-wheeled airmobile.

ROBERTS, E. W. Power characteristics of Sumatra and Borneo gasolines.

--- Power characteristics of 20 per cent benzol mixture.


ROBERTSON, F. A. DE V. Airships for India.

--- The case for an Air Reserve.

--- The need of propaganda.

--- Subsidies—a precedent from India.


ROBILLARD, R. E. A comparison of spar weights of tapered and nontapered monoplane wings.
Aerial Age, Vol. 14, No. 10 (Nov. 14, 1921), New York, pp. 228-229.

ROBIN, Ch. L’avion-laboratoire.
Aéronautique, 1re année, No. 10 (mars 1920), Paris, pp. 431-436, ill.

ROBINSON, F. A. The death of F. A. Robinson.

ROBINSON, JAMES. Directional wireless in air navigation.

--- The elimination of magneto disturbances in the reception of wireless signals on aircraft.

--- A method of direction finding of wireless waves, and its applications to aerial and marine navigation.

ROBINSON, WILLIAM LEEFE. The Robinson-Cuffley memorial.

ROCCA. L’étude aérodynamique des organes sustentateurs d’avion.


ROCKIES. See Chapman, J. A.: First flight over a peak of the Rockies.


ROHLFS, ROLAND. Some hints on flying. Air Power, Vol. 6, No. 6 (June 1920), New York, pp. 172, 190, ill.


--- Rolls-Royce aero engines and the great victory; seaplanes, flying boats, airships. London, 1919, Rolls-Royce, Ltd.


ROLLS-ROYCE, (Ltd). See Great Britain: Modern British engines.

ROMA. American to get Italy's great airship Roma. U. S. Air Service, Vol. 4, No. 6 (Jan. 1921), New York, p. 15, ill.


--- The Italian semirigid airship Roma. Aerial Age, Vol. 11, No. 14 (June 14, 1920), New York, p. 478, ill.

--- See Black, A., and D. R. Black: Italians adapt semirigid construction to large dirigible, the Roma.


--- See Italy: The Italian airship Roma.

ROMAGE. See Veit, Sidney S.: Memorial Day exercises at Romage.
BIBLIOGRAPHY OF AERONAUTICS, 1920–1921.


— Death of Bernard de Romanet.

— Record de vitesse en avion.

ROME–TOKYO flight.

ROMIG, J. V. Bombing by kite.

ROOKER, WILLIAM VELPEAU. Letter on the jurisprudence of the atmosphere as applied in the arts of aviation and aerography, by William Velpeau Rooker, chairman, to Mr. S. E. Baldwin . . . Mr. J. P. Briscoe . . . Mr. E. T. Merrick . . . Mr. R. E. L. Saner, members of the committee on the jurisprudence of aeronautics and aerography of the conference of State and local bar associations of America.
Indianapolis, 1920, pp. 113.

ROOSEVELT, PHILIP J. The Lafayette Flying Corps—an epic of the air. Aviation, Vol. 9, No. 8 (Nov. 8, 1920), New York, p. 263.

ROQUES. Mort du général Roques.
L’Aerophile, 28e année, Nos. 5/6 (1er–15 mars 1920), Paris, p. 83.

ROSENMANN, W. Aluminium and its alloys.

ROSNER-HERTALF, FRANZ. Zerlegmässige Selbstkostenberechnung in luftfahrten Werkstätten.
Flug, Sondernummer (Dez. 1920), Wien, pp. 62–65, ill.

ROSS, W. A. A 10,000-mile "Look see."

ROTA, A. Velivoli da trasporto.


ROTTERDAM. The new air port of Rotterdam. A new link in the chain.
Flight, No. 617, Vol 13, No. 20 (May 19, 1921), London, p. 344.

ROUCH, J. La compas de navigation aérienne.
Paris, Masson et Cie., 1921, pp. 72, ill.
L’Aérophile, 28e année, Nos. 5–6 (1er–15 mars 1921), Paris, pp. 88–90.

ROUCH, JULES ALFRED PIERRE. Les caractères météorologiques de la haute atmosphère.
Paris, Masson et Cie., 1920, pp. 37, [3], ill.

Round the world. Flight round the world.

Roussilhe, H. La photographie en avion appliquée à la reconstitution des régions dévastées.

Route corrector. See Le Prieur: Le correcteur de route.

Routes. Air routes of Empire.

— The Cairo-Cape air route.
Flying, Vol. 9, No. 5 (June 1920), New York, pp. 324-325, ill, map.

— Cairo to Cape route. Preparing the aerodromes on the southern section.

— The Cairo to Cape route. Preparing the aerodromes on the southern section.

— The Cape to Cairo route.

— Cape-Cairo route ready.

— From New York to Atlanta by air.

— Les grandes routes de l'air.
Refer to those of England, France, and the United States.

— The Imperial air routes.
The Aeroplane, Vol. 18, No. 5 (Feb. 4, 1920), London, pp. 242, 244.

— Luchtverkeer.
Vliegveld, 5. jaarg., No. 15 (16 juli 1921), Amsterdam, pp. 219-220.

— Mapping the aerial routes.
Aerial Age, Vol. 12, No. 19 (Jan. 17, 1921), New York, pp. 496, 499, ill.

— The organisation of the Cape to Cairo air route. Preparing the aerodromes on the southern section.

— Pour l'établissement de la carte normale aéronautique.

— Reklame und Luftverkehr.

— See Cairo: Cairo to Cape by air.

— See Cairo: First Cairo-to-Cape flight.

— See Cairo: London-Cairo-the Cape by airplane.

— See Commercial aviation: Europe’s progress in commercial aviation. Handley-Page map of European air routes.

— See Duval, A.-B.: Le cercle calculateur de routes et de vitesses.

— See Great Britain: British imperial air routes.

— See Handley-Page: A map of Europe, prepared by Messrs. Handley Page (Ltd.), showing the air services actually in operation or contemplated.

— See Neumann, Georg Paul: Das europäische Luftverkehrsnetz.
BIBLIOGRAPHY OF AERONAUTICS, 1920–1921.

Routes. See Sandifer, T. N.: Mapping the aerial routes.
—— See Sykes, F. H.: Imperial air routes.

Rowledge, A. J. The installation of an aeroplane engine.
—— The Napier “Lion” aero engine.

Royal Aero Club. On reforming the Royal Aero Club.
—— The Royal Aero Club.
—— The Royal Aero Club seaplane races.
The Aeroplane, Vol. 20, No. 26 (June 29, 1921), London, pp. 581-582.
—— Royal Aero Club of the United Kingdom.

Royal Aeronautical Society. Associate fellowship. Syllabus of examinations (in accordance with Clause VI of the Regulations).
—— A glossary of aeronautical terms prepared by the Technical Terms Committee of the Royal Aeronautical Society. Approved by the Engineering Standards Association. Embodying a schedule of aerodynamical symbols approved by the Advisory Committee for Aeronautics. Translated and adapted to the French by Leonard F. Plugge.
—— The Royal Aeronautical Society.
—— Royal Aeronautical Society notices.
—— Safety and economy on the London-Paris air service.
—— Scottish branch. Annual meeting.

—— Auxiliary aids to the Air Force.
Flight, No. 673, Vol. 13, No. 46 (Nov. 17, 1921), London, pp. 767-768.
—— Educational advisers to the Royal Air Force.
Flight, No. 638, Vol. 13, No. 11 (Mar. 17, 1921), London, p. 188.
—— First open competition for R. A. F. boy mechanics.
—— Independent force R. A. F. reunion.
—— On Ireland and the R. A. F.
ROYAL AIR FORCE. On recruiting in the R. A. F.

— On the future of the R. A. F.

— On the future technical staff of the R. A. F.

— On the R. A. F.'s opportunity.

— Organization of the Royal Air Force.

— R. A. F. cadet examination.

— The R. A. F. chart.

— R. A. F., civil and military.

— The R. A. F. pageant.
Aeronautics, Vol. 20, n. s., No. 402 (June 30, 1921), London, pp. 467-471, III.
Flying, Vol. 12, No. 28 (July 8, 1920), London, pp. 705-711, III.

— R. A. F. rifle association.
Flight, No. 655, Vol. 13, No. 28 (July 14, 1921), London, p. 474, ports.

— Royal Air Force cadet examination.


— The Royal Air Force.

— The Royal Air Force ensign.
Flight, No. 638, Vol. 13, No. 1 (Jan. 6, 1921), London, p. 3, III.

— Royal Air Force nursing service.

— The Royal Air Force pageant.
Aviation, Vol. 11, No. 6 (Aug. 8, 1921), New York, p. 171.

— See Benn, Wedgwood: Scope of the R. A. F.

— See Churchill: The future of the R. A. F.


— See Sleath, Frederick: The seventh vial.

ROYAL INSTITUTE OF BRITISH ARCHITECTS. See Grissell Prize: Airships and architects.

ROYSE, M. W. Who owns the air?

RUBBER. Storage and preservation of rubber goods tires and tubes. Liberty ignition system instruction board.
— See Fabrics: New rubberized airship fabrics.
— See Fabrics: What the rubber chemists are doing.
— See Wilson, Edgar H.: Rubber aircraft parts.

RUBBER covering. See Safety devices and measures: Rubber armor for airplane gasoline tanks.

RUDDERS. Model experiments on the fin effect of balanced and unbalanced rudders when hinged freely.

RUEGG, K. Der gegenwärtige Stand der Flugzeugmotorentechnik.

RUGGLES, LOGAN E. Aeroplanes spot the shots.
— A narrow escape. How Navy lieutenant took “French leave” in a Navy plane, but was willing to return to his ship.
— Naval experimental station.
— The New York aero show.

RUHL, DIETRICH. Starrluftschiff Bauart “Schutte-Lanz.”

RULES. Air Service issues rules.
— General rules at United States flying fields.
— General rules to be observed at all United States flying fields.

RULES and regulations. Prohibited areas in the United Kingdom.
— Rules to be observed at United States service aerodromes.

RUMEAU, E. Contribution à l’étude du vol a voile.

RUMPLER. Ingenieur-Besichtigungs-Flugreise nach den Wasserkraftbauten in Bayern.
— The Rumpler 1,000-horsepower engine.
Aerial Age, Vol. 14, No. 6 (Oct. 17, 1921), New York, p. 131, diagr.
— Rumpler-Preis.
RUMPLER. Die Rumpler-Werke A. G.

— See Hildesheim, Eric.: Rumpler biplanes.
— See Römer, Botho v.: Die Rumpler-Werke . . .

RUMPLER, EDMUND. Dr.-Ing. Edmund Rumpler.
Luftweg, Nr. 51-52 (29. Dez. 1921), Berlin, pp. 353-354.

— Der 1,000 P. S. Flugmotor.
Dissertation zur Erlangung der Würde eines Doktor-Ingenieurs der technische Hochschule
zu Berlin, vorgelegt am 30. Juli [1920], von Ing. Edmund Rumpler, aus Augsburg, München,
1920, pp. 64, ill.


— Segelflugwesen.

RUMPLER prize. Beschluss des Preisgerichtes im Wettbewerb um den Rumpler-Preis.

— Erlauterung zur Ausschreibung des Rumpler-Preises.

RUNSER, H. J. Why I quit stunts.
Aerial Age, Vol. 13, No. 19 (July 18, 1921), New York, p. 437.

RUSSELL, FRANK H. Frank H. Russell.
Aerial Age, Vol. 13, No. 3 (Mar. 28, 1921), New York, p. 61, ill.

RUSIA. Aviation in Russia.
Aviation, Vol. 11, No. 3 (July 18, 1921), New York, pp. 76-77.

— Aviation in Russia, 1917 to 1921.
The Aeroplane, Vol. 21, No. 22 (Nov. 30, 1921), London, p. 552.


S.

S., CH. Les grandes lignes aériennes.
Vie Aérienne, No. 193 (22 Jull. 1920), Paris, p. 1231, ill.

S. E. 5. The terminal velocity of S. E. 5.

S., H. L’utilisation des profils métalliques dans la construction des aéroplanes.
Aéronautique, 2e année, No. 14 (juil. 1920), Paris, pp. 52-54, ill.

S., W. H. Aircraft in the wilderness.

— Concerning spins.

— 1920.

— Relics of the work of the Interallied Commission of Control.

— Technical matters at the Air Conference, 1920.
S-1. The S-1 single-seater sporting biplane.

S. W. S. Cl. Das Militärlflugzeug der schweiz. Wagonfabrik Schlüerien.
Suisse Aerienne, 2e année, No. 15 (10 août 1920), Berne, pp. 219-220, ill.

SABATHIER, J. The large German airship centers and their organization.

— Large German airship stations.
Aerial Age, Vol. 14, No. 6 (Oct. 17, 1921), New York, pp. 126-130.

— Les dépenses probables d'une des dirigeables commerciaux.

— Les gares de dirigeables et leurs accessoires.

— Les grands centres allemands de dirigeables.
Aéronautique, 3e année, No. 22 (mars 1921), Paris, pp. 108-112, ill.

SABLATNIG. L'avion de transport "Sablattinig" . . .

— Le monoplan Sablatnig.
Vie Aéronautique, No. 188 (17 juin 1920), Paris, p. 1195, ill.

— The Sablatnig K. E. 1 sporting monoplane. 20-horsepower B. A. W. engine.

— The Sablatnig P. 3 monoplane. Germany's first commercial aeroplane.

— The Sablatnig monoplane.

— Der Sablatnig-Sportendecker.

— Das Sablatnig-Sportflugzeug.

— Sablatnig types.
Aerial Age, Vol. 13, No. 11 (May 23, 1921), New York, p. 254.


— See Rockenfeller, Theo: Das Sablatnig-Verkehrslflugzeug.

SACKEY. Commission de navigation aérienne.
Aéronautique, 3e année, No. 31 (déc. 1921), Paris, pp. 528-530.

SACHÉ, H. WALLAARDT. Organisation van de Nederlandsche luchtvart.

SAFETY. L'aviation est-elle un sport dangereux?
Suisse Aerienne, 3e année, No. 10, Berne, p. 117.

— Concours de l'union pour la sécurité en aéroplane. Premiers résultats du concours de 1921.—Les appareils primés.
L'Aérophile, 29e année, Nos. 11-12 (1er-15 juin 1921), Paris, pp. 164-166, ill.

— Effective study of aviation hazards begun.
Aut. Ind., Vol. 43 (Nov. 18, 1920), New York, pp. 1026-1027.

— Indicating the safety factor.

— Notable invento.
Tohilí, año 5, Num. 2 (sept. 1920), México, p. 76.
SAFETY. Rubber armor for airplane gasoline tanks.

Rules for 1920 international aviation trophy provide for factor of safety.

Safety and economy.

Safety of airship operation.

La sécurité en aviation.

Security of airplanes in flying over the sea.

La seguridad en el aire.
Aire, Mar y Tierra, año 2, Núm. 16 (julio 1920), Madrid, p. 499.

Six big factors in flying safely.

Toward the development of safety and reliability.

See Harcourt, J. d': L'aviation militaire et l'accident.

See Lievre, Joe Ben: Consejos para los aviadores que quieran vivor mucho tiempo.

See Martin, E. Stockton: Safety in aviation.

See Wild, R. K. Bagnall: Safety in flight.

SAGA. A sage amphibian.

SAGITTARIUS. On soaring flight and the low-powered aeroplane.

SAHARA. L'avion au Sahara.
Aéronautique, 1ère année, No. 12 (mai 1920), Paris, pp. 509-522, ill.

French fliers cross Sahara in airplane.

La liaison aérienne a travers le Sahara.
Aéronautique, 1ère année, No. 10 (mars 1920), Paris, pp. 442-443, ill.

Le raid transsaharien. Paris-Tombouctou-Dakar.
L'Aérophile, 28, année, Nos. 5-6 (1er-15 mar. 1920), Paris, pp. 65, 75-76, ill.

Sahara flight. La travesía del Sahara.
Aire, Mar y Tierra, año 2, Núm. 12 (marzo 1920), Madrid, pp. 115-118.

See Cape to Cairo: French fliers cross Sahara in airplane.


St. Cyr. Aerotechnical institute of St. Cyr; new apparatus for testing mechanical conditions governing the flight of airplanes.
St. Cyr. See Aerodynamical laboratories: The new aerodynamic laboratory at St. Cyr.

— See Ide, John Jay: Aeronautic research laboratory at the Institute of St. Cyr.


Saladin, Raymond. A la mémoire de Geo. Chavez.

Vie Aérienne, 5e année, No. 1 (5 août 1920), Paris, pp. 5-6, ill.

— Les ancêtres du ballon sphérique.

Vie Aérienne, 5e année, 1920, Paris, pp. 365, ill.

— Les ancêtres du parachute.

Vie aérienne, 5e année, No. 6 (11 sept. 1920), Paris, pp. 84-86, ill.

— Cadale a essayé avec succès l’avion géant Blériot.

Vie Aérienne, 5e année, No. 6 (11 sept. 1920), Paris, p. 95.

— La catastrophe du Grand-Montrouge.

Vie Aérienne, 5e année, No. 6 (11 sept. 1920), Paris, p. 90.

— Dans les clubs et associations.

Vie Aérienne, 5e année, No. 1 (5 août 1920), Paris, p. 16.

— Derniers échos de la coupe Gordon-Bennett.

Vie Aérienne, 5e année, No. 17 (27 nov. 1920), Paris, p. 263.

— Étude général sur l’hélicoptère.


— Hommage à Jacques Mortane.

Vie Aérienne, 5e année, No. 1 (5 août 1920), Paris, p. 2.

— Le lieutenant Henry Roget a terminé son tour d’Europe.

Vie Aérienne, 5e année, No. 7 (15 sept. 1920), Paris, p. 111.

— Maurize Bizot, chevalier de la Légion d’honneur.

Vie Aérienne, 5e année, No. 6 (11 sept. 1920), Paris, p. 95, ill.

— Le meeting d’Anvers.

Vie Aérienne, 5e année, No. 1 (5 août 1920), Paris, p. 15, ill.

— Les premiers ballons dirigeables.

Vie Aérienne, 5e année, No. 17 (27 nov. 1920), Paris, pp. 259-260, ill.

— Le prix du grand écart de l’ “Auto” . . .

Vie Aérienne, 5e année, No. 1 (5 août 1920), Paris, p. 7, ill.

— La promotion extraordinaire dans l’ordre de la Légion d’honneur.

Vie Aérienne, 5e année, No. 20 (15 déc. 1920), Paris, pp. 317-318, ill.

— La quinzaine aéronautique.

L’Air, No. 17 (20 juil. 1920), Paris, pp. 12-13; No. 18 (5 août), pp. 13-14, ill.

— Sadi Lecoindre recordman du monde de la vitesse: il vole à plus de 313 à l’heure.

Vie Aérienne, 5e année, No. 21 (25 déc. 1920), Paris, p. 322, ill.

— Les vieilles tiges.

Vie Aérienne, 5e année, No. 21 (25 déc. 1920), Paris, pp. 325-326, ill.

Salinas, Gustavo. El general Gustavo Salinas.

Tohtli, año 5, Núm. 2 (sept. 1920), México, p. 40.

Sallard. The “autostable” Sallard.


— See Archdeacon, Ernest: L’avion autostable Sallard.

Sallard, H. Mon histoire.

Vie Aérienne, 5e année, No. 1 (5 août 1920), Paris, pp. 13-14, ill.
SALMSON. Les moteurs Salmond.
— Un nouveau moteur d’aviation commerciale. Le moteur Salmond 300 HP. Type Az 9.
— Salmond type, AZ9-300 horsepower.
Aerial Age, Vol. 13, No. 15 (June 20, 1921), New York, p. 330.
SALVANESCHI, Mino. L’avienne au Congo belge.
L’Air, No. 18 (5 août 1920), Paris, pp. 23-24, ill.
SAN DIEGO, Calif. See Partridge, William: The San Diego naval air station.
— See Pond, George Richardson: Aviation review, U. S. Navy, San Diego, California.
SANFORD, H. B. See Westervelt, G. C., and H. B. Sanford: Possibilities of a trans-Pacific flight.
SANFORD, R. L. Testing of magnetic compasses.
SAN FRANCISCO. The San Francisco aeronautical show.
Aircraft Journal, Vol. 6, No. 20 (May 17, 1920), New York, pp. 3-4, ill.
— San Francisco’s aero show.
— San Francisco mail airport is selected.
The Navigant, Vol. 1, No. 24 (July 31, 1920), Pensacola, Fla., p. 5.
— San Francisco to New York in 33 hours 20 minutes
— See Larsen: Larsen planes carry mail to San Francisco.
SAN FRANCISCO. See Martin, Glenn L.: New York to San Francisco in 12 hours.

--- See Photography: Army balloon maps San Francisco.

SANITATION. See Vincent: Les avions sanitaires.

SANTRY, J. Sauvons l'aviation française.

SAR, J. Het seriebeeld "Soest."
Vliegverd, 5. jaarg., No. 3 (12 Feb. 1921), Amsterdam, pp. 56-60, ill.

--- De "beroemde" brug.
Vliegverd, 5. jaarg., no. 16 (30 Juli 1921), Amsterdam, pp. 220-227.

SARRET, S. Préparation technique d'un raid aérien.
Aéronautique, 2e année, No. 16 (sept. 1920), Paris, pp. 147-154, ill.

SAULNIER. The Saulnier three-engined monoplane.
Aviation, Vol. 11, No. 3 (July 18, 1921), New York, pp. 71-72, diagr.

--- The Saulnier three-engined cantilever monoplane. An interesting French design.

SAULNIER, RAYMOND. The R. Saulnier monoplane.


SAUNDERS. The Saunders "Kittiwake."

--- See Fairey: Our new large flying boats. The Fairey "Titania" and the Vickers-Saunders "Valentia."

SAUNDERS (Ltd.), S. E. See Great Britain: Modern British aircraft.

SAVEY. Les hydравions "Savoya."

SAVEY. Neue Savoya-Flugboote.

--- La tragique aventure des avions Savoya.
Suisse Aérienne, 2e année, No. 21 (21 nov. 1920), Berne, pp. 320-321.

SAWYER, L. G. See Loeb, L. B., L. G. Sawyer, and E. L. Fonseca: Gas leakage in spark plugs.

SAYERS, W. H. Another new wing.

--- Burbling, and the Handley Page wing.

--- Concerning Handley Page and other wings.

--- The fate of the airships.

--- Lessons of the aero show, 1920.

--- Metal construction at the Paris show.

--- Possible advances in aeroplane efficiency.
SAYERS, W. H. Reflections on the Paris aero show.

The soaring flight of birds.

The Spad exhibit at Paris.

The R. A. E. and the aircraft industry.

Scale speed. See Fage, A., and H. E. Collins: The "scale-speed" effect on a model airscrew of small diameter.

Schemers. See Aero Club of America: A. C. A. members form committee to fight schemers' ruse to get control of club.

SCHERESCHEWSKY, M. Ph. La météorologie militaire pendant la guerre; historique, sommaire.
Aéronautique, 1st année, No. 12 (mai 1920, Paris, pp. 331-334, ill.

SCHIEFEL, F. Die Entwicklung der Rumpfkonstruktion.
Flug, 8. Jahrg., Nr. 11-12 (1. Mai 1921), Wien, pp. 20-21, ill.

Konstruktionseinzelnheiten.
Flugsport, 13. Jahrg., Nr. 23 (9 Nov. 1921), Frankfurt, p. 507, ill.

Das 35 PS-WKF-Sportflugzeug.

Das Wohnhaus als Fliegerhorst.
Flug, Sondernummer ( Dez. 1920), Wien, pp. 84-85.

SCHIPPER, J. E. Experimental separation of engine losses develops interesting results.
Aut. Ind., Vol. 42 (June 10, 1920), New York, pp. 1338-1341, ill., diagr.

SCHIPPER, HANS. Das Flugzeug-Mutterschiff.

SCHLEE. Schlee-Ringschwimmer-Vergaser, Schlee-Zündkerze.

SCHLOMANN, A. Vocabolari technici illustrati nelli sei lingue: Italiano, Francese, Tedesco, Inglese, Spagnuolo e Russo.

SCHLICK, HANS-CARL v. Männer der Luftfahrt—X.

SCHMAUSS, A. Die meteorologische Beratung des Luftverkehrs.

SCHMID, CHARLES. Le réseau aérien européen.
Vie Aérienne, 5e année, No. 17 (27 nov. 1920), Paris, p. 262.

SCHMIDT, A. M. Grundsätzliches bei der Auswahl von Licht- und Anlassanlagen.


SCHMIDT, FRITZ. Das Flugzeug-Fahrgestell.
Dingler's polytechnisches Journ., Vol. 334, No. 16 (Aug. 9, 1919), pp. 175-178, figs.

SCHMIDEL, KARL. Zur Frage der Nutzlast von Flugzeugen.

SCHNEIDER. See Races: The approach of two classic races. The Schneider and the Gordon-Bennett.


— Regarding the Schneider cup. Aviation, Vol. 11, No. 11 (Sept. 12, 1921), New York, p. 303.


SCHNEIDER cup. See Mapelli: The Mapelli and Schneider cup competition.

--- See Jacques Schneider cup. Regulations for the 1921 contest.

--- See Jacques Schneider: Jacques Schneider cup regulations for the 1921 contest.


Suisse Aéronaute, 3e année, 1921, No. 18, Berne, pp. 261-261.


SCHOOLS. Air service mechanics' school.

--- The aviation mechanics' school of the U. S. Navy.

--- Ignition course, aviation mechanics' school, Great Lakes.

--- Meteorology and aerology school.

--- Taking the planes to battle at sea.

--- The immediate future of naval aircraft.

SCHOUTE, C. Een nieuwe aneroiden barometer.

--- Luft- und Eisenbahntafettenverkehr.


--- Major Schroeder’s altitude flight.

--- Major Schroeder in new altitude flight.

--- Major Schroeder’s record altitude flight.

--- Major Schroeder’s true altitude 33,000 feet.

--- Notes on Major Schroeder’s altitude flight.

--- Schroeder drops in on Cincinnati. Declaration made by Major Schroeder before Chamber of Commerce.

--- Schroeder is none worse for big drop.
SCHROEDER, R. W. Wind blows 220 miles hourly at an altitude of 30,000 feet, Maj. R. W. Schroeder says.

The Navigator, Vol. 1, No. 7 (Mar. 27, 1920), Pensacola, Fla., p. 8, ill.

World altitude record by Major Schroeder.


See Barographs: Calibration of barographs used by Major Schroeder.

SCHUBERT, FRIEDRICH. Eine Führer-Prüfungsfahrt.


SCHRÜFER, ALEXANDER. Der internationale Gedanke in der Luftfahrt.


SCHUETTE, O. Bureau of Mines report on helium.


See National-gas industry.


SCHUETTE-LANZ. New Schutte-Lanz construction.


SCHULZ, FERDINAND. Das Flugzeug im Diagramm.


SCHUMACHER, N. Zum Weg nach dem wirtschaftlichen Flugzeug.


SCHUSTER. Das Flugzeug im Diagramm.


SCHUTTE-LANZ. Schutte-Lanz rigid airship construction.

Aerial Age, Vol. 13, No. 20 (July 25, 1921), New York, p. 470.

See Ruhl, Dietrich: Starrluftschiff Bauart "Schutte-Lanz."
BIBLIOGRAPHY OF AERONAUTICS, 1920–1921.

SCHWAGER, OTTO. Die Rumpler-Werke A.-G.

---
Das Verhalten des Flugmotors bei verschiedenen Luftdichten.

---
Die Vorausberechnung der Zylinderabmessungen der Flugmotoren.

---
Zur Zerstörung der deutschen Flugmotoren.

SCHWARZBÖCK, ERWIN. Ein- oder mehrmotorige Verkehrsluftzeuge?

---
Luftfahrt und Fremdenverkehr.
Flug, Sondernummer (Dec. 1923), Wien, pp. 22-24, ill.

---
Das österreichische Luftgesetz.

SCHWEIZERISCHER Aero-Klub. Mitglieder-Verzeichnis auf Anfang 1921.

SCIENCE. Science and nonsense.

---
Science and sense.

SCOBLE, WALTER A. Sockets for wire cables.

---
Wire cables.

SCOTT, A. J. L. The history of 60th squadron, R. A. F.

SCOTT, G. H. Airship piloting.

---
The mooring of airships.

---
The present state of airship development.

SCOTTISH branch, Royal Aeronautical Society. Second annual report.

---
See Royal Aeronautical Society: Scottish branch. Annual meeting.

SCREW fastening. See Grenoble, H. S.: Strength tests of screw fastenings of plywood.

SEA photography. Fotografia del mare.
Rivista marittima (nov.-dic. 1920), Roma, p. 41.

SEALS. Seal hunting by air.

---
Seal location by aeroplane.
Aerial Age, Vol. 15, No. 18 (July 11, 1921), New York, p. 414.

---
Seal spotting from aircraft.

---
See Supermarine: The Supermarine "Seal," Mark II.
SEAPLANES. Étude sur les conditions d'envol de l'hydravion.

— Schwimmerflugzeug oder Flugboot das Verkehrsmittel über See?

— The seaplane competitions.

— The seaplane tests.

— Seeflugzeug und Luftverkehr.

— Zwei deutsche Seeflugzeuge.

— See Baatz, Gotth.: Seeflugverkehr über die Ostsee.


— See Baker, G. S., and E. M. Keary: Experiments with models of seaplane floats.

— See Berkel.

— See Guitton: Les appareils marins d'aviation.


— See Moll, D. v.: Der Amphibien-Wettbewerb des englischen Luftministeriums.

— See Pannell, J. R., and E. A. Griffiths: Determination of the forces and moments acting on a model of a flying boat hull.

— See Savoya.


— See William Froude National Tank Staff, and A. D. Grigg: Experiments with models of seaplanes floats. (Ninth series.)

SEAPLANES, submersible. The flying submarine or submersible seaplane.
Flying, Vol. 9, No. 5 (June 1920), New York, p. 531, ill.

SEARLE, F. Can airways be made to pay?
Aut. Ind., Vol. 43 (Sept. 16, 1920), New York, pp. 552-553.

SEARLE, G. F. C., and F. A. LINDEMANN. Preliminary report on measurements of accelerations on aeroplanes in flight.

SEDLMEYR, GERHARD. Kapitän Engelhard.
Aut. Flugv., Nr. 10 (Okt. 1921), Berlin, pp. 415-416, ill.

— Wie kann der Luftverkehr dem grossen Publikum nähergebracht und somit gefördert werden?

SEEKATZ, FRIEDRICH WILHELM. Luftpalt und Ausland.

— Schraubenflieger.
SEEKATZ, FRIEDRICH WILHELM. Wie Ich es sehe, eine Flugtechnische Vergleichs-Studie.

SEELY, JOHN E. BARNARD. Flying and the future.
— General Seely on the situation.

SEESOCK-DAYKO. The Seesock-Dayko sport aeroplane.

SEIBERT, E. G. Care of the flier.
Air Power, Vol. 6, No. 4 (Apr. 1920), New York, pp. 113-114, 124, ill.

SEEGA, M. Aerological lectures at Camp Claudio.
— Speed of the typhoons of the Far East.
— Temperature correction for aviation aneroids.

SELENIUM. See Compass: Selenium aviation compass placed on tail of plane.

SELEGA, MIGUEL. Velocidad del viento y de los dirigibles.
Revista, Sociedad Astronómica de España y América, año 10, (sept.-oct. 1920), Barcelona, pp. 99-103.

SELVE. Der 300-PS-Selve-Flogmotor.

SEMLOII, P. Railways and air lines.

SEPPELER, ED. Die bisherige und zukünftige Entwicklung von Flugmotoren.


SERVICE AVIATION. The air conference. Aspects of service aviation.

SESQUIPLANE. What is a sesquiplane?

SEXTANT. See Instruments: Aerial sextant and other aeronautic aids.

SEYMOUR, LESTER D. The monocoque fuselage.
Aviation, Vol. 10, No. 7 (Feb. 14, 1921), New York, pp. 203, 206, ill.
— Supercharges and variable-pitch propellers.

SHAKESPEAR, G. A. Further applications of the katharometer—by G. A. Shakespear; with an investigation of some sources of error in the testing of fabrics—by H. A. Daynes.
— A new permeability tester for balloon fabrics.

Shakespear, G. A. Results of some experiments on the permeability of clear delta dope.

—— Some further notes on the hydrogen permeameter.

—— Some notes on balloon seams.

Shaughnessy, E. H. Colonel Shaughnessy appointed Second Assistant Postmaster General.
  Aerial Age, Vol. 13, No. 7 (Apr. 25, 1921), New York, pp. 150, 154.

—— Colonel Shaughnessy, Second Assistant Postmaster General.

Shaw, Douglas. The coming of the helicopter.

—— Developments in wing design.

—— Single or multi-engined aeroplanes.

—— Speed variation.

—— Why the wing of uniform section may survive.

Shaw, NAPIER. Air and its ways.
  Abridged from the Rede Lecture at Cambridge on June 9.

—— The artificial control of weather.
  Aerial Age, Vol. 13, No. 9 (May 9, 1921), New York, pp. 203-205.

—— Manual of meteorology.

—— Notes on the winds of Macedonia.

—— Records of temperature and altitude.

—— Report on high angle practice, to determine the wind at various heights for comparison with simultaneous determinations by pilot balloon ascents.

—— The taming of the air.


Sheds. See Airships: Airship sheds and their erection.

Sheeldon, E. Converting a machine shop to emergency production.

Sheells. See Fowler R. H., E. G. Gallop, C. N. H. Lock, and H. W. Richmond:
  The aerodynamics of a spinning shell.

Shepherd, William G. Ships that have no ports.
  Collier's, Vol. 65 (Jan. 3-Feb. 14, 1920), New York, pp. 48-46, 24, ill.

—— Ships without ports.
BIBLIOGRAPHY OF AERONAUTICS, 1920–1921.

SHEPHERD, William G. Your town has a new name.
Collier's, Vol. 63 (June 5, 1920), New York, pp. 26-28, ill.

New York, Frederick A. Stokes Co., 1920, pp. 363, ill.

SHERMAN, T. L. Induction systems.
Aviation, Vol. 11, No. 2 (July 11, 1921), New York, pp. 40-43, ill.

— The starting of airplane engines.
Aviation, Vol. 8, No. 3 (Mar. 1, 1920), New York, pp. 115-118, ill.

— The starting of aeroplane engines—I.

— The starting of aeroplane engines—II.

SHERRY, Bertram John. The rate of ascent of pilot balloons.

SHIPS. Big ships or ——?

— On big ships and aircraft.

India Rubber World, Vol. 63 (Oct. 1920), New York, pp. 6-7, ill.

SHOOTS. Shoots airplane engine loose.

SHORT. The Short all metal "Silver Streak."
Aviation, Vol. 9, No. 7 (Nov. 1, 1920), New York, pp. 217-219, ill.

— The Short sporting type seaplane.

— See Air Ministry: Air Ministry acquire Short "Silver Streak."

SHORT, H. OSWALD. Launching and handling seaplanes.

SHORT BROTHERS (Rochester and Bedford) (Ltd.). See Great Britain: Modern British aircraft.

SHORT seaplane. Short sporting-type seaplane.
Aviation, Vol. 8, No. 3 (Mar. 1, 1920), New York, p. 109, ill.

SÅM. Siam and the Napier engines.

SIBERIA. See Air routes: From New York to Nome and Siberia by air.

SIDDELEY-PUMA. The Siddeley-Puma aircraft engine.

SIEGERT, D. Denkschrift an das Reichsluftamt.

— Flugtechnische Paradoxologik.

— Funken aus der Luftwaffenschmiede.
Berlin, 1919.
SIEGERT, D. Die kulturellen und zivilisatorischen Verwendungsmöglichkeiten von Flugzeugen.
Flug, Sondernummern (Dez. 1920), Wien, pp. 104-106.

— Männer der Luftfahrt, XVII.

— Ein Reichsluftamt.


SIEMENS-SCHUCKERT giant biplane.
L'Aérophile, juli. 1919.

See Hildesheim, Erik: The Siemens-Schuckert aeroplanes.

SIGNAL CORPS. Signal Corps examinations.
Aerial Age, Vol. 13, No. 16 (June 27, 1921), New York, p. 375.

— See Meteorology: Work of the meteorological section of the Signal Corps.

— See Wildman, L. D.: Scope and development of the Signal Corps, U. S. A.

SIGNALING. System of ground to airplane signaling.

SIGNALS. Cloud and visibility signals.

— Communiqué No. 419 du ministère anglais de l'air: Signaux optiques pour la navigation aérienne.
Suisse Aérononne, 2e année, No. 12 (25 juin 1920), Berne, pp. 176.

— French aerodrome signals.

— Lichtzeichen für den Luftverkehr.

— System of ground to aeroplane signaling.

— Visual signals for aircraft.

SILENCER. A new silencer for aircraft.

— A new silencer for aero engines. 'The Birger 'Ad Astra.'

— See Boulton and Paul: A Boulton and Paul silencer.

— See Martin: The Martin exhaust silencer.

SILSBEE, F. Causes of failure of spark plugs.

— Characteristics of high-tension magnetos.
SILSBEE, Francis Briggs, and E. L. Fonseca. Measurement of heat energy per spark of various ignition systems.


SILSBEE, Francis Briggs. Simplified theory of the magneto.

SPARK plug defects and tests.


See Loeb, L. B., and F. B. Silsbee: Breakdown voltage of a spark plug.

See Loeb, L. B., and F. B. Silsbee: Effect of temperature and pressure on the sparking-voltage.

SILBER solder. Report on investigation of silver solder. (Material Section Report No. 54.)

SIMMONS, L. F. G. Investigation of the fracture of exhaust springs.


Model tests on bodies proposed for use as kite balloons.


SIMMONS, L. F. G. See Cowley, W. L., L. F. G. Simmons, and J. D. Coales: The effect of balancing a rudder, by placing the rudder axis behind the leading edge, upon the controlling moment on the machine.


See Cowley, W. L., and L. F. G. Simmons: Tests on model aerofoil of R. A. F. 14 section, to compare an aerofoil of uniform section with one modified to represent the sag in the fabric of an actual wing.

See Cowley, W. L., L. G. Simmons, and J. D. Coales: Tests on the complete model of F. E. 5 aeroplane.


SIMON, Harry M. Airplane insurance.

SIMONET. Le coupe Simonet.
Aeronautique, 3e année, No. 29 (Oct. 1921), Paris, p. 400.

Sims, William S. Admiral Sims on aircraft.

--- Admiral Sims on aviation.
Aviation, Vol. 11, No. 23 (Dec. 5, 1921), New York, p. 659, ill.


Sennheimer, A. Another bill to establish an aeronautic department.

--- Bill to create a department of aeronautics.

--- Civilian aviation control favored by general staff.

--- New York-London airship line service is planned.

--- Scientific flight study urged by national aeronautic body.

Sippe, S. V. Pioneers of British aviation—XXXVI. Maj. S. V. Sippe, O. B. E., D. S. O.

Six months' flying. Summary of official report.

Skelto. See Ball bearings: Skelto ball bearings.

Skerrett, R. G. Again the helicopter? Experiments by prominent inventors who hope to realize this long-standing dream.

Ski. See Burke, F. D.: Airplane-type ski glider.

--- See Landing gears: Ski landing gears for airplanes.

Skylark. Amerik. Ba Co. Skylark 60 PS.

--- The Skylark.
Aviation, Vol. 9, No. 8 (Nov. 8, 1920), New York, p. 267, ill.

Sleath, Frederick. The seventh vial.

Sleeman, H. Commercial aviation in the Dominions.

Sliding. See Constantine, Jean: Sur le problème du vol à voile.

Slipstream. See Bacon, D. L.: Preliminary experiments to determine scale and slipstream effects on a 1/4th size model JN-4H biplane.


SLOBINSKY. Praho, zlata Praho, ty jsi mesto snu.
VliegYeld, 5. jaarg., No. 9 (23 Apr. 1921), Amsterdam, pp. 127-130, ill.
— Van Soesterberg naar Keulen, Genève en Belgrado.
VliegYeld, 5. jaarg., No. 3 (29 Jan. 1921), Amsterdam, pp. 44-46.
SLOCUM, S. E. Determination of the pressure law for wing surfaces.
Aerial Age, Vol. 11, No. 6 (Apr. 19, 1920), New York, pp. 188-189, charts.
SLOSSON, EDWIN E. What did Newcomb say?
Flying, Vol. 9, No. 10 (Nov. 1920), New York, p. 642.
SLOTTED aerofoils. See Marco Polo: An immediate application of slotted aerofoils.
Their use as interplane ailerons.
SLOTTED wings. See Handley-Page, Frederick: Developments in aircraft design by
the use of slotted wings.
— See Wings.
SLOW flight. Slow flight the big problem.
SLOW speed. See Commercial aeronautics: Airships for slow-speed heavy transport.
SMALL, A. R. Underwriters' laboratories and aviation.
SMITH, FLOYD. The Floyd Smith aerial life pack.
Aviation, Vol. 8, No. 2 (Feb. 15, 1920), New York, pp. 67-70, ill.
— Parachutes and life packs.
Aviation, Vol. 11, No. 24 (Dec. 12, 1921), New York, p. 682, ill.
— Smith instruments.
— Recent data on parachutes.
Aviation, Vol. 8, No. 9 (June 1, 1929), New York, pp. 369-370, ill.
— See Frantzen, L.-P.: Les parachutes américains, le parachute d'aviation Floyd
Smith.
SMITH, H. WHITE. Aeroplane and seaplane transport efficiency.
SMITH, KEITH. See Australia: Honouring the England-Australia air pioneers, Sir
Ross Smith and Sir Keith Smith.
— See Australia: Sir Ross and Sir Keith Smith return to England.
SMITH, KENNETH R. Down at sea.
SMITH, LAURENCE YARD. The romance of aircraft.
London, Grant Richards (Ltd.), 1920, 264 pp.
SMITH, R. H. Determination of the resistance of airship models.
— See Zahm, A. F., and R. H. Smith: Comparison of United States and British
standard pilot static tubes.
— See Zharn, Albert Francis, R. H. Smith, and G. C. Hill: The drag of C class
airship hull with varying length of cylindric midships.
SMITH, R. J. Make more use of the aeroplane.
Flying, Vol. 9, No. 10 (Nov. 1920), New York, p. 631.
SMITH, ROSS. Captain Smith wins 11,500-mile London-Australia flight.


SMOKE. See Mallock, A.: Drifting smoke.


German experimenters and soaring flight. Aerial Age, Vol. 14, No. 4 (Oct. 3, 1921), New York, p. 75.


The possibilities of soaring flight. Aerial Age, Vol. 14, No. 11 (Nov. 21, 1921), New York, p. 257.


See Ahlborn, Fr.: Zur Methode des Segelfluges.

See Beach, Stanley Yale: Soaring and gliding experiments in Germany.

See Berger, Josef Viktor: Die Nimfűhrsche Segelflugmaschine.

See Blume, W.: Das Segelflugzeug.

See Bollee, Leon: The soaring flight of birds.

See Coupé: L’opinion d’un pilote sur le vol sans moteur.

See Eberhard, W.: Rhön-Segelflugwettbewerb 1921.

See France: Gliding competition in France.

See Germany: German gliding contest.

See Germany: Gliding in Germany.

See Germany: Motorless monoplane in Germany makes extraordinary flight. Rises to 300 feet and soars for more than 13 minutes.

See Germany: Second German soaring competition.

See Germany: The soaring flight competition, 1921.
Soaring flight. See Germany: Soaring flight in Germany. The Rhön competition.

— See Handley Page, Frederick: Mr. Handley Page on German soaring tests.
— See Heinrich, A. O.: An analysis of soaring flight.
— See Hoff, Wilhelm: Zum Rhön-Segelflugwettbewerb 1921.
— See Idrac, P.: Soaring flight in Guinea.
— See Karman, Th. v.: Mechanische Modelle zum Segelflug.
— See Klemperer, W.: Ueber die “Gleitzahl” bei Segelfliugen.
— See Langsdorff, Werner v.: Rhönsegelflug-Wettbewerb 1921.
— See Hug, Martin: Zur Segelflugfrage.
— See Meyer, E.: The motorless airplane, or glider, in Germany.
— See Offermann, E.: Start von Segelflugzeugen.
— See Prandtl, L.: Bemerkungen über den Segelflug.
— See Prandtl, L.: Some remarks concerning soaring flight.
— See Rhön: The Rhön soaring flight meeting.
— See Riach, M. A. S.: Soaring flight.
— See Rumpler, E.: Segelflugwesen.
— See Sagittarius: On soaring flight and the low-powered aeroplane.
— See Steiger, Carl.: Der Segelflug der Vogel.
— See Wittekind, Fritz: Gleit- und Segelflug.


Luftfahr, Nr. 17/18 (Sept. 1919), Berlin, p. 20.

SOCIÉTÉ D’EMBOUTISSAGE ET DE CONSTRUCTIONS MÉCANIQUES. DEUX AVIONS DE LA S. E. C. M.

Aéronautique, 3- année, No. 30 (nov. 1921), Paris, p. 471, iii.

SOCIETY OF AUTOMOTIVE ENGINEERS. Addresses at the New York aeronautic meeting.

— Aeronautic division report.

Journ. Soc. Automotive Engineers, Vol. 6, No. 6 (June 1920), New York, p. 396.
— Aeronautic meeting of the society.

— Aeronautical engineering session.

Society of Automotive Engineers. Commercial aviation session.
Jour. Soc. Automotive Engineers, Vol. 8, No. 2 (Feb. 1921), New York, pp. 82-84.

New S. A. E. aircraft standards.

S. A. E. annual meeting.

Societies. Verband deutscher Flugzeug-Industrieller zur Presse-Polemik.


Solder. Some notes on the correct use of silver solder.
Aerial Age, Vol. 13, No. 9 (May 9, 1921), New York, p. 269.


Somaliland. The operations in Somaliland.

The Somaliland operations.

Sommer, Albert. Die Verwendung des Wellenkampfchen Schlappsystems für aerodynamische Untersuchungen.

Sopwith. La casa Sopwith suspende sus labores.
Tohuti, año 5, Núm. 4 (nov.-dic. 1920), México, pp. 210, 216.

Chiusura delle officine Sopwith.
Rivista marittima (nov.-dic. 1920), Roma, p. 38.

From war to peace. Details of the new Sopwith commercial aeroplanes.

The Sopwith affair.

The Sopwith Australia transport biplane.

Sopwith commercial and sporting types.
Aerial Age, Vol. 11, No. 7 (Apr. 26, 1920), New York, pp. 219-220, 232, III.

Sopwith enterprises.

Soreau, Rodolphe. Théorie du vol des avions.
Paris, Etienne Chiron, 1920, pp. 64, III.

Travaux de la commission technique.
Aéronautique, 3e année, No. 31 (déc. 1921), Paris, pp. 525-528.

See Drzewiecki, S.: Théorie générale de l'hélice propulsive.

Sounding. See Gregg, W. R.: The highest aerial sounding.

South Africa. Aviation in South Africa.

Flying in South Africa.
Aerial Age, Vol. 12, No. 20 (Jan. 24, 1921), New York, p. 520.
SOUTH AFRICA. Prospects in South Africa.
Aerial Age, Vol. 13, No. 3 (Mar. 26, 1921), New York, p. 64.

SOUTH AMERICA. America's airplane opportunity in South America.

— Aviation possibilities in South America.

— Commercial aviation in South America.
Aviation, Vol. 9, No. 15 (Dec. 27, 1920), New York, p. 482.

— See Commercial aeronautics: America's opportunity in South America.
— See Commercial aeronautics: New air lines in South America.
— See Pratt, H. G.: Developing trade with South America by air.

SOUTH KENSINGTON MUSEUM. Aeronautics at South Kensington Museum.

SOUTHCOMBE, JAMES E. See Wells, Henry M., and James E. Southcombe: The theory and practice of lubrication: The "Germ" process.

SOUTHERN CALIFORNIA. Aircraft companies in Southern California.
Aerial Age, Vol. 13, No. 5 (Apr. 11, 1921), New York, p. 102.

SOUTHERN pine. See Wood: Strength of southern pine and Douglas fir compared.

SOUVENIRS sur Jean Bernard.
Vie Aérienne, 5e année, No. 7 (18 sept. 1920), Paris, pp. 98-100.

S.P.A. Die Verlängerung des Flugzeugbauverbotes in Spa.

SPAD. Le nouveau "Spad" de marine.
Aéronautique, 3e année, No. 25 (sept. 1921), Paris, pp. 352-353, III.

— Performance test of Spad 13 equipped with 220-horsepower Wright engine.
Aerial Age, Vol. 14, No. 15 (Dec. 19, 1921), New York, pp. 344-345, III.

— The Spad "Berline" S. 33 bis 250 H. P. Salmson A-Z9 engine.
Flight, No. 654, Vol. 13, No. 27 (July 7, 1921), London, pp. 460-462, ill.

— Two recent Spads.


SPAD-HERBEMONT. Les avions Spad-Herbemont.

— Le "Spad-Herbemont" a Monaco.
Aéronautique, 2e année, No. 13 (juin 1920), Paris, pp. 22-23, ill.

SPAIght, J. M. Aircraft in peace and the law.

SPAIN. Prohibited areas in Spain.

— Spain to Argentine airship service.
Aviation, Vol. 11, No. 25 (Dec. 5, 1921), New York, pp. 656-658, ill.

— Spanish subsidy for air lines.
Aerial Age, Vol. 13, No. 2 (Mar. 26, 1921), New York, p. 64.
SPAIN. See Arouze, Marcel: Une tournée en Espagne.


SPARK gap. See Loeb, L. B., and F. B. Silsbee: Breakdown voltage of a spark gap.

SPARK plugs. An air-cooled spark plug: The Molla.

— Engines—applied design.
  Engineering Division Air Service, Technical Orders No. 8 (Sept. 1919), Dayton, Ohio, pp. 27-35, figs.

— New aviation spark plug.
  Aviation, Vol. 11, No. 7 (Oct. 1921), New York, pp. 188.


— See Hercules: Hercules airplane spark plugs.


— See Loeb, L. B., and F. B. Silsbee: Effect of temperature and pressure on the sparking voltage.


— See Neuburger, Albert: Die Brenstofffrage.


SPARROW, STANWOOD WELLSTON. “Airplane crashes: Engine trouble.” A possible explanation.


Aerial Age, Vol. 13, No. 6 (Apr. 18, 1921), New York, pp. 132-133.

Aviation, Vol. 10, No. 19 (May 9, 1921), New York, pp. 695-696.

— Compressed ratio and thermal efficiency of airplane engines.

— Flying an airplane engine on the ground.
  Journ. Soc. Automotive Engineers, Vol. 6, No. 4 (Apr., 1920), New York, pp. 239-244.

— High thermal efficiency in airplane service.
  Aerial Age, Vol. 12, No. 17 (Jan. 3, 1921), New York, pp. 440-441.

— Increase in maximum pressures produced by preignition.
  Aerial Age, Vol. 12 (Oct. 25, 1920), New York, pp. 201-205.

— Increase in maximum pressures produced by preignition in internal-combustion engines.
  Aerial Age, Vol. 12, No. 7 (Oct. 25, 1920), New York, pp. 201-205, ill.
Sparrow, Stanwood Wellston. Instruments for measuring engine clearance volumes.

Aerial Age, Vol. 12, No. 16 (Dec. 27, 1920), New York, pp. 119-120, ill., diagr.; No. 23 (Feb. 14, 1921), pp. 583-584, ill., diagr.

---

Performance of Maybach 300-horsepower.

---

Performance of B. M. W. 185-horsepower airplane engine.

---


---


---

See Dickinson, Hobert Cutler, V. R. Gage, and S. W. Sparrow: Comparison of hectar fuel with export aviation gasoline.

---

See Gage, V. R., S. W. Sparrow, and D. R. Harper: Comparative power properties of alcogas and aviation gasoline.

---

See Gage, V. R., S. W. Sparrow, and D. R. Harper: Comparison of alcogas aviation fuel with petrol.

---

See Gage, V. R., S. W. Sparrow, and D. R. Harper, 3d: Comparison of alcogas aviation fuel with export aviation gasoline.

---

Spars. Examination of laminated airplane spar.
Aviation, Vol. 11, No. 4 (July 25, 1921), New York, p. 106, ill.

---

Optical determination of stresses in airplane spars.

---

The vibration of spars in aircraft.
Aviation, Vol. 8, No. 7 (May 1, 1920), New York, pp. 260-261, diagr.

---

See Hudson, H. P.: Staggered spar sections.

---

See Low, A. R.: Optical determination of stress in airplane spars.

---


---

Speed. Aeroplane characteristic and performance table eliminates mathematical calculations.
Aerial Age, Vol. 13, No. 22 (Aug. 8, 1921), New York, p. 525.

---

Increasing the speed range of airplanes.

---

A method of measuring the speed of an aeroplane at a height.

---

New speed record.
Aviation, Vol. 9, No. 10 (Nov. 22, 1920), New York, p. 327.

---

New system of determining ground speed of an aeroplane in flight.
Aerial Age, Vol. 13, No. 20 (Sept. 5, 1921), New York, p. 610.

---

Prix du grand écart de vitesses.
BIBLIOGRAPHY OF AERONAUTICS, 1920–1921.

**Speed.** Le prix du grand écart de vitesse.

— Rigging and speed.

— Speed calculations.

— Variation der Geschwindigkeit eines Levasseur-Flugzeuges mit veränderlichen Trägf lächen.

— See Anderson, S. Herbert: Note on measurement of speed of airplanes.

— See Archdeacon, Ernest: Le grand problème du vol sans vitesse. L’Aerion Lacoin et Damblane.

— See Caldwell, F. W., and E. N. Fales: Wind-tunnel studies in aerodynamic phenomena at high speed.

— See Lupberger, E.: Ueber den Einfluss der Flügelamessungen auf die Fluggeschwindigkeit.

— See Norton, Frederick Harwood: The factors that determine the minimum speed of an aero-plane.

— See Norton, Frederick Harwood: The slow speed airplane.


— See Rateau, A.: Sur les plus grandes distances franchissables par les avions et les plus grandes vitesses réalisables.

— See Richardson, H. C.: Factors involved in high airplane speed at great altitudes.

— See Shaw, Douglas: Speed variation.

— See St., A.: Die grössten Flugzeuggeschwindigkeiten.


— See Wood, Karl D.: A variable speed fan dynomometer.

**Speed indicators.** Calibration of improved air speed indicator.
Journ. Soc. Automotive Engineers, Vol. 6, No. 6 (June 1920), New York, p. 442.

— Der Morell-Drehzahlmesser „Phylax“ und der Morell Fahrtmesser „Anemo."

— See Hersey, Mayo D., Franklin L. Hunt, and Herbert N. Eaton: The altitude effect on air speed indicators.

— See Midgley, Thomas, jr.: High-speed indicators.

**Sperry.** Das neue Sperry-Flugzeug zur Befehlsübermittlung.

— The Sperry Commercial monoplane wing.
Aviation, Vol. 10, No. 22 (May 30, 1921), New York, p. 689, ill.

— The Sperry "Commerical" wing.

— The Sperry "Messenger."

— The Sperry Messenger airplane.
Aviation, Vol. 9, No. 9 (Nov. 15, 1920), New York, pp. 285-286, ill.
SPERRY. The Sperry "Messenger" biplane.

— The Sperry monoplane wing.

— Trials of Sperry high-lift wings.
Aviation, Vol. 11, No. 19 (Nov. 7, 1921), New York, p. 330, ill.

SPERRY, ELMER AMBROSE. What the Virginia Capes aircraft bombings show.
Mechanical Engineering, Vol. 43 (Sept. 1921), New York, p. 624.

SPERRY, LAWRENCE B. Lawrence Sperry on parachutes.
Aerial Age, Vol. 13, No. 18 (July 11, 1921), New York, p. 423.

SPERRY triplane. The Sperry amphibious triplane.
Aviation, Vol. 0, No. 7 (Nov. 1, 1920), New York, pp. 227-221, ill.

SPICER, A. The Wisenant longitudinal aeroplane.

SPINS. On things which spin.

— See Glauert, H.: "Spins."


SPORTING aeroplanes. Small sporting aeroplanes.

— Two American sportplanes. The W. A. C. O. "Cootie" and the U. S. Airplane Co.'s "L. C. 7."

— Welche Formen wird das Sportflugzeug der Zukunft annehmen?

SPRAYING trees. Spraying trees from an airplane.
Aviation, Vol. 11, No. 10 (Sept. 5, 1921), New York, p. 288.

SPRINGS. The preservation of springs.

SPRUCE. See Boyd, James E.: Compressive strength of spruce struts.

— See Boyd, James E.: Investigation of the compressive strength of spruce struts of rectangular cross section and the derivative formulas suitable for use in airplane design.

SQUIER, GEORGE O. Aeronautics in the United States.

— See Barnes, John K.: The vindication of Squier and Deeds. What really happened to the billion dollar aircraft appropriation.

ST., A. Die grössten Flugzeug-Geschwindigkeiten.
Suisse Aerienn e, 2die anne, No. 19 (30 oct. 1920), Berne, pp. 206, ill.

— Die Rundsicht von grossen Flughöhen aus.
Suisse Aerienne, 2die anne, No. 14 (25 jul. 1920), Berne, pp. 205-209, ill.

— Ueber Vibrations und Schüttelbewegungen in grossen Flughöhen.
Suisse Aerienn e, 2die anne, No. 17 (10 sep. 1920), Berne, pp. 252.
Staaken. 1,000-horsepower Staaken monoplane.
Aerial Age, Vol. 13, No. 6 (Apr. 18, 1921), New York, p. 134.

Staaken monoplane. The new Staaken monoplane. An interesting German all-metal machine.

Stability. Full scale stability experiments on a B. E. 2e with R. A. F. 15 wing section.

See Aeronautical Research Committee: Reports and memoranda: -710. Summary of the present state of knowledge with regard to stability and control of aeroplanes.


See Bairstow, Leonard, and R. Jones: The stability of an aeroplane which has springs in its control surface connections.

See Bateman, Harry: . . . Diagrams of airplane stability.


See Bairstow, Leonard, E. F. Relf, and R. Jones: The stability of an aeroplane which has springs in its control surface connections.


See Bateman, Harry: Stability of the parachute and helicopter.

See Baumann, A.: Untersuchung der Querstabilität und Seitenstabilität auf graphischem Weg.

See Bouché, Henri: Vérités premières sur la stabilité.

See Budig, Friedrich: Sichtbare stabilisierung von Luftfahrzeugen.

See Chatley, Herbert: The problem of flapping flight.


See Harris, R. G.: Graphical solution of stability biquadratic.

See Heimstädt, Oskar: Ueber die seitliche Stabilität.


See Joyce, Temple N.: Effects of wind upon the stability and maneuverability of an airplane in flight.

See Lucas, K.: The oscillations of an aeroplane in flight and their effect on the accuracy of bomb dropping.


See Nayler, J. L.: The control of a laterally stable and of a laterally unstable aeroplane.

— See Nayler, J. L.: The lateral stability of large kites.

— See Norton, Frederick Harwood: Practical stability and controllability of airplanes.

— See O’Gorman, Mervyn: Standardized stability terms.

— See Relf, E. F.: The lateral stability of an aeroplane over the whole of its speed range.

— See Thomson, G. P.: Calculations on the spinning of an aeroplane.

— See Thomson, G. P.: The controllability of aeroplanes with special reference to rapid turning.

— See Upson, Ralph H.: Directional stability and control of airships.


Stabilizer. See Aveline: The Aveline stabilizer.

Luftweg, Nr. 15-16 (21 Apr. 1921), Berlin, pp. 117-119, ill.

— Zur befeuerung von Landungsgeländen.
Luftweg, Nr. 19-20 (19 Mai 1921), Berlin, p. 133.

Stahl, Friedrich. Die Luftschifffahrt in Ausland.

Staley, H. F. Cements for spark-plug electrodes.

Stamper, Arthur. Sport, Technik und Weltwirtschaft.
Aut. Flugw., Nr. 10 (Okt. 1921), Berlin, pp. 414-415, ill.

— Die Starrluftschnfe.

— Motorluftschiiffahrt die Starrluftschnfe.


Standardization. Standardization in aeroplane design.

— See Knight, William: Standardization and aerodynamics.

— See Prandtl, L.: Standardization and aerodynamics.

Standards. International aircraft standardization.

— S. A. E. Aircraft standards (third installment).
Aut. Ind., Vol. 38, No. 8 (Feb. 21, 1918), New York, p. 410, ill.
STANDARDS. See Clarkson, Coker F.: Automotive engineering standardization and progress.

See “Strasbourg”: Standardization and some of its enemies.

STANOJEVITCH, G. M. Plaque anémométrique sans remous.
L’Aérophile, 28e année, Nos. 15-16 (1er.-15 août 1920), Paris, p. 239.

STANTON, THOMAS ERNEST, and J. H. HYDE. Experiments on models of a “Duplex” wind channel. (i) Note on a possible method of increasing the size of wind channels beyond their present limits.

STANTON, THOMAS ERNEST. Note on the transmission of heat from the surface of a hot body to fluids flowing over it.

STANTON, THOMAS ERNEST, and J. H. HYDE. On a method of estimating the velocity changes of bodies falling vertically in water, and its application to the case of bombs.

STANTON, THOMAS ERNEST, DOROTHY MARSHALL, and E. GRIFFITHS. On the dissipation of heat from the surface of an air-cooled engine when running and when at rest.

STANTON, THOMAS ERNEST, and DOROTHY MARSHALL. Preliminary note on the effect of surface roughness on the heat transmitted from hot bodies to fluids flowing over them.

STANTON, THOMAS ERNEST. See Rayleigh: On the suggested analogy between the conduction of heat and momentum during the turbulent motion of a fluid.

STARIBACHER, ALFRED. Der italienische 6-Zylinder 100 PS Isotta-Fraschini-Flugmotor.

STARR. See Stahl, Friedrich.: Motorluftschifahrt die Starrluftschiffe.

STARR, R. C. Airplane in modern hydroelectric practice.

STARTER. Bijur aero engine starter.

— Bijur automatic starter.
Aerial Age, Vol. 12, No. 8 (Nov. 1, 1920), New York, p. 227, ill.

— Bristol aero engine starter.

— Ignition end airplane starter.
Aviation, Vol. 9, No. 8 (Nov. 8, 1920), New York, p. 268, ill.

— New ignition end Bijur airplane engine starter.
Automotive Manufacturer, Vol. 62, No. 8 (Nov. 1920), New York, pp. 31-32, ill.

See Bristol: The “Bristol” gas starter for aero engines. A successful auxiliary engine.
BIBLIOGRAPHY OF AERONAUTICS, 1920–1921.

STARTER. See Gaulois, G.: Cranking airplane propellers with a flask of air.

— See Odier: The Odier portable starter for aircraft engines.

— See Propellers: Cranking propellers by flask of air.

STARTING. Operating tests of magnetically operated starting switches.
Aerial Age, Vol. 13, No. 22 (Aug. 8, 1921), New York, pp. 521-522, ill.

STARTING devices. Engine cranker used at flying field.

STATE. State aeronautical legislation.
Aviation, Vol. 11, No. 23 (Dec. 5, 1921), New York, p. 658.

STATIC testing. Present procedure in static testing of airplane engineering division, U. S. Air Service.

STATIC tests. Static tests of aeroplanes.

STATISTICS. Pilot mortality statistics.

— (Une statistique.)

STEADY motion. See Bothezat, George de: General theory of the steady motion of an aeroplane.

STEAM. See Engines: Steam motors for aircraft.

STEAM turbine. See Acampora, Luigi: The study of a steam turbine for airplanes.

STEEL: Carbon and alloy steels for aircraft, automobiles, etc.
Sheffield, 1920, Thomas Firth and Sons, Ltd.

— See Belaiwe, H. T.: The structure of steel.
— See Brearley, Harry: The case-hardening of steel.
— See British engineering standards association, London.
— See Molybdenum: Molybdenum steels.


— Naschrift.
Vliegveld, 5. jaarg., No. 10 (7 Meis 1921), Amsterdam, pp. 136-137.
— Certificaten van luchtvaardigheid.
Vliegveld, 5. jaarg., No. 6 (12 Maart 1921), Amsterdam, pp. 84-87.
— Opinions from America.
Vliegveld, 5. jaarg., No. 5 (20 Febr. 1921), Amsterdam, pp. 66-71.
— Vickers “Viking” amphibie vliegtuigen.
Vliegveld, 5. jaarg., No. 20 (24 Dec. 1921), Amsterdam, pp. 345-352, ill.

STEERING. See Gradenwitz, Alfred: German gyro gauges. The Drexler aircraft steering gauge.

STEGER, CARL. Der Segelflug der Vögel und die Möglichkeit einer künstlichen Nachahmung.
Schweizerische Bauzeitung, Bd. 77, Nr. 15 (Apr. 9, 1921), Zürich, pp. 168-169.

STELLING. Die Wirtschaftlichkeit des Prallluftschiffes für Verkehrszwecke unter besonderer Berücksichtigung des Parseval-Systems ... Luftweg, Nr. 49-50 (15. Dez. 1921), Berlin, pp. 344-346.


STETTBAUER, A. Allgemeine Studien zur Statik und Physiologie des fliegenden Menschen.

Suisse Aérienne, 2e année, No. 8, (25 avr. 1920), Berne, pp. 115-120, ill.


— Die Erforschung der Atmosphäre im Flugzeuge. Suisse Aérienne, 3e année, No. 3, Berne, 1921, pp. 35-37, ill.


STONE, GEOFFREY DE HOLDEN. An uncommon dynamo type. Certain automobile considerations.

STOUT. The Stout aerial sedan.

—— The Stout batwing limousine.
Aviation, Vol. 8, No. 12 (July 15, 1920), New York, p. 479.

—— The Stout "Batwing" monoplane.

—— The Stout three-seater monoplane.

—— The Stout monoplane.
Aerial Age, Vol. 12, No. 17 (Jan. 3, 1921), New York, pp. 439-440, ill.

STOUT, WILLIAM B. Analysis of operation costs of aeroplane lines.
Aerial Age, Vol. 18, No. 5 (Apr. 11, 1921), New York, p. 187.

—— Duralumin, its characteristics and use.
Aviation, Vol. 11, No. 16 (Oct. 17, 1921), New York, pp. 455-456.

—— Duralumin: Its properties and commercial possibilities.

—— The internally trussed wing.

—— New planes advance commercial air possibilities.
Av. Ind., Vol. 43 (July 29, 1920), New York, pp. 251-203.

—— Operation costs of air lines.

—— Requirements of the commercial airplane.
Aviation, Vol. 10, No. 5 (Jan. 31, 1921), New York, pp. 143-144.

—— Research and the future of aeronautics.
Flying, Vol. 10, No. 6 (July, 1921), New York, pp. 207-208.

—— Veneer or metal construction.
Aviation, Vol. 10, No. 8 (Feb. 21, 1921), New York, p. 232.

STRAIN, L. H. Aircraft vs. submarine.
Flying, Vol. 10, No. 9 (July 1921), New York, pp. 202-206, 226, ill.

—— Aircraft vs. submarines. Lecture delivered in Glasgow on 15th December, 1920.


"STRAUBURG." Concerning enthusiastic amateurs.

—— The perils of a misguided friendship.

—— Standardization and some of its enemies.

STREAMLINES. Luftströmungen über gebirgigem Gelände.

—— See Airplanes: The streamline airplane.

STRAILINES. See Pannell, J. R.: Fluid resistance on bodies of approximately streamline form.

--- See Sumner, P. H.: Streamline kite balloons.

STREET, St. CLAIR. The Alaskan flying expedition.

Journ. Soc. Automotive Engineers Vol. 8, No. 3 (Mar. 1921), New York, pp. 222-229, ill.

--- 14th heavy bombardment squadron attacks New York City.


STRESS. Discussion of stress analysis of an airplane wing cellule of the multispar type of wing construction, with special reference to the loading condition of the standard static test.


--- Stresses in an aeroplane when diving steeply.


--- See Barr, Guy: Measurements to determine the stresses in an airship envelope.

--- See Case, John: The loads and stresses in aeroplanes. Part II. Tail unit and fuselage.

--- See Hunsaker, J. C.: Velocity and stresses in a glide.

--- See Thomson, G. P.: Possible stresses in an aeroplane in flight.


STROH, H. Avions navals et torpilles sous-marines.

Aeronautique, 1er année, No. 9 (fév. 1920), Paris, pp. 396-398, ill.

STONG, JOHN. The inefficiency of commercial aircraft in its relation to airscrew design.


STRUTS. Location of interplane struts.


--- Resistance of six different strut forms for streamline fairing of cables and tubes.

Engineering Division Air Service, Technical Orders No. 8 (Sept. 1919), Dayton, Ohio, pp. 39-50, figs.

--- Two noninjurious tests for determining ultimate strength of interplane struts for airplanes.

Engineering Division Air Service, Technical Orders No. 7 (Apr. 1919), Dayton, Ohio, pp. 53-69, figs.

--- See Boyd, James E.: Compressive strength of spruce struts.

--- See Boyd, James E.: Investigation of the compressive strength of spruce struts of rectangular cross section and the derivative formulas for use in airplane design.

--- See Case, John: The design of long struts exposed to the air.

--- See Cowley, W. L., L. F. G. Simmons, and J. D. Coales: An investigation to determine the best shape of fairing piece for a cylindrical strut.


--- See Hudson, Hilda P.: The strength of laterally loaded struts.

---


See Niles, A. S., and B. C. Boulton: Location of interplane struts.


See Stevens, H. L.: Design of struts exposed to wind forces.

See Warner, E. P.: Use of the hollow strut on the new airplanes.


See Wieselbäger, Ing. C.: The effect of the nature of surfaces on resistance, as tested on struts.

STUART, A. H. The vibration of spars.


---

Vibration of spars in aircraft.

Aviation, Vol. 8 (May 1, 1920), New York, pp. 290-291.


STUNTS. The investigation of stunts.


---

Stunts.

London, 1920, Aerofilms (Ltd.).

SUBMARINE. Flying submarine.


SUBMARINES. Aircraft v. submarines.


---


SUBSIDIES. Aircraft firms and subsidies.


---

British cabinet approves subsidy for civil aviation.

Aerial Age, Vol. 12, No. 22 (Feb. 7, 1921), New York, p. 506.

Civil aviation subsidies. Recommendation of the advisory committee.


England to subsidize air transport.

Aerial Age, Vol. 10, No. 9 (Feb. 28, 1921), New York, p. 277.

---

On those subsidies again.

The Aeroplane, Vol. 21, No. 2 (July 13, 1921), London, pp. 25-26; No. 4 (July 27), pp. 69-70.

---

On the subsidy evil.


---

Scheming for Government subsidies and cross-licensing agreement held to be main causes of aircraft evils.

Aerial Age, Vol. 10, No. 18 (Feb. 16, 1920), New York, pp. 655-656.

---

Subsidies, air mails, and a territorial air force.


---

The subsidies committee.


---

Subsidies (of sorts) for air lines.

The Aeroplane, Vol. 20, No. 2 (Jan. 12, 1921), London, p. 32.
BIBLIOGRAPHY OF AERONAUTICS, 1920–1921.

Subsidies. The subsidising of civil aviation.

The subsidy scheme.

Subvention des Luftverkehrs in verschiedenen Ländern.

Subventionierung der Zivilaviatik.
SuissAérienne, 3e année, 1921, No. 12, Berne, pp. 176–177.

See France: French civil aviation subsidies.
See Germany: German subsidy scheme.

Sueter, Murray. Rear Admiral Sueter, M. P.

Sullivan, L. G. Air show brings back fond memories to old-time motor-car men.
Motor Age, Vol. 37 (Jan. 15, 1920), Chicago, pp. 7–11, ill.

Sumatra. See Roberts, E. W.: Power characteristics of Sumatra and Borneo gasolines.


Summer, P. H. The design and stability of streamline kite balloons, with useful tables, aeronautical, and mechanical formulæ.

Kite balloons.
Aeronautics Vol. 20, n. s., No. 381 (Feb. 3, 1921), London, p. 78.

The principle of the captive balloon. With reference to its application for the mooring of airships.

A stabilising raft for mooring airships over the sea.


Sunbeam. The 16-horsepower Sunbeam.

Sunbeam activity.

Aerial Age, Vol. 11, No. 7 (Apr. 26, 1920), New York, p. 221, ill.

Sunbeam-Coatalen "Cossack" engine.
Aerial Age, Vol. 13, No. 20 (July 25, 1921), New York, pp. 465–467, ill.


Supercharged. Cloud formation by supercharged plane.

Experiments with supercharged engines.

Superchargers. Some supercharger problems.
SUPERCHARGERS. See Bothezat, George De: Aeroplane performances as influenced by the use of a supercharged engine.

— See Engines: The value of supercharging.
— See Germany: German supercharger developments.
— See Hildesheim, E.: Experiments with and practical use of superchargers.
— See Moss, Sanford A.: General Electric turbo supercharger for airplanes.
— See Schwager: Notes on the design of supercharged and over-dimensioned aircraft engines.
— See Seymour, J. D.: Superchargers and variable pitch propellers.


SUPERMARINE. Demonstration of Supermarine flying boats.

— Oil prospecting by supermarine.

— The Supermarine amphibian “Seal Mark II”.

— The Supermarine flying boats.

— A Supermarine in a gale.

— The Supermarine “Seal” Mark II. An interesting deck-landing amphibian fleet spotter.

— Supermarine successes.

SUPERMARINE AVIATION WORKS, (LTD.) See Great Britain: Modern British aircraft.

SUPPLY means. A supply means for aircraft.
Aviation, Vol. 8, No. 5 (Apr. 1, 1920), New York, pp. 204-205, ill.


SURGEON, flight. See Military aeronautics: New army job; flight surgeon.

SURVEY. An aerial survey.

SURVEYING. Efficiency and economy of aerial survey.
Flying, Vol. 10, No. 5 (June 1921), New York, p. 179.

— Railway survey by air.
Aerial Age, Vol. 14, No. 9 (Nov. 7, 1921), New York, p. 208.

— Thousands of dollars saved to the public by aerial survey.

— See Canada: Aerial surveying in Canada.
— See Gradenzwitz, Alfred: Kinematographic surveying.
— See India: Aerial surveying in India.
SURVEYS. Report on aircraft surveys. Aeroplanes, engines, balloons and dirigibles accepted by Air Service April 6, 1917, and November 1, 1919.
Aerial Age, Vol. 11, No. 7 (Apr. 26, 1920), New York, pp. 221-223, 255.

SUTTON-PICARD, A. J. Aeroplane structures.

SWAAB, JACQUES M. Let those rule the air who know the air.

SWAN, CHARLES ATKIN. Some physical and psychical effects of altitude.

SWI'ZILAND. Acrobatic aérienne en Suisse.

— Air navigation on and above Swiss waters; Geneva customs aerodrome.

— Aircraft for Switzerland. Information for designers.

— Customs aerodromes and seaplane stations, etc.

— Recent developments in Sweden.

— Subsidy for Swedish civil aviation.
Switzerland. Réglementation de la circulation aérienne.

— A Swiss aero engine.

— Swiss air regulations.
Aerial Age, Vol. 13, No. 13 (June 6, 1921), New York, p. 301.

— Unsere Luftschiiffetruppe.
Suisse Aérienne, 3e année, 1921, No. 21, Berne, pp. 306-306, ill.

— See France: Customs stations on the Swiss frontier.


Sykes, F. H. Aerial transport from a business standpoint.

— Air Marshal Sir F. H. Sykes on commercial aviation.

— Aviation and air transport.
Flying, Vol. 10, No. 4 (May 1921), New York, pp. 133-137, ill.

— Aviation and transport.

— Aviation in peace and war.

— Aviation—past, present, and future.

— Civil aviation.

— Civil aviation abroad.

— Civil aviation and air services.

— Imperial air routes.


Sylvester, C. The design and construction of aero engines.

Symbols. Standard symbols used in the Technische Berichte.

— See Insignias: Aero squadron insignias approved by War Department.

— See Orcy, Ladislas d': International aircraft marking.
TACHOMETERS. Testing of airplane tachometers.

TADDEO利, EMILE. Le mort de Taddeoli.
Suisse Aerienne, 2e année, No. 11 (10 juin 1920), Berne, pp. 155-156, ill.

TAIL. See Glauert, H.: Full scale experiments with different shapes of tail plane.
— See Norton, Frederick Harwood: The pressure distribution over the horizontal tail surfaces of an airplane.
— See Kerber, L. V., and W. F. Gerhardt: A method for determining the angular setting of a tail plane to give balance at any given condition.

"TAIL skid." South African flying.

TAKENS, H. J. Bedrijfszekerheid van vliegmotoren.
Vliegveld, 5. jaarg., No. 19 (10 Sept. 1921), Amsterdam, pp. 204-205.
— Is benzine de juiste brandstof voor de B. M. W. motor 80 P. K.?
Vliegveld, 5. jaarg., No. 6 (12 Maart 1921), Amsterdam, 92-94.
— Gegevens ontrent dumaluminium.
Vliegveld, 5. jaarg., No. 2 (15 Jan. 1922), Amsterdam, pp. 21-24, ill.
— Ontwerp verkeersvliegtuig voor overzeesverbindingen.

TALBOT, F. A. All about aircraft of to-day.
London, 1920, Cassell & Co. (Ltd.), x+300 pp., ill.
— All-metal biplane for all-round use.

TAMPIER. L’avion-automobile René Tampier.
Aeronautique, 3e année, No. 31 (dec. 1921), Paris, pp. 493-494, ill.

TANDY, E. T. Commercial airplane reaches stage of national advertising.

TANKS. The Air Ministry tank tests.
— Competition for aircraft safety tanks.
Aerial Age, Vol. 14, No. 1 (Sept. 12, 1921), New York, p. 16.
— Prevention of fire by self-sealing tanks.
— Rubber armor for airplane gasoline tanks.
— Rubber covering is not sufficient for leak-proof tanks.
— Safety tanks for aircraft competition.
Aviation, Vol. 11, No. 11 (Sept. 12, 1921), New York, p. 318.
— The tank tests at Farnborough.
TANKS. See Imber: The Imber safety tank.
— See Imber: The Imber self-sealing gasoline tank.
TANZI, J. La technique des dirigeables rigides allemands. Son development pendant la guerre.
L’Aérophile, 29e année, Nos. 2-3 (1er-15 févr. 1921), Paris, pp. 25-54, ill.
TAUBER, ERNST. Der neue Entwurf eines deutschen Luftverkehrsgesetzes.
Luftweg, Nr. 41-42 (20. Okt. 1921), Berlin, pp. 293-305.
TAU6OMETER. Tautometer for testing doped surfaces.
— See Instruments: Tautometer for testing doped surfaces.
TAYLOR, A. HOLI. Variation in direction of propagation of long electromagnetic waves.
TAYLOR, BENJAMIN ROSS. Agricultural possibilities of aviation fields.
Flying, Vol. 9, No. 10 (Nov. 1920), New York, p. 625, ill.
TAYLOR, DAVID WATSON. See Knappen, Theodore Macfarland: Wings of war; an account of the important contribution of the United States to aircraft invention, engineering, development, and production during the World War.
— See United States Congress. House Committee on Naval Affairs: Naval policy of the United States.
TAYLOR, FRED., and DRAYTON EDWIN EARLE. . . . Manufacturing and laboratory tests to produce an improved cotton airplane fabric.
TAYLOR, G. I. Conditions at the surface of a hot body exposed to the wind.
— Observations and speculations on the nature of turbulent motion.
— Phenomena connected with turbulence in the lower atmosphere.
— Pressure distribution over the wing of an aeroplane in flight.
— Pressure distribution round a cylinder.
— Report on the accuracy with which the temperature error in determining heights by the barometer may be corrected.
TAYLOR, G. I., and A. A. GRIFFITH. The use of soap films in solving torsion problems.
TAYLOR, G. I., and C. J. P. CAVE. Variation of wind velocity close to the ground.
TAYLOR, THOMAS GRIFFITH. Australian meteorology: A text-book including sections on aviation and climatology.


TEACHING. An apparatus for teaching flying.


TEED, P. LITHERLAND. Future developments of the rigid airship.


—— Future developments of the rigid airship for commercial purposes.


—— Hydrogen production for airships.


—— The lift of hydrogen.


TELEPHONE. Wireless telephone transmitter for seaplanes.


—— See Heffner, R. J.: Telephoning from the air.

—— See Wireless.

TEMPERATURE. Water-temperature indicators.

Aviation, Vol. 10, No. 5 (Jan. 31, 1921), New York, p. 149, diagr.


—— See Lewitt, E. H.: Temperature stresses in the rigid airship.


TENNANT, JOHN EDWARD. In the clouds above Bagdad, being the records of an air commander.


TERMS. See Royal Aëronautical Society: A glossary of the aeronautical terms prepared by the Technical Terms Committee of the Royal Aëronautical Society.

TESTS. Air Ministry tests.


TESTS. Deux grandes épreuves d’aéronautique de 1920.


—— Effects of water outlet temperature on engine output.

Aut. Ind., Vol. 43 (Apr. 29, 1920), New York, pp. 102-103.

—— First transcontinental airplane test.

Journ. Soc. Automotive Engineers, Vol. 6, No. 6 (June 1920), New York, pp. 422-424.

—— Official tests of aeroplanes.


—— A railway for testing full-size aeroplanes.


—— The seaplane tests.


—— The tests and running costs.

BIBLIOGRAPHY OF AERONAUTICS, 1920–1921.

Tests. Tests of fireproof equipment.
— Trial flights and acceptance tests for new types of aeroplanes.
Aerial Age, Vol. 19, No. 5 (Apr. 11, 1921), New York, p. 119.
— See Engines: Increase of power output with higher compression ratios; another of the McCook field engine tests.
— See Hispano-Suiza: Test of standard Hispano-Suiza engine.
— See McBride, R. S.: New engine-testing plant.
— See Seaplanes: The seaplane tests.
— See Warner, E. P.: Static testing and proposed standard specifications.

Tetens, Otto. Luftverkehr und Wetter.
Suisse Aérienne, 3e année, 1921, No. 10, Berne, pp. 145–146.

Tevis, M. Do fish swim as airplanes fly?
— Habits and habitats of flying fish.

Thames. The Thames as an air port.

Theris, R. Kleines Hilfsbuch für Flieger und Freunde des Flugwesens, von R. Theobis und Dr. H. Haeder.
Wiesbaden, pp. 48.

Therapeutic. The therapeutic value of flying.
The Ace, Vol. 2, No. 9 (June 1921), Los Angeles, pp. 7–8.
Flying, Vol. 10, No. 4 (May 1921), New York, pp. 132, 146.


Thiel, Oswald. Une randonnée sur les Alpes valaisannes.
Suisse Aérienne, 3e année, No. 1 (janv. 1921), Berne, pp. 7–10, ill.
— Un vol au dessus des Alpes bernoises.

Thierry, M. Les documents aéronautiques.
Aéronautique, 2e année, No. 13 (juin 1920), Paris, pp. 3–11, ill.
— Navigation aérienne et navigation maritime.
Aéronautique, 1e année, No. 11 (avr. 1920), Paris, pp. 466–471, ill.

Thom, Alexander. The correction of aerofoil characteristics for scale effect.

Thomas. Von der New-Yorker Luftfahrtausstellung.

Thomas, George Holt. Aerial transport.
London, Hodder and Stoughton (Ltd.), 1920, pp. 259+ix, ill., maps.
— Aeroplane design, German capacity, and our Empire’s future in the air.
— Commercial aeronautics.
— Commercial aeroplanes, the problems of speed and load.
BIBLIOGRAPHY OF AERONAUTICS, 1920–1921. 403

THOMAS, HOLT. Commercial communication by air.

—— The resignation of Mr. Holt Thomas.

—— See Mails: Inland air mails. Mr. Holt Thomas shows the way.

THOMAS, H. HAMSHAW. Aircraft photography in war and peace.

THOMAS, W. T. Wave soaring.
Aer. Age, Vol. 11, No. 18 (July 12, 1920), New York, pp. 610-617, diagr.

THOMAS, HERBERT. Pioneers of British aviation—XXIII: Mr. Herbert Thomas.

THOMAS-MORSE. Performance test of Thomas-Morse MB–3 with 300 Hispano-Suiza engine.

—— The Thomas-Morse MB–4 mail plane.
Aviation, Vol. 8, No. 3 (Mar. 1, 1920), New York, pp. 99-100, ill.

—— Thomas-Morse mail plane.


THOMSON. See Hill, R. M.: [Flying of twin-engined aeroplanes.]

THOMSON, C. D. The late Mr. C. D. Thomson.

THOMSON, GEORGE PAGET. Applied aerodynamics.

—— Calculations on the spinning of an aeroplane.

—— The controllability of aeroplanes with special reference to rapid turning.

—— Possible stresses in an aeroplane in flight.

THORBURN, D. W. Le mois de juillet dans l‘aviation britannique.
L‘Air, No. 18 (5 août 1920), Paris, pp. 19-21, ill.

THORNDYKE, EDWARD L. The selection of military aviators. III. The selective action of the ground schools.

THRACE. Thrace as seen from an airplane.

THRUST. Aeroplane thrust compared with the "pull" of other vehicles.

—— How to make a scale to measure thrust.

THUNDERSTORMS. See Wilson, C. T. R.: Investigations on lightning discharges and on the electric field of thunderstorms.

THURN, H. Funkentelegraphie und Luftfahrt.

THURSTON, A. P. Elementary aeronautics, or the science and practice of aerial machines. London, Pitman and Sons, 1920, pp. 231.


—— Flying to Alaska. In many ways, the most remarkable flight ever undertaken. U. S. Air Service, Vol. 4, No. 1 (Aug. 1920), New York, pp. 8-11, ill.


TIRES. The development of tires and wheels. Aerial Age, Vol. 13, No. 9 (May 9, 1921), New York, p. 205.
BIBLIOGRAPHY OF AERONAUTICS, 1920–1921.

Tissandier, Paul. La première exposition aéronautique.


Titania. See Fairley: Our new large flying boats the Fairley “Titania” and the Vickere-Saunders “Valentia.”

Tobón, A. Aviación en Colombia.
Tochtli, año 5, Núm. 1 (agosto 1920), México, p. 12.

Todel, David. Nuevo vuelo de altura en proyecto.
Aire, Mar y Tierra, año 2, Núm. 17 (agosto 1920), Madrid, p. 173.

Aerial Age, Vol. 12, No. 29 (Feb. 28, 1921), New York, p. 638.


Tools. The machine tools exhibition.

— See Dorman: Dorman wave-power transmission tools.

Torpedo. Air torpedo tested.
Aerial Age, Vol. 14, No. 10 (Nov. 14, 1921), New York, p. 221.

— The comedy of the aerial torpedo.

— The development of torpedo aircraft.

Torpedo carriers. Torpedo carriers versus big ships.

Torpedo planes. New American torpedo plane.

— See Blackburn: The Blackburn “Swift” torpedo plane.

— See Jones, E. T.: Torpedo controlled by airplane by means of wireless.


Touring. Touring airplane has upper and lower berth.

— See Europe: Touring Europe by air.


— First annual air tournament.

Torque. The correction of propeller torque.
Aerial Age, Vol. 13, No. 4 (Apr. 4, 1921), New York, p. 89.

Toussaint and Hayer. Extract from a report of the resistance of spheres of small diameter in an airstream of high velocity.
Technical Notes, National Advisory Committee for Aeronautics, No. 45, Mar. 1921, Washington (mim.), pp. 9, diagrs.
Aerial Age, Vol. 13, No. 9 (May 9, 1921), New York, pp. 189–200.

Toussaint, A. Annexes.
TOUSSAINT, A. Drag or negative traction of geared-down supporting propeller in the downward vertical glide or a helicopter.
Translated from the French by Paris office, N. A. C. A.

TOUSSAINT, A., and WEISENBURGER. Essais aérodynamiques: sur la distribution des pressions autour des cylindres dont les génératrices sont perpendiculaires au courant d’air.

— L’évolution de l’aviation moderne et les recherches expérimentales et techniques des laboratoires aérodynamiques.
L’Aérophile, 29e année, Nos. 21-22 (1er-15 nov. 1921), Paris, pp. 343-345.


— Frénage ou traction négative des hélices sustentatrices débrayées dans la descente planée verticale d’un hélicoptère.
L’Aérophile, 28e année, Nos. 3-4, (1er-15 févr. 1920), Paris, pp. 50-53.

— Note on the resistance of polished cylinders (and cylindrical wires) with generatrices perpendicular to the airstream.

TOUSSAINT, L. Revue d’aérotechnique expérimentale.

TOWERS, J. H. Great hop.
Everybody’s, Vol. 41 (Nov. 1919), New York, pp. 9-15, ill.
Transatlantic flight.

TOWNSEND, C. W. Commercial aircraft.

TRACTORS. Hints on flying right-hand tractors.
Aerial Age, Vol. 12, No. 7 (Oct. 25, 1920), New York, p. 205.

TRAFFIC. See Hug, August: Das Flugzeug als Verkehrsmittel.

TRAFFIC control. See Wireless telephony: Aerial route traffic control by radiotelephony.

TRAINING. Aeronautics and the universities.

— Air Service mechanics’ school.

— Air Service special service schools.

— Denkschrift über Hochschulfragen im Luftfahrtwesen.

— Nuestra aviación. (Tomado de la Revista de Marina de Valparaíso, Chile).
Tohil, año 6, Números 1 y 2 (enero y febrero de 1921), México, pp. 56-58.

— Our airmen in training. Squad drill at the Uxbridge R. A. F. depot.

— Learn to fly! How to proceed if you would take a ship into the air.
Training. A modern flying school.  
Central Aircraft Co.'s flying school.

— The R. A. F. training school. A visit to Cranwell.  

— Training of aerial observers.  
Journ. Soc. Automotive Engineers, Vol. 6, No. 6 (June 1920), New York, p. 416.

See Cranwell: At Cranwell training center.


See Depew, Richard H., Jr.: Civil aviation schools.

See Lamoreaux, L. P.: Flying characteristics of training planes.

See Naef, Ernst: L'Ecole d'Aviation d'Aéro.

See Wilson, E. E.: How the Navy trains air mechanics.

Transalpine flight. See Pröll, A.: Eine Alpenüberquerung im Ballon "Tirol."

Transcontinental flight. Circumnavigating America in an Avro.  

— First transcontinental airplane test.  
Jour. Soc. Automotive Engineers, Vol. 6 (June 1920), New York, pp. 422-424.

— Report on first transcontinental reliability and endurance test conducted by the Air Service, U. S. A., October 8 to October 31, 1919.  

— Transcontinental flight in 22½ hours.  

— Two transcontinental airplane performances.  
Air mail pilots cross country in 33 hours, 20 minutes flat. Army flier makes two-stop flight, California to Florida.  


Transport. Aerial transport in the light of history.  

— Aviation and air transport.  

— Commercial air transport.  

— On a £1,000,000 national air transport company.  

Transportation. Aerial transportation and aerial touring.  

— The requirements and difficulties of air transport.  

— Six-passenger plane makes trip here.  
Six all-metal craft causes sensation among aeronautic crowds.  
The Navigator, Vol. 1, No. 17 (June 5, 1920), Pensacola, Fla., p. 2.

See Civil aviation.
TRANSPORTATION. See Commercial aeronautics.

— See Kellett, W. Wallace: Travel by air.
— See Martin, Glenn L.: Aerial transportation as a business proposition.
— See Tinker, C. A.: Transportation's fourth estate.

TRANSPORTS. See White-Smith, H.: Les entreprises de transports aériens et les constructeurs.

— See Kellett, W. Wallace: Travel by air.
— See Tinker, C. A.: Transportation's fourth estate.


TREIBER, W. Der Fallschirmabsprung.

TRIPLEX. Triplex-Sicherheitsglas (D. R. P.) für Verkehrsflugzeuge.

TROPICAL countries. See Brooke-Popham: Aeroplanes in tropical countries.

TROTTIER, L. P. Local peculiarities of wind velocity and movement Atlantic seaboard—Eastport, Me., to Jacksonville, Fla.

BIBLIOGRAPHY OF AERONAUTICS, 1920–1921.


TUCKER, ALBERT. Airplanes, airships, aircraft engines. Annapolis, Md., The United States Naval Institute, 1921, pp. 436, ill.


TURBINE. See Aeronautical Research Committee. The internal-combustion turbine.

TURBINE. See Mott-Smith, M. C.: Tungsten and turbines.


TURBINE. See Buckwald, H. M.: The Rateau turbo-compressor.

TURBINE. See Devillers, Rene: The problem of the turbo-compressor.


TURKEY and the Near East. See Tennant, John Edward: In the clouds above Bagdad, being the records of an air commander.

TURKISH treaty. Aircraft and the Turkish treaty.

Turn indicator. See Colvin, Charles H.: The pioneer turn indicator.

Turn, A. J. Report on the suitability of cotton fabrics for covering aeroplane wings.


Turner, C. C. Air-mail extension.


Turner, C. C. Air-mail extension.


BIBLIOGRAPHY OF AERONAUTICS, 1920–1921.

TURNER, C. C. The complete air way.

—— Les voyages aériens le Caire-le Cap: deux cas de sabotage.

TURNER, T. C. Log of the Washington-Santo Domingo flight.
U. S. Air Service, Vol. 5, No. 4 (May 1921), New York, pp. 18-20, ill.

—— Your questions answered while you wait. Review of Aircraft Yearbook for 1921.
U. S. Air Service, Vol. 5, No. 6 (July 1921), New York, pp. 32-33, 43.

TURRELL, GUY H. See Le Wald, Leon T., and Guy H. Turrell: The aviator's heart—Roentgen-ray studies under conditions simulating high altitudes.

Types of airplanes. Die aeronautische Ausstellung in Chicago.

—— Die amsterdamer Luftfahrtausstellung und der Boykott der deutschen Flugzeugindustrie.

—— Deutsche und ausländische Sportflugzeuge.

—— Das französische 2500-PS-Flugzeug.

—— Pariser Salon, 1919.

—— Pour d'autres victoires.

—— See Bencke, Albert: Die wirtschaftliche und technische Stellung der französischen Flugzeugindustrie.

—— See Bentivegni Richard v.: Riesenflugzeuge.

—— See Hahn, Hanns: Die internationale Olympia-Ausstellung.


Tyres. See Palmer: Palmer broad-tread aero tyres.

U.


—— The U. S. G. A. X. ground attack airplane.

Udet, Ernst. Mes débuts d’aviateur.
Vie Aérienne, No. 109 (5 févr. 1920), Paris, pp. 945-946, ill.


Ulinski, F. A. Die Lösung des Segelflugproblems.

—— Das Problem der Weltraumfahrt.
Flug, Sondernummer (Des. 1920), Wien, pp. 113-124, ill.

—— Die Umsetzung von Materie als Energieproblem.

Ullmann, E. S. Le campement des dirigeables en plein air. Le dispositif d’amarrage Ullmann pour aéronefs.
BIBLIOGRAPHY OF AERONAUTICS, 1920–1921.

UNDERCARRIAGE. Undercarriage design with reference to high-wing loading.
Aerial Age, Vol. 13, No. 19 (July 18, 1921), New York, p. 446.

UNDERWOOD, H. L. The effects of smoking on visual acuity.

UNDERWROTTING. First year’s result in aircraft underwriting.
Aviation, Vol. 10, No. 8 (Feb. 21, 1921), New York, p. 243.

UNG, E., and E. SCHMIDT. Duralumin.
Translated from: Technische Berichte, Vol. 3, Sec. 6, by Starr Truscott.
Aerial Age, Vol. 11, No. 23 (Aug. 16, 1920), New York, pp. 772-774.

UNIFORMS. A commercial aviator’s uniform.
Aerial Age, Vol. 13, No. 15 (June 20, 1921), New York, p. 344, ill.

UNION pour la sécurité en aéroplane. La sécurité en aéroplane: communiqué.
La Conq. l’Air, 3e année, No. 2 (1er févr. 1920), Bruxelles, p. 34.

UNITED STATES. Aeronautics in the United States.
American air transport services.
American aircraft production during the war.
American aviation in the war.
American aviation policy.
Aerial Age, Vol. 13, No. 8 (May 2, 1921), New York, p. 171.
The American 1,000-horsepower engine.
Another American record.
The Aeroplane, Vol. 21, No. 19 (Nov. 9, 1921), London, p. 446.
Curiosities of the U. S. Army service—II.
L’effort aérien des États-Unis.
First one-stop flight across the United States.
Government agencies and aeronautics.
Government to spend $35,600,000 on aviation.
Aviation, Vol. 11, No. 25 (Dec. 19, 1921), New York, p. 706.
Needs of American aviation.
Neue Luftverkehrslinien in den Vereinigten Staaten.
A one-stop flight across the U. S. A.
BIBLIOGRAPHY OF AERONAUTICS, 1920–1921.


— Stimulating the output of airplanes in America. Aut. Ind., Vol. 42 (May 27, 1920), New York, pp. 1214-1215.


— United air force—pro and con. Aviation, Vol. 9, No. 15 (Dec. 27, 1920), New York, pp. 480-482.


— See Engines: An American engine program.

— See Hydroplanes: Hydravions géants aux États-Unis.


— See Japan: On Japan's aeronautical activities and the prospects of the United States.

— See Routes, Air: Les grandes routes de l'air.

United States Advisory Committee for Aeronautics. ... Nomenclature for aeronautics.


War Department, Office of the Adjutant General, Document No. 985. Book II has added title: Gas plant operation.


Engineering Division, Air Service, Dayton, Ohio, 1920, pp. 45, ill.

UNITED STATES Attorney General. United States Attorney General requested by Congress to recover funds fraudulently or illegally paid to constructors. Aerial Age, Vol. 11, No. 7 (Apr. 26, 1920), New York, p. 213.

— See Manufacturers Aircraft Association: Attorney General asked to investigate Manufacturers Aircraft Association.

UNITED STATES Bureau of Standards. See Fuel: Bureau of Standards tests of various gasoline and benzol mixtures.
BIBLIOGRAPHY OF AERONAUTICS, 1920–1921. 413


UNITED STATES Congress. House Committee on Naval Affairs. Naval policy of the United States. Hearings before the Committee on Naval Affairs, House of Representatives, Sixty-sixth Congress, third session, on naval policy of the United States, including discussions on limitation of armaments: naval building program, with comparisons of various types of seacraft and aircraft; development of aviation and the need for airplane carriers in the Navy; air bombing of the U. S. S. "Indiana"; the proposal for a united air service.


— Why Congress refuses to give additional appropriations for aeronautics. "Pernicious lobbying" of some members and employees of Manufacturers Aircraft Association charged—dissolution of Association expected.

Aerial Age, Vol. 10, No. 17 (Feb. 9, 1920), New York, pp. 621-623, 643.


UNITED STATES Hydrographic Office. Notice to aviators . . .


Published by the Hydrographic Office under the authority of the Secretary of the Navy.

UNITED STATES Joint Army and Navy Board. Report of the joint board on results of aviation and ordnance tests held during June and July, 1921, and conclusions reached.


UNITED STATES Naval Academy. See Naval aeronautics: Aviation in Naval Academy courses.

UNITED STATES Navy. Bombing tests and our naval policy.


UNITED STATES Navy Department. Notes on the operation of nonrigid airships.


Compiled from various foreign and American pamphlets and reports on file in the Navy Department.

— See United States, Hydrographic Office: Notice to aviators . . .

UNITED STATES Post Office Department. United States air mail service. Pilots' directions, New York-San Francisco route. Distances, landmarks, compass course, emergency and regular landing fields, with service and communication facilities at principal points on route.


UNITED STATES Superintendent of Documents. . . . Army and militia, aviation and pensions; list of publications relating to above subjects for sale by Superintendent of Documents, Washington, D. C.


— Technical Section Division of Military Aeronautics Air Building, Dayton, Ohio. Dayton, Ohio, pp. 80, ill.


Un Radio. La radio aérienne.
La Nature, 48. année, 1er sem., No. double 2397 et 2398 (10 avril 1920), Paris, pp. 156-165, ill.

Unz, Max. The parachute problem.

— See Parachutes: Der Unz-Fallschirm.

Updegraff, R. R. Airplane and advertising of the future.

Uppercu, Inglis M. Inglis M. Uppercu.
Aerial Age, Vol. 13, No. 3 (Mar. 28, 1921), New York, p. 61, ill.

Upson, Ralph H. Aerial transportation of the immediate future.
Journ. Soc. Automotive Engineers, Vol. 8, No. 6 (June 1921), New York, pp. 593-597, ill.

— Airship construction.

— Airships for a trans-Atlantic service.
Aviation, Vol. 11, No. 13 (Sept. 26, 1921), New York, pp. 374-376.

— Airships for passenger transportation.
Aviation, Vol. 11, No. 21 (Nov. 21, 1921), New York, pp. 598-600, ill.

— Airship suspensions.
Aviation, Vol. 8, No. 12 (July 15, 1920), New York, p. 479, ill.

— Balloon racing. A game of practical meteorology.
Aviation, Vol. 10, No. 15 (Apr. 11, 1921), New York, pp. 455-466, ill.

— The Bodensee commercially profitable. Postwar conditions in German aerial transportation.

— The British passenger airship G—FAAF.

— Directional stability and control of airships.

— Disposition of power plants on airships.

— Lessons of the Gordon-Bennett balloon race.
Aviation, Vol. 11, No. 18 (Oct. 31, 1921), New York, pp. 502-503, ill.

— Maintenance of gas purity by purging.

— Ralph Upson wins National balloon race. Lands 423 miles from Birmingham after 35-hour trip.
Aviation, Vol. 10, No. 23 (June 6, 1921), New York, pp. 712-713, ill., map.


URUGUAY. See Kingsley, S. G.: Commercial aviation in Uruguay.


URUGUAY. See Kingsley, S. G.: Commercial aviation in Uruguay.

URUGUAY. See Kingsley, S. G.: Commercial aviation in Uruguay.

URUGUAY. See Kingsley, S. G.: Commercial aviation in Uruguay.

URUGUAY. See Kingsley, S. G.: Commercial aviation in Uruguay.

URUGUAY. See Kingsley, S. G.: Commercial aviation in Uruguay.

URUGUAY. See Kingsley, S. G.: Commercial aviation in Uruguay.

URUGUAY. See Kingsley, S. G.: Commercial aviation in Uruguay.

URUGUAY. See Kingsley, S. G.: Commercial aviation in Uruguay.

URUGUAY. See Kingsley, S. G.: Commercial aviation in Uruguay.

URUGUAY. See Kingsley, S. G.: Commercial aviation in Uruguay.

URUGUAY. See Kingsley, S. G.: Commercial aviation in Uruguay.

URUGUAY. See Kingsley, S. G.: Commercial aviation in Uruguay.

URUGUAY. See Kingsley, S. G.: Commercial aviation in Uruguay.

URUGUAY. See Kingsley, S. G.: Commercial aviation in Uruguay.

URUGUAY. See Kingsley, S. G.: Commercial aviation in Uruguay.

URUGUAY. See Kingsley, S. G.: Commercial aviation in Uruguay.

URUGUAY. See Kingsley, S. G.: Commercial aviation in Uruguay.

URUGUAY. See Kingsley, S. G.: Commercial aviation in Uruguay.

URUGUAY. See Kingsley, S. G.: Commercial aviation in Uruguay.

URUGUAY. See Kingsley, S. G.: Commercial aviation in Uruguay.

URUGUAY. See Kingsley, S. G.: Commercial aviation in Uruguay.

URUGUAY. See Kingsley, S. G.: Commercial aviation in Uruguay.

URUGUAY. See Kingsley, S. G.: Commercial aviation in Uruguay.

URUGUAY. See Kingsley, S. G.: Commercial aviation in Uruguay.

URUGUAY. See Kingsley, S. G.: Commercial aviation in Uruguay.

URUGUAY. See Kingsley, S. G.: Commercial aviation in Uruguay.

URUGUAY. See Kingsley, S. G.: Commercial aviation in Uruguay.

URUGUAY. See Kingsley, S. G.: Commercial aviation in Uruguay.

URUGUAY. See Kingsley, S. G.: Commercial aviation in Uruguay.

URUGUAY. See Kingsley, S. G.: Commercial aviation in Uruguay.

URUGUAY. See Kingsley, S. G.: Commercial aviation in Uruguay.

URUGUAY. See Kingsley, S. G.: Commercial aviation in Uruguay.

URUGUAY. See Kingsley, S. G.: Commercial aviation in Uruguay.

URUGUAY. See Kingsley, S. G.: Commercial aviation in Uruguay.

URUGUAY. See Kingsley, S. G.: Commercial aviation in Uruguay.

URUGUAY. See Kingsley, S. G.: Commercial aviation in Uruguay.

URUGUAY. See Kingsley, S. G.: Commercial aviation in Uruguay.

URUGUAY. See Kingsley, S. G.: Commercial aviation in Uruguay.

URUGUAY. See Kingsley, S. G.: Commercial aviation in Uruguay.

URUGUAY. See Kingsley, S. G.: Commercial aviation in Uruguay.

URUGUAY. See Kingsley, S. G.: Commercial aviation in Uruguay.

URUGUAY. See Kingsley, S. G.: Commercial aviation in Uruguay.

URUGUAY. See Kingsley, S. G.: Commercial aviation in Uruguay.

URUGUAY. See Kingsley, S. G.: Commercial aviation in Uruguay.

URUGUAY. See Kingsley, S. G.: Commercial aviation in Uruguay.

URUGUAY. See Kingsley, S. G.: Commercial aviation in Uruguay.

URUGUAY. See Kingsley, S. G.: Commercial aviation in Uruguay.

URUGUAY. See Kingsley, S. G.: Commercial aviation in Uruguay.

URUGUAY. See Kingsley, S. G.: Commercial aviation in Uruguay.

URUGUAY. See Kingsley, S. G.: Commercial aviation in Uruguay.

URUGUAY. See Kingsley, S. G.: Commercial aviation in Uruguay.

URUGUAY. See Kingsley, S. G.: Commercial aviation in Uruguay.

URUGUAY. See Kingsley, S. G.: Commercial aviation in Uruguay.

URUGUAY. See Kingsley, S. G.: Commercial aviation in Uruguay.

URUGUAY. See Kingsley, S. G.: Commercial aviation in Uruguay.

URUGUAY. See Kingsley, S. G.: Commercial aviation in Uruguay.

URUGUAY. See Kingsley, S. G.: Commercial aviation in Uruguay.

URUGUAY. See Kingsley, S. G.: Commercial aviation in Uruguay.

URUGUAY. See Kingsley, S. G.: Commercial aviation in Uruguay.

URUGUAY. See Kingsley, S. G.: Commercial aviation in Uruguay.

URUGUAY. See Kingsley, S. G.: Commercial aviation in Uruguay.

URUGUAY. See Kingsley, S. G.: Commercial aviation in Uruguay.

URUGUAY. See Kingsley, S. G.: Commercial aviation in Uruguay.

URUGUAY. See Kingsley, S. G.: Commercial aviation in Uruguay.

URUGUAY. See Kingsley, S. G.: Commercial aviation in Uruguay.

URUGUAY. See Kingsley, S. G.: Commercial aviation in Uruguay.

URUGUAY. See Kingsley, S. G.: Commercial aviation in Uruguay.

URUGUAY. See Kingsley, S. G.: Commercial aviation in Uruguay.

URUGUAY. See Kingsley, S. G.: Commercial aviation in Uruguay.

URUGUAY. See Kingsley, S. G.: Commercial aviation in Uruguay.

URUGUAY. See Kingsley, S. G.: Commercial aviation in Uruguay.

URUGUAY. See Kingsley, S. G.: Commercial aviation in Uruguay.

URUGUAY. See Kingsley, S. G.: Commercial aviation in Uruguay.

URUGUAY. See Kingsley, S. G.: Commercial aviation in Uruguay.

URUGUAY. See Kingsley, S. G.: Commercial aviation in Uruguay.

URUGUAY. See Kingsley, S. G.: Commercial aviation in Uruguay.

URUGUAY. See Kingsley, S. G.: Commercial aviation in Uruguay.

URUGUAY. See Kingsley, S. G.: Commercial aviation in Uruguay.

URUGUAY. See Kingsley, S. G.: Commercial aviation in Uruguay.

URUGUAY. See Kingsley, S. G.: Commercial aviation in Uruguay.
BIBLIOGRAPHY OF AERONAUTICS, 1920–1921.


— De proefvliegtuigensport in Nederland. Vliegveld, 5. Jaarg., No. 16 (30 Juli 1921), Amsterdam, p. 221, ill.


Vaporiser. See Kramer: The “Kramer-vaporiser.”

Vargas, Rafael. El giro-compás. Tohil, año 5, Núm. 2 (sept. 1920), México, pp. 54-57, ill.


Veneer. See Aeroplanes: Light aeroplanes, built with veneer.
BIBLIOGRAPHY OF AERONAUTICS, 1920–1921.

**Veneer.** See Gardner, H. A.: Glues and veneers in aircraft work.
— See Stout, William B.: Veneer or metal construction.

**Venezuela.** Mapping the Orinoco delta.

**Ventilators.** Ventiladores para aeroplanos.
Aire, Mar y Tierra, año 2, Núm. 13 (Junio 1920), Madrid, p. 335.

**Verband deutscher Luftfahrzeug-Industrieller.** Diskussions-Abend . . .

**Verduzio, Rodolfo.** Sulla costruzione metallica degli aeroplani.

**Vereinigte deutsche Flug Verband.** Sitzungen des Vereinigten Deutschen Flug-Verbandes E. V.

**Verneuil.** L'auto inflammation de l'hydrogène.
Aéronautique, 3eme année, No. 28 (sept. 1921), Paris, pp. 353-356.
— Procédés de fabrication industrielle de l'hydrogène aérostatique.
Aéronautique, 3eme année, No. 23 (juin 1921), Paris, pp. 232-239.

**Vernice incombustible per aeroplani, abiti, strumenti.**

**Versteegh.** Het feest van Versteegh, 2 November 1921.
Vliegwoche, 5. jaarg., No. 24 (26 Nov. 1921), Amsterdam, pp. 336-338.

**Versteegh, W. C. J.** W. C. J. Versteegh, 1911–1921.
Vliegwoche, 5. jaarg., No. 23 (5 Nov. 1921), Amsterdam, p. 315, port.

**Versuche mit Nabenhauben und Bugkühler.**

**Verville-Packard.** The Verville-Packard biplane.

**Verwohlt, H. W.** A few facts which the editors with difficulty obtained.

**Vibration.** See St., A.: Ueber Vibrationen und Schüttelbewegungen in grossen Flughöhen.

**Vickers.** The evolution of the Vickers "Viking" amphibian.

**Vickers.** Das neue Vickers-Luftschiff R 80.

— A new Vickers training machine.

— Vickers activities.

— Vickers Aircraft Works, Weybridge.
Engineer, Vol. 120 (Nov. 8, 1920), London, pp. 444-446, ill.

— Vickers-built airship for Japan.

— Vickers' claim before Royal commission.

— Vickers 4,800-horsepower flying boat.
Aviation, Vol. 8, No. 1 (Feb. 1920), New York, p. 20.
VICKERS. The Vickers instructional machine.
Aerial Age, Vol. 12, No. 20 (Jan. 24, 1921), New York, p. 518.

Vickers instructional machine (V. I. M.) with “Eagle” Rolls motor.

Vickers rigid airship R. 80.


The Vickers-Saunders “Valentia.”
Aerial Age, Vol. 13, No. 4 (Apr. 4, 1921), New York, p. 86.

The Vickers “V. I. M.” school machine 360-horsepower Rolls-Royce “Eagle” engine.
Flight, No. 628, Vol. 13, No. 1 (Jan. 6, 1921), London, pp. 4-5, ill.

The Vickers Viking.
Aerial Age, Vol. 12, No. 26 (Mar. 7, 1921), New York, p. 662.

The Vickers Viking IV amphibian.
Aviation, Vol. 10, No. 19 (May 6, 1921), New York, p. 97, ill.

Vickers’ “Viking Mark IV.”
Aerial Age, Vol. 13, No. 3 (Mar. 25, 1921), New York, p. 62.

The Vickers “Viking” Mark IV. Several machines building for abroad

Vickers “ Vimy” aeroplane ambulance.
Aerial Age, Vol. 13, No. 6 (Apr. 18, 1921), New York, pp. 131-132, ill.

The Vickers Vimy commercial ambulance machine. Two 450-horsepower Napier “Lion” engines.


VICKERS (Ltd.), Aviation Department. See Great Britain: Modern British aircraft.

VICKERS-SAUNDERS “Valentia.” Boat seaplane with war equipment.


VIGNERON, H. Le bleu du ciel et les propriétés optiques de l’air.
La Nature, 45. année, 2e sem., No. 2481 (8 nov. 1920), Paris, pp. 300-301.

VING. A “Viking” at Westminster.
Flight, No. 633, Vol. 13, No. 6 (Feb. 10, 1921), London, p. 92, ill.

Viking 16-cylinder airplane engine.
Motor Age, Vol. 37 (Feb. 26, 1930), Chicago, p. 39, ill.

VILLAMÍ, R. DE. Soaring flight. A simple mechanical solution of the problem.
London, Charles Spon, 1920, pp. 44.

Sailing flight. Soaring without effort: An energy balance sheet.

VILLAREAL, HUMBERTO RAMÍREZ. La legislación aérea.
Todtil, año 6, Núms. 1 y 2 (enero y feb. de 1921), México, p. 31.
VILLERS, R.  Un nouveau procédé pour la fabrication industrielle de l’hydrogène.

— La photographie aérienne.  Les appareils Eastman.

VILLEY, JEAN.  L’adaptation des moteurs à explosions aux hautes altitudes.

— Les moteurs d’avion pour hautes altitudes.

— Les moteurs à explosions pour atmosphères raréfiées.

— Le problème de l’adaptation des moteurs à explosions aux atmosphères raréfiées.
Aéronautique, 1re année, No. 9 (févr. 1920), Paris, pp. 399-404, ill.

— Sur le choix de la densité de remplissage dans la construction des moteurs d’aviation à explosion.

— Sur les vols aux hautes altitudes.

VIMY.  L’“Express-Vimy.”
Aéronautique, 3e année, No. 31 (déc. 1921), Paris, p. 496.

— The Vimy ambulance.

VINCENT.  Les avions sanitaires.
Aéronautique, 3e année, No. 29 (oct. 1921), Paris, pp. 396-400, ill.

VINCENT JESSE GURNEY.  Aerial mail service.
Journ. Soc. Automotive Engineers, Vol. 6 (May 1920), New York, pp. 299-299.

— An American engine for altitude work.
Aviation, Vol. 10, No. 9 (Feb. 28, 1921), New York, pp. 260-263, ill., diagr.

— Digest of replies to questions on the Liberty engine.

— The engine:  The heart of the airplane.

— Forward step in American airplane engines.

— Jesse Gurney Vincent.
Aerial Age, Vol. 13, No. 4 (Apr. 4, 1921), New York, p. 85, ill.

— The next steps in commercial aviation.
Flying, Vol. 16, No. 3 (Apr. 21, 1921), New York, pp. 87-90, ill.

— The Packard “altitude” aero-engine.

— Special Packard aero engine for altitude work.
Aerial Age, Vol. 12, No. 25 (Feb. 28, 1921), New York, pp. 631-633, 645, ill., diagr.

— The ultimate aeroplane engine.
Aviation, Vol. 10, No. 18 (May 2, 1921), New York, pp. 567-569.

Vinci, Leonardo de.  See Caro, I.: Aviones que no volaron.

Visibility.  See Brunel, Charles: De la visibilité aux diverses hauteurs.
BIBLIOGRAPHY OF AERONAUTICS, 1920–1921.

VISIBILITY. See Faure-Favier, Louise: Visibilité.


VIVIAN, EVELYN CHARLES H., and WILLIAM LOCKWOOD MARSH. A history of aeronautics, by E. Charles Vivian, with a section on progress in aeroplane design by W. Lockwood Marsh.
  London, W. Collins Sons & Co. (Ltd.), [1921], pp. x, 521, ill.
  New York, Harcourt, Brace & Howe, 1921, pp. vii-x, 521, ill.

VOGT, RICHARD. Der erweiterte logarithmische Polare zur Flugzeugberechnung.

— Eine japanische Veröffentlichung mit Folgerungen.

VOISIN. Les aéroplanes "Voisin".
  La Conq. l'Air, 3e année, No. 4 (15 févr. 1920), Bruxelles, pp. 30-42, ill.

VOLMERANGE, A. L'avion sans pilote.
  Aéronautique, 3e année, No. 28 (sept. 1921), Paris, pp. 315-331, ill.

— Les problèmes techniques de l'aviation commerciale.

— Progrès techniques en 1920 dans la navigation aérienne.

VOUGHT. Das Vought-Flugboot Modell V. E. 10.

VUIA, T. On nous écrit.
  L'Aérophile, 28e année, Nos. 21-22 (1er-15 nov. 1920), Paris, p. 34.

VUILLEMIN. Le voyage.

W.

W., A. R. Verwertbares aus der Flugzeugentwicklung?


— Der W. K. F.-Kampfzweisitzer Ba 82.


Waco Cootie. The aerial flyvver is here.

WADDON. The air conference visit to Waddon.

WADSWORTH, JAMES W., Jr. Senator Wadsworth introduces bill to regulate flying and develop American aviation.
  Aerial Age, Vol. 14, No. 2 (Sept. 19, 1921), New York, pp. 30-32.

— The Wadsworth aviation bill. Important measure to create Bureau of Civil Aeronautics.
  Aviation, Vol. 11, No. 11 (Sept. 12, 1921), New York, pp. 304-306.

— The Wadsworth-Hicks civil aviation bill.
BIBLIOGRAPHY OF AERONAUTICS, 1920–1921.


WALCOTT, CHARLES DOOLITTLE. See Brewer, Griffith: The Langley machine and the Hammondsport trials.


— See Devillers, René: Dynamics of the aeroplane. Translated by Capt. William John Walker.


WAR DEPARTMENT. See Willoughby, C. M.: Sale of War Department aeronautical equipment.

WARDROP, G. DOUGLAS. The future defensive navy. Is the battleship doomed? What relation should aeronautics have to the modern efficient navy? Flying, Vol. 10, No. 1 (Feb. 1921), New York, pp. 6–12, ill.


WARDWELL, DOYEN P. Night pursuit flying. Air Power, Vol. 6, No. 6 (June, 1920), New York, p. 173, diagr.


WARNER, EDWARDPEARSON, and F. H. NORTON. Angles of attack and air speeds during maneuvers.

WARNER, EDWARDPEARSON. Approximating bending moments in air propellers.
Aviation, Vol. 8, No. 11 (July 1, 1920), New York, pp. 430-431, charts.

— The choice of wing sections for airplanes.
Technical Notes, National Advisory Committee for Aeronautics, No. 73, Nov. 1921. Washington (mim.), pp. 30, diagrs.

— Comments on small airplanes competing for commercial aircraft.

WARNER, EDWARDPEARSON, F. H. NORTON, and C. M. HEBBERT. The design of wind tunnels and wind-tunnel propellers.

WARNER, EDWARDPEARSON, and ROY G. MILLER. Fuselage stress analysis.
Aerial Age, Vol. 11, No. 4 (Apr. 5, 1920), New York, pp. 119-123, diagr.

WARNER, EDWARDPEARSON. The German aircraft industry.
Aviation, Vol. 9, No. 11 (Nov. 29, 1920), New York, p. 359.

— German wind tunnels and apparatus.
Aviation, Vol. 9, No. 8 (Nov. 8, 1920), New York, pp. 258-261.

— Notes on longitudinal stability and balance.
Aerial Age, Vol. 12 (Oct. 25, 1920), New York, pp. 201-203.

— Notes on the theory of the accelerometer.
Aerial Age, Vol. 11, No. 20 (July 26, 1920), New York, pp. 681-682.

WARNER, EDWARDPEARSON, and F. H. NORTON. Preliminary report on free flight tests.
Aerial Age, Vol. 11, Nos. 16-17, 19-20 (June 28, July 5, 19, 26, 1920), New York, pp. 545-547, 579, 581, 649-650, 677-680, ill., diagr.

WARNER, EDWARDPEARSON. The problem of the helicopter.
National Advisory Committee for Aeronautics, Technical Notes, No. 4, Washington, 1920, pp. 18, charts.

— Report on German wind tunnels and apparatus.
WARNER, EDWARD PEARSON. Slip-stream corrections in performance computation.

Static testing and proposed standard specifications.

Stational longitudinal stability of airplanes.

Use of the hollow strut on the new airplanes.

Variation of airplane engine speed with speed of flight.

Way of a bird in the air.

WARNER, EDWARD PEARSON, and F. H. NORTON. Wind-tunnel balances.


---

WARFING. Uneven coatings on wood cause warping.

---

see Irving, H. B.: Design of aeroplane control surfaces with special references to wing ailerons.
---

See Warping of aircraft propellers.

WARREN, LEE P. The battleship still supreme. Why neither aircraft nor submarine has yet replaced the capital ship in its mastery of the sea.
World's Work, Vol. 41, No. 6 (Apr. 1921), New York, pp. 556-559.

WARSHIPS. Aerial attacks on warships.

WASCHMANN, RUDOLPH. Die Ergebnisse des Rhône-Fliegens.

WASHINGTON. On the Washington conference and the R. A. F.

WASP-ÁVRO. See Aeronautical Research Committee: Reports and memoranda: 691.
Thir WASP-ÁVRO "fireproof" installation.

WATEAU, ANDRÉ. See Blanchet, Georges: Aviateurs contemporains. André Wateau.

WATERMAN W. D. Mercury type racing monoplane "Gosling," built by W. D. Waterman, wins second place at Speedway.
Waterman, W. D. The Waterman racing monoplane.

Waterman type 3 L-400 airplane.
Aerial Age, Vol. 12, No. 8 (Nov. 1, 1920), New York, pp. 225-227, ill.
Aviation, Vol. 9, No. 6 (Oct. 15, 1920), New York, pp. 191-192, ill.

The Waterman OX-5 racing monoplane.
Aviation, Vol. 11, No. 7 (Aug. 15, 1921), New York, p. 197, ill.

Waterman type 2-OX 100 aeroplane.

The Waterman type 4L-200 four-place airplane.

Zwei Rennflugzeuge.

Waterplane. A curious waterplane.


Watt, Oswald. Oswald Watt.

Watts, Henry C. The design of screw propellers with special reference to their adaptation for aircraft.
Aviation, Vol. 8, No. 8 (May 15, 1920), New York, p. 327.

A note on the theories of screw propulsion.
Aviation, Vol. 9, No. 9 (Nov. 15, 1920), New York, pp. 295-297, diagr.

A propos des hélices en tandem.

Weather. See Reihle, John Alexander: Flying weather in the southern plain States.

Weather Bureau. Weather Bureau air activities.
Aviation, Vol. 10, No. 2 (Jan. 10, 1921), New York, p. 44.

What the Weather Bureau does for air pilots.
Aviation, Vol. 10, No. 19 (May 9, 1921), New York, pp. 595-597.

See Nephoscope: The Weather Bureau nephoscope.

Weather forecasting. See Poles: The poles, aircraft, and the weather forecast.

Webster, David L. The physics of flight.

Webster, J. B. Aviation activity.

Weeks, John W. Secretary Weeks on aviation expenditures.
Aviation, Vol. 10, No. 23 (June 6, 1921), New York, pp. 715-716.
Weeks, John W. Should stimulate aviation by direct subsidy.

Weight. Structural weight analysis of airplanes.

—— Weight estimation in aeroplane design.
Aerial Age, Vol. 14, No. 1 (Sept. 12, 1921), New York, p. 3; No. 2 (Sept. 19, 1921), pp. 27-28.

Weigler, W. M. R. Aeronautical camouflage.
Aerial Age, Vol. 11, No. 9 (May 10, 1920), New York, pp. 288-289, 300, ill.


Weismann, Charles. Les procès du "Manche à balai."
—— Les questions du manche à balai.


Weimar, Edward William. The fable of the tortoise and the air.


—— Mr. H. G. Wells on aviation.


Wendt, Fr. Das Altern des Flugzeugbespannungstoffes.
—— Bauart der Segelflugzeugwerke G. m. b. H. Baden-Baden.

—— Aircraft insurance—A problem capable of solution.
U. S. Air Service, Vol. 3, No. 6 (July 1920), New York, p. 27.
Westover, O. The future of Army lighter-than-air craft.

Weyl, A. R. Der amerikanische Landesbeirat für Luftfahrt.

Die Herstellung von Modellflügeln für Windkanalversuche.
Translation of Report No. 74 of National Advisory Committee for Aeronautics.

Whale, George. British airships, past, present, and future.

The future of the airship in commercial transport.
BIBLIOGRAPHY OF AERONAUTICS, 1920–1921.


WHALING. See Great Britain: The Dominions and aircraft.


WHITFIELD, M. Relations entre les entreprises de transports aériens et les constructeurs. Aéronautique, 2e année, No. 18 (nov.-déc. 1920), Paris, pp. 259-266.


WIBAULT. The Wibault night bomber. 

WIBAULT, MICHEL. Les avions Michel Wibault. 
Aéronautique, 3e année, Nos. 19-20, 30 (janv., nov. 1921), Paris, p. 350, 476-477, ill.

WIESELSBERGER, C. The effect of the nature of surfaces on resistance, as tested on struts. 

--- Ein Manometer zur Aufzeichnung von Fluggeschwindigkeiten. 

--- Mitteilungen aus der Göttinger Modell-Versuchsanstalt für Aerodynamik. 

--- Mitteilungen der Aerodynamischen Versuchsanstalt zu Göttingen (bisher "Modell-Versuchsanstalt"), 111. folge, Nr. 3: Untersuchungen über Handley-Page-Flügel. 

--- Some extraordinary resistance tests. 

--- Ueber den Flügelwiderstand in der Nähe des Bodens. 


--- Das deutsche Luftverkehrsgesetz. 

--- Die deutsche Luftfahrt und der 10. Mai 1921. 

--- Das Einmütige eintreten des Reichstages für die deutsche Luftfahrt. 

--- Eine neue Area im Reichsluftamt. 

--- Die Faktoren der deutschen Luftpolitik. 

--- Die Luftfahrt vor dem Reichstage. 

--- Luftsport und Luftpolitik. 

--- Tagesfragen. 

--- Zum ausserordentlichen Luftfahrertag in Berlin! 

--- Zum Jahreswechsel. 


--- Zur Auflösung der deutschen Luftstreitkräfte. 
BIBLIOGRAPHY OF AERONAUTICS, 1920–1921.


Wilbur Wright memorial. See Wright, Wilbur: Wilbur Wright memorial.


Wildblood, H. S. Soaring birds.

Wildman, L. D. Scope and development of the signal corps, U. S. A.

Wiley, Wallace F. The efficiency of airplane struts.
Aviation, Vol. 8, No. 12 (July 15, 1920), New York, pp. 477-478, charts.

Wilhelm, D. Lookout above the mountain.
—— See Crowell, B., and D. Wilhelm: Clipping the wings of the eagle.

Wilkinson, T. C. Aerial navigation.
The Ace, Vol. 2, No. 3 (Oct. 1920), Los Angeles, p. 11, ill.

Wilie, H. Ce qu’il faut connaître pour compenser une boussole aérienne.
Suisse Aérienne, 2e année, No. 7 (10 avr. 1920), Berne, pp. 99-103, ill.
—— Transformation d’un aéroplane.
Suisse Aérienne, 2e année, No. 12 (25 juin 1920), Berne, pp. 171-175, ill.

William Froude National Tank Staff, and A. D. Grigg. Experiments with models of seaplane floats (ninth series).

Williams, H. P. Beating the bird in its own realm.

Williams, Kenneth Powers. The dynamics of the aeroplane.

Williams, Robert E. The flying "leathernecks."
U. S. Air Service, Vol. 5, No. 5 (June 1921), New York, pp. 17-20, ill.

Williams, W. C. Law of the air.
Outlook, Vol. 120 (Sept. 22, 1920), New York, pp. 114-115, ill.

Willis, W. F. A survey for aerodromes in Africa.

Willaughby, C. M. Sale of War Department aeronautical equipment.
U. S. Air Service, Vol. 5, No. 6 (July 1921), New York, p. 25.

Willows, Ernest Thompson. Pioneers of British aviation—LII: Mr. Ernest Thompson Willows.

Willys, J. N. Flying’s commercial future.
Collier's, Vol. 65 (Mar. 15, 1920), New York, p. 10, ill.

Wilson, E. E. How the Navy trains air mechanics. Aircraft Journal, Vol. 6, No. 18 (May 1, 1920), New York, pp. 3-5, ill.


--- See Barr, Guy, and Edith G. Wilson. Note on a possible economy of solvent in doping aeroplane wings.


--- Bomb trajectories.

--- The limiting velocity in falling from a great height.


--- The use of seaplanes in forest mapping.


--- Contour chasing as a sport and how it seemed to a lover of the ground.

--- Seeing New York from the air.

Wilson, Robert Forest. See Crowell, Benedict, and Robert Forest Wilson; The armies of industry.

Wilson, Paul D. Cross-country flying on a Thomas-Morse. Aircraft Journal, Vol. 7, No. 2 (July 12, 1920), New York, pp. 5-7, ill.

Wilson, Thomas and Randall Carson. The effect of kiln drying on the strength of airplane woods.


--- Air navigation.

--- How airmen find their way.

--- A primer of air navigation.
New York, Van Nostrand, 1921, pp. xiv, 128, ill.


— See Durward, J.: The variation of wind with place.

— See Aichi, Keiichi: On the distribution of the wind velocity when the abnormal propagation of sound occurs.

— See Baldit, Albert: Sur certains cas de diminution de la vitesse du vent avec l'altitude.

— See Brooks, Charles F.: Boundary between a south wind and an underrunning northeast wind.

— See Carlill, James: Wind power.

— See Harries, Hy: Some local winds of the East Indian seas.


— See Joyce, Temple N.: Effects of wind upon the stability and maneuverability of an airplane in flight.

— See Martin, Howard H.: Relation of winds to temperature in central Ohio.

— See Meisinger, G. LeRoy: Aviation and winds of the upper air.

— See Maps: Wind maps for aviators.

— See Powell, C. H.: Forces and moments on a wing caused by cross winds.

— See Trotter, Spencer Lee: Local peculiarities of wind velocity and movement Atlantic seaboard—Eastport, Me., to Jacksonville, Fla.


— See Zahn, Albert Francis: Cross-arm wind balance.

Wind channel. See Bryant, L. W., and H. B. Irving: Description of improved moments measuring apparatus for tests on models in the wind channel, with an appendix on the determination of corrections due to the interference of apparatus on the model.

— See Page, A., H. E. Collins, and T. H. Fewster: Description of apparatus for measurement in a wind tunnel of the performance of an airscrew or the windage torque of a rotary engine.

— See Hyde, J. H.: Experiments on a model of the proposed 14 by 7 foot wind channel, with an investigation into the steadiness of the velocity and direction of the airflow compared with the corresponding effects in an existing 7-foot channel.
WIND channel. See Irving, H. B., and C. N. Jones: Note on the form and resistance of the spindle used by the N. P. L for standard tests of 18 by 3 inch aerofoils.

— See Pannell, J. R., and N. R. Campbell: Methods of support for models during the measurement of their aerodynamic resistance.


— See Nayler, J. L., and F. C. Woodford: Experiments on the most efficient form and distribution of wind screens for Bessoneau hangars.

— See Woodford, F. G., and G. N. Pell: Ring screens for aeroplanes.

WIND tunnel. On wind-tunnel discrepancies.


— Wind-tunnel test stations.

Aviation, Vol. 10, No. 8 (Feb. 21, 1921), New York, p. 233.

— See Bacon, D. L.: The advantages and limitations of model testing in wind tunnels.

— See Caldwell, F. W., and E. N. Fales: Wind tunnel studies in aerodynamic phenomena at high speed.

— See Coffin, J. G.: Static pressure gradients in wind tunnel work.

— See Design: Wind tunnels and airplane designs.

— See Fales, E. N., and F. W. Caldwell: The scope of wind tunnel research.

— See Hunsaker, Jerome Clarke: Résumé of wind-tunnel tests of airship envelopes.

— See Knight, Wm.: Italian and French experiments on wind tunnels.

— See McCook Field: The McCook Field wind tunnel.

— See McCook Field: Velocity determination in McCook Field wind tunnel.


— See Merrill, Albert A.: Recording instrument for use in wind tunnels.

— See Munk, Max Michael: A new type of wind tunnel.

— See National Physical Laboratory: A new wind tunnel.

— See Norton and Bacon: N. A. C. A. Langley Field wind-tunnel apparatus. The tilting manometer.

— See Norton and Bacon: The optical wing aligning device of the Langley Field tunnel.

— See Norton, Frederick Harwood: Construction of models for tests in wind tunnels.

— See Norton, Frederick Harwood, and Edward Pearson Warner: Design of wind tunnels and wind-tunnel propellers, II.

— See Norton, Frederick Harwood: Design of recording wind tunnel balances.

— See Page, A., H. E. Collins, and T. H. Fewster: Description of apparatus for measurement in a wind tunnel of the performance of an airscrew or the windage torque of a rotary engine.
BIBLIOGRAPHY OF AERONAUTICS, 1920–1921. 433

Wind tunnel. See Prandtl: Göttingen wind tunnel for testing aircraft models.

— See Warner, Edward P.: German wind tunnels and apparatus.

— See Warner, Edward P.: Report on German wind tunnels and apparatus.

— See Zahm, Albert Francis: Horizontal buoyancy in wind tunnels.

Wind wagon. See Aston, Wilfrid Gordon: Wind wagons.

Wing, R. N. Balanced control surfaces on aircraft.

Aviation, Vol. 8, No. 2 (Feb. 15, 1920), New York, pp. 57–58, diagr.

— Wind tunnel and airship model testing.


Wing commander. The old hint to the R. A. F.


Wing trusses. See Miller, Roy G.: Torsion of wing trusses at diving speeds.


Wings. Aéroplane à surface variable.


— Another new wing.

Aerial Age, Vol. 12, No. 11 (Nov. 22, 1920), New York, p. 297, ill.

Gastambide-Latham.

— Collapsible wings for airplanes—why not?


— Commercial utility wing. An interesting Blackburn development.


— Experiments with slotted wings.


— The fallacy of the slotted wing.

Aerial Age, Vol. 14, No. 12 (Nov. 25, 1921), New York, pp. 267, 270.

— A French variable wing.


— Goods by air. The meaning of the Alula wing.


— The Handley-Page wing.


— High-lift wing and commercial aviation.


— Metal wings.


— Monoplane wings.


— More high-performance wing experiments.


— New Dayton Wright wing.

Aviation, Vol. 11, No. 1 (July 4, 1921), New York, p. 22.
WINGS. A new high-performance wing.

A new method of building model wings.

New theory of the slotted wing.
Aerial Age, Vol. 14, No. 8 (Oct. 31, 1921), New York, p. 171.

New wings.

Pressure distribution on the wings of a biplane of R. A. F. 15 section with raked wing tips.

A rational method of presenting wing test results.

Relative merits of biplane and triplane wing structure.
Aviation, Vol. 8, No. 7 (May 1, 1920), New York, p. 294.

Report of static test of wing cellule of Pomilio FVL-8 with unequal loads on right and left wings.

Theories of wing design.

The velocity of the wind in front of the wing tips of a biplane in flight.

Wing-correction factors.
Engineering Division, Air Service, Technical Orders, No. 17 (June 1920), Dayton, Ohio, pp. 72-97, diagr.

Wingless machine that promises to revolutionize aerial navigation.

See Alula.


See Cowley, W. L., and L. F. G. Simmons: Tests on model aerofoil of R. A. F. 14 section to compare an aerofoil of uniform section with one modified to represent the sag in the fabric of an actual wing.

See Dayton-Wright: The new Dayton-Wright wing.

See Design: Airplane with longitudinal wings.

See Diehl, Walter S.: The variation of aerofoil lift and drag coefficients with changes in size and speed.

See Dort, R. G.: Modern wing coverings—materials used and their application.

See Dort, R. G.: Reasons behind modern wing coverings.

See Durfee, W. C.: Airplane wing design.

See Durfee, W. C.: Elements of a general theory of airplane wing design.
Wings. See Fabric: Shrinking fabric on wings.

— See Fage, A., and H. E. Collins: Experiments, at high speeds, on six aerofoils suitable for airscrew design.

— See Fage, A., and J. D. Coales: Experiments with two aerofoils of high aspect ratio.

— See Felgate, Russell A.: Wing dope from historic, technical side.


— See Gerhardt, W. F., B. E. Boulton, and L. V. Kerber: Preliminary choice of a wing section.

— See Germany: German high-lift wings.


— See Glauert, H.: Lateral control with different types of wing flaps.

— See Goldenberg, V.: Note sur les ailes de Handley-Page.


— See Griffiths, E. A.: Experiments on an aerofoil with flap extending along the whole length.

— See Griffiths, E. A., and C. H. Powell: Further experiments on wing (A) of the previous section to obtain a comparison with standard wing sections, eliminating the effect of plan form and aspect ratio.


— See Handley Page, Frederick: Developments in aircraft design by the use of slotted wings.

— See Handley Page, Frederick: The Handley-Page wing.

— See Handley Page, Frederick: The Handley-Page wing and Germany.


BIBLIOGRAPHY OF AERONAUTICS, 1920–1921.


— See Hanscom, C. D.: Some experiments on thick wings with flaps.

— See Hill, J. D.: The touring airplane and the variable camber wing.

— See Hitzemann, Yvan: Les joujoux ailés.

— See Hoffman, Raoul J.: Selection of a wing section.

— See Hopp, Geo.: Coating airplane wings mechanically.


— See Irving, H. B., and C. N. Jones: Standard tests of two aerofoils of Portholme and Albatros sections, and a comparison of these with R. A. F. 15 section.


— See Klempner, W.: Ein Beitrag zum Spaltflügelproblem.

— See Lachmann: The Lachmann aerofoil.


— See “Marco Polo”: The case for the cantilever wing.

— See Marco Polo: An immediate application of slotted aerofoils. Their use as interplane ailerons.

— See Martin, Glenn: The Glenn-Martin high-lift wing.

— See Miller, R. A.: Effect of variation in load factor on structural weight of wings.

— See Miller, Roy Gilman: . . . Torsion of wing trusses at diving speeds.

— See Nayler, J. L., and F. G. Woodford: Tests on aerofoils, R. A. F. 18, 19, 20 and a Sopwith section.

— See Nayler, J. L., and E. A. Griffiths: Test on R. A. F. 14 wing section.

— See Nelson, John H.: The strength of one-piece, solid, built-up and laminated wood aeroplane wing beams.

— See Niles, A. S., and L. V. Kerber: Determination of the best wing loading for single seater pursuit aeroplanes.

— See Norton, Frederick Harwood: An investigation on the effect of raised wing


— See Pannell, J. R., and N. R. Campbell: The direction and the velocity of the air flow behind a biplane composed of wings of variable section.

— See Pannell, J. R., and E. A. Griffiths: The effect of the variation of gap, stagger, and angle between the cords of a biplane.


— See Pannell, J. R., and N. R. Campbell: The flow of air around a wing tip.

— See Pannell, J. R., and N. R. Campbell: Forces and moments on a biplane at various speeds.
WINGS. See Pannell, J. R., and H. R. Campbell: The forces and moments on a biplane with wings of variable section.
— See Pannell, J. R., and E. A. Griffiths: Forces and moments on upper and lower planes of a biplane.
— See Pannell, J. R., and N. R. Campbell: Tests on an aerofoil suitable for airscrew design (A. D. No. 1).
— See Parker, H. F.: The Parker variable-camber wing.
— See Parker, H. F.: Variable camber wing.
— See Powell, C. H.: Forces and moments on a wing caused by cross winds.
— See Powell, C. H.: Tests on two aerofoils for the British and Colonial Aeroplane Co. (Ltd.).
— See Pressure: Pressure distribution on model F. E. 9 wings.
— See Pulsating wing: That "pulsating" wing.
— See Raines, M. A.: Wings.
— See Raymond, Arthur E.: Ground influence on aerofoils.
— See Reed, P. D.: Biplane and triplane wing structure.
— See Relf, E. F.: Effect of cutting away portions of the lower wing of a biplane to facilitate bomb dropping.
— See Ribs.
— See Robillard, R. E.: A comparison of spar weights of tapered and nontapered monoplane wings.
— See Shaw, Douglas: Development in wing design.
— See Shaw, Douglas: Why the wing of uniform section may survive.
— See Slocum, S. E.: Determination of the pressure law for wing surfaces.
— See Sperry: The Sperry commercial monoplane wing.
— See Sperry: The Sperry monoplane wing.
— See Sperry: Trials of Sperry high-lift wings.
— See Taylor, G. I.: Pressure distribution over the wing of an aeroplane in flight.
— See Winters, S. R.: Something new in the way of airplane metal ribs.
— See Woodruff, P. H.: Big cargo plane introduces new type wing.
— See Wragg, C. A.: "Wragg" compound aerofoil.
WINGS. See Zahm, Albert Francis, and R. M. Bear: Ground plane influence on aeroplane wings.

— See Zahm, Albert Francis: Relation of rib spacing to stress in wing planes.

WINN, WREN. Timbers and their uses.
London, George Routledge & Sons (Ltd.), 1919.

WINTER. Air lines in winter.
Aviation, Vol. 8, No. 3 (Mar. 1, 1920), New York, p. 113, Ill.

— Winter flying—engines.
Aviation, Vol. 13, No. 4 (Apr. 4, 1921), New York, p. 86.

WINTERS, S. R. America's first model airway.

— High flying in the laboratory.

— New aviation instrument.

— Something new in the way of airplane metal ribs.

WINTERthur. The "Winterthur" aero engine.


Wire wrapping. See Edstrom: The Edstrom wire wrapping machine.

WIRELESS. Aerial route control by radio telephony.
Aerial Age, Vol. 12, No. 3 (Sept. 27, 1920), New York, p. 83.

— Aerial route traffic control by radiotelephony.

— Fog-bound airplanes guided by wireless.

— A history of the development of aircraft wireless.

— How it feels to cover race from aeroplane by wireless, told by Evening World man. For first time in history of yacht contest is described from the air—Hero of NC–3 is pilot.
Flying, Vol. 9, No. 9 (Oct. 1920), New York, pp. 600-601.

— Position finding by wireless.
Aviation, Vol. 11, No. 2 (July 11, 1921), New York, p. 44.

— The radiotelephone in chassé squadrons.

— Radio warns mail plane.
The Navigator, Vol. 1, No. 22 (July 17, 1920), Pensacola, Fla., p. 6.

— Le téléphone sans fil.
Suisse Aérienne, 2e année, No. 17 (10 sept. 1920), Berne, pp. 258-259.

— Wireless in commercial aircraft services.
The Aeroplane, Vol. 21, No. 19 (Nov. 9, 1921), London, pp. 443-446.

— Wireless in commercial aircraft—II.
BIBLIOGRAPHY OF AERONAUTICS, 1920–1921.

Wireless. Wireless direction finding for aeroplanes.

— Wireless telegraphy in aviation.

— Wireless telephone innovations.

— Wireless-telephone transmitter for seaplanes.

— Wireless telephony for aircraft. Demonstration by Marconi Co.

— Wireless to make navigation of air safer in future.
Aerial Age, Vol. 13, No. 8 (May 2, 1921), New York, p. 183.

— The year book of wireless telegraphy and telephony.

See Ceans, Oliver: Wireless telephony in aeroplanes.


See Eckersley, P. P.: Duplex wireless telephony; some experiments on its application to aircraft.

See Fage, A., and H. E. Collins: A windmill to drive a wireless set of power 1 kilowatt.

See Fessenden, Reginald A.: The Fessenden peloris (wireless compass); a caution as to its use.

See Heffner, R. J.: Telephoning from the air.

See Jones, E. T.: Torpedo controlled by airplane by means of wireless.

See Keen, H. R.: How aeroplanes are navigated by wireless.

See Prince, C. E.: Wireless telephony on aeroplanes.

See Robinson, James: Directional wireless in air navigation.

See Robinson, James: The elimination of magneto disturbances in the reception of wireless signals on aircraft.


Wires. See Cowley, W. L., and J. D. Coales: Wind forces on aeroplane wires of various sections.


— Bericht über die vii. ordentliche Mitgliederversammlung der „Wissenschaftlichen Gesellschaft für Luftfahrt“ in München-Augsburg 1921.
Flug, 8. Jahrg., Nr. 19-20 (Okt. 1921), Wien, pp. 27-29, Ill.

— Fünfte ordentliche Mitgliederversammlung.

— Tagung der Wissenschaftlichen Gesellschaft für Luftfahrt.


See Eppinger, Curt: Ordentliche Mitgliederversammlung der Wissenschaftliche Gesellschaft für Luftfahrt.

See Katzmayr, R.: Bericht über die vii. ordentliche Mitgliederversammlung ...


Wittich, Max. Flugpost und Rohrpost.
Luftweg, Nr. 8-9 (4. März 1920), Berlin, pp. 9-10, ill.

Zur Rentabilitätberechnung für den Luftverkehr.

Wocken, A. "Der Ingenieur-Kaufmann."


Wodarz, G. Flugzeug und Verkehrerschliessung Chinas.

Suisse Aérienne, 2e année, No. 20 (30 oct. 1920), Berne, pp. 299-301, ill.

Wolff, E. B. De "aerial Derby" te Londen op Zaterdag 16 Juli.
Vliegveld, 5. jaar g., No. 17 (13 Aug. 1921), Amsterdam, pp. 240-241.

Beschouwingen over 1920 op luchtvaartgebied.
Vliegveld, 5. jaarg., No. 2 (15 Jan. 1921), Amsterdam, pp. 18-21, ill.

De karakteristieke eigenschappen onzer bouwmaterialen.

Kort overzicht over de ontwikkeling van het luchtverkeer, met inneliding tot het bezoek aan den Rijks Studiedienst voor de luchtvaart.

Luchtverkeer.

De 7e luchtvaartentoonstelling te Parijs.
Vliegveld, 5. jaarg., No. 25 (10 Dec. 1921), Amsterdam, pp. 334-338.

Wolffmüller, Al. Zur Segelflugentwicklung.

Wolseley Motors (Ltd.). See Great Britain: Modern British engines.

Wolterbeck, Hanns. Der Kleinflugzeug-Motor.

Women. Women in the aircraft industry.
Aviation, Vol. 10, No. 2 (Jan. 19, 1921), New York, p. 52.

Wood. Defects in aircraft timber.

Drying periods of various woods.

Effect of kiln drying on the strength of woods.

Les essais physiques statiques et dynamiques des bois de construction et d’aviation.
Wood. Find large supply of aircraft wood.

- The kiln drying of woods for airplanes.

- The necessity of wood conservation.
  Aerial Age, Vol. 12, No. 21 (Jan. 31, 1921), New York, p. 531.

- A practical kiln-drying course.

- Preparation of stock for bending.
  Aerial Age, Vol. 11, No. 7 (Apr. 26, 1920), New York, p. 223.

- Properties of ordinary wood compared with plywood.

- Properties of woods at 10 per cent moisture.

- Resistance to decay important in airplane wood.

- Resistance to decay now a factor in choice of aeroplane wood.
  Aerial Age, Vol. 11, No. 9 (May 10, 1920), New York, p. 292.

- Resistance to decay of airplane woods.
  The Naviator, Vol. 1, No. 10 (Apr. 10, 1920), Pensacola, Fla., p. 3.

- Strength of southern pine and Douglas fir compared.

- Woods for airplane construction.

- Woods used in aircraft.
  Aerial Age, Vol. 14, Nos. 3-6 (Sept. 26, 1921), New York, pp. 65, 87, 113, 137.

- See Boulton, B. C.: Experimental reinforced plywood truss ribs.

- See Boulton, B. C.: The manufacture and use of plywood and glue.

- See Boulton, B. C., and R. L. Hankinson: Properties of woods at 10 per cent moisture.

- See Boyd, James E.: Compressive strength of spruce struts.

- See Boyd, J. E.: Investigation of the compressive strength of spruce struts of rectangular cross section and the derivative formulas suitable for use in airplane design.

- See Dunlap, M. E.: Moisture-resistant finishes for airplane woods.

- See Eagle, A. L.: "Limited Service." A story of the "unfit" who produced 1,000,000 feet a day of airplane timber in the northwest woods.

- See Elmendorf, Armin: Data on the design of plywood for aircraft.

- See Forestry: Aircraft and forestry.

- See Gardner, H. A.: Glues and veneers in aircraft work.

— See Lee, M. A.: Kiln drying of wood in the airplane industry.

— See Pitois, E.: Utilisation scientifique et contrôle des bois dans l'aviation et l'industrie . . .


— See Warping.


Wood, C. The Chinese market for British aircraft.

Wood, Karl D. A variable speed fan dynamometer.
Aerial Age, Vol. 12, No. 19 (Jan. 17, 1921), New York, pp. 491-492.

Wood, R. W. Light scattering by air and the blue color of the sky.


Wood splices. See Kaye, G. W. C., and J. Hudson Davies: An investigation into various types of timber splices for aeroplane construction.


Woodford, F. G., and G. N. Pell. The variation in the wind above an airship shed, due to the presence of the shed.

Woodford, F. G. See Nayler, J. L., and F. G. Woodford: Experiments on the most efficient form and distribution of wind screens for Bessoncau hangars.

— See Nayler, J. L., and F. G. Woodford: Tests on aerofoils, R. A. F. 18, 19, 20, and a Sopwith section.


Woodhouse, Henry. How the world found 100 uses for aeroplanes.

— Textbook of aerial laws, and regulations for aerial navigation, international, national, and municipal, civil and military.

— United States is ahead of world in aerial transportation.

— When His Majesty flies—or takes cover.
Flying, Vol. 9, No. 6 (July 1920), New York, pp. 378-384, ill.

— Who dropped the monkey wrench on your head?
BIBLIOGRAPHY OF AERONAUTICS, 1920–1921. 443

WOOD-JONES, F. The “flight” of flying fish.

WOODRUFF, P. H. Big cargo plane introduces new-type wing.

WORLD. World welcomes commission organizing first aerial derby around the world.

—— See Aerial derby.

WORLD WAR. See Great Britain: Cost of the air war.

—— See Renard: L’évolution de l’aéronautique pendant la guerre.

WORLD’S Board. World’s Board of Aeronautical Commissioners (Inc.).

WRAGG, C. A. Aviation: An idea or an ideal.

—— The new age.

—— The Wragg adjustable compound aerofoil.

—— “Wragg” adjustable compound aerofoil.

—— “Wragg” compound aerofoil. A compound aerofoil capable of being adjusted in angle and camber without flexing surface material or moving the main spars of the aerofoil system.

WRIGHT, BROOKLYN. Federal Court upholds Wright airplane patent.
Aircraft Journal, Vol. 7, No. 3 (July 19, 1920), New York, pp. 15–16, ill.

—— New Wright aeronautical engine.

—— The “Wright” aero engine.

—— See Engines: The Wright aero engine.

—— See Weismann, Charles: Au sujet des brevets Wright.

WRIGHT, ORVILLE. A bit about the Twelfth Aero.

—— John Fritz medal presented to Orville Wright.

—— Orville Wright.
Aerial Age, Vol. 13, No. 3 (Mar. 28, 1921), New York, p. 61, ill.

—— Orville Wright awarded John Fritz medal.

—— Orville Wright honored.

—— Presentation of John Fritz medal to Orville Wright.
Journ. Soc. Automotive Engineers, Vol. 6, No. 6 (June 1920), New York, pp. 394–396.
WRIGHT, ORVILLE. Wright's first statement since the war. Who will attempt to predict what air-planes can do at the end of another eighteen years.

WRIGHT, T. P. Determination of sweepback for line-up.
Aviation, Vol. 8, No. 10 (June 15, 1920), New York, p. 8, Ill.

WRIGHT, WILBUR. French memorial to Wilbur Wright.

-- Le monument à Wilbur Wright et aux pionniers de l'aviation inauguré au Mans le 17 juillet 1920.

-- Unveiling of the monument to Wilbur Wright.
Flying, Vol. 9, No. 8 (Sept. 1920), New York, pp. 330-331, Ill.

-- Wilbur Wright memorial. Le Mans.

Wright memorial. France's tribute to the Wright brothers.

-- Wright memorial dedicated in France.

WRIGHT patents. British planes licensed under Wright patents.
Automotive Manufacturer, Vol. 62, No. 4 (July 1920), New York, p. 16.

Wronsly, W. Commercial aviation in Germany.


Wührmann, C. Einiges über den heutigen Stand der Flugzeugtechnik.

Wulffen Palthe, P. Zingtuigelijke en psychische functies tijdens het vliegen.
Academisch proefschrift, Utrecht, 1921.
Reviewed in: Vliegveld, 5. jaarg., No. 16 (30 Jul 1921), Amsterdam, pp. 228-230.

Wyman, W. W. Effect of low grade gasoline on engines.
Aviation, Vol. 11, No. 20 (Nov. 14, 1921), New York, pp. 575-576, Ill.

-- Longest seaplane flight.
Aerial Age, Vol. 11, No. 8 (Oct. 31, 1921), New York, p. 173.

X.

X. L'aviation militaire en Pologne.

-- Fausse route.


-- Aeroplane performance.
ZR-1. Construction of ZR-1 progressing.  
Aerial Age, Vol. 14, No. 6 (Oct. 17, 1921), New York, p. 135.

ZR-2. The dirigible disaster.  
Aerial Age, Vol. 13, No. 26 (Sept. 5, 1921), New York, p. 607.

— First flight trial of "ZR-2." "R38".  

— Official dispatches concerning accident to ZR-2.  

— The "ZR-2."  

— ZR-2 crew training on R-30.  

— The ZR-2 disaster.  
Aerial Age, Vol. 13, No. 26 (Sept. 5, 1921), New York, pp. 611-612.

— ZR-2 disaster laid to faulty design  
Aerial Age, Vol. 14, No. 6 (Oct. 17, 1921), New York, p. 135.

— The ZR-2 may cross Atlantic in May.  
Aviation, Vol. 10, No. 6 (Feb. 17, 1921), New York, p. 170.

— "ZR2" ("R38"): A visit to the Royal Airship Works.  


— See Norfleet, J. P.: How airships such as our ZR-2 are handled.

Zaharoff. The Zaharoff School of Aeronautics.  

Zahm, Alfred Francis. Aerodynamical torsion balance.  

— Airplane stress analysis.  

— . . . Airplane stress analysis.  

— Airplane stress analysis, with problems and diagrams by L. H. Crook  

— Bisilar wind balance.  

Zahm, Albert Francis, and R. H. Smith. Comparison of United States and British standard pitot static tubes.  


— Development of an aircraft incidence meter.  
Aviation, Vol. 7 (Dec. 15, 1919), New York, p. 432.

Aviation, Vol. 10, No. 26 (June 27, 1921), New York, pp. 867-868.


—— Horizontal buoyancy in wind tunnels. Aerial Age, Vol. 12, No. 11 (Nov. 22, 1920), New York, pp. 298-299.


—— See Brewer, Griffith: The Langley machine and the Hammondsport trials.


—— The Zeppelin aerodynamical laboratory. Aerial Age, Vol. 13, No. 20 (July 25, 1921), New York, p. 472.

—— The Zeppelin airships, L64 and L71. Aerial Age, Vol. 12, No. 26 (Mar. 7, 1921), New York, p. 662.
ZEPPELIN. Un zeppelin de pasajeros.
Aire, Mar y Tierra, año 2, Núm. 13 (abril 1920), Madrid, pp. 181-182, ill.


--- The Zeppelin Dornier C-3.
Aerial Age, Vol. 13, No. 12 (May 30, 1921), New York, p. 278.

--- Zeppelin giant (Dornier) seaplane reconnaissance type.
Engineering Division Air Service Technical Orders No. 13 (Feb. 1920), Dayton, Ohio, pp., 74-79, ill.

--- The Zeppelin giant sea monoplane.
Aviation, Vol. 8, No. 1 (Feb. 1, 1920), New York, p. 28, ill.

--- Lo Zeppelin L-61.
L'Aeronautica, anno 3, Num. 5-6 (luglio-agosto 1920), Roma, p. 233.

--- Le Zeppelin “L-72” à Maubeuge.

--- See Gradenwitz, Alfred: The 1,000-horsepower Zeppelin monoplane.
--- See Hildesheim, Erik: The Zeppelin-Lindau all-aluminum biplanes.
--- See Jaray, P.: The development of aircraft, with special reference to the Zeppelin airships.

--- See L-64, “L-64,” and “L-71.” Two of the Zeppelins surrendered to Great Britain.
--- See Lemonon, E. H.: Deux nouveaux appareils . . .
--- See Munk, Max Michael: The drag of Zeppelin airships.
--- See Whale, George: The Zeppelin airships, L64 and L71.

ZEPPELIN, FERDINAND v. 

ZEPPELIN-DORNIER. A new Zeppelin-Dornier twin-engined aeroplane.

ZEPPELIN-STAAKEN. The Zeppelin-Staaken airplane.
Aviation, Vol. 10, No. 6 (Feb. 7, 1921), New York, p. 169, ill.

--- The Zeppelin-Staaken giant monoplane.

--- A new Zeppelin-Staaken monoplane.
Aviation, Vol. 11, No. 18 (Oct. 31, 1921), New York, p. 505, ill.

--- The Zeppelin-Staaken all-metal monoplane.
Aerial Age, Vol. 13, No. 8 (May 2, 1921), New York, p. 182.

--- The Zeppelin-Staaken 1,000-horsepower monoplane.

--- See Rohrbach, Ad. K.: Das 1,000 PS-Verkehrsflugzeug der Zeppelinwerke in Staaken.

ZIMM, WALTER. Ueber die Strömungsvorgänge im freien Luftstrahl . . .
Berlin, 1921, pp. 37.
Inaug. diss.—Univ. Kiel.

ZIMMERMANN, PAUL G. Adapting an F-5L flying boat to air transport.
Aviation, Vol. 9, No. 3 (Sept. 1, 1920), New York, pp. 87-88, ill.

ZINC plating. The effect of zinc plating on the physical properties of streamline wire. Aerial Age, Vol. 13, No. 16 (June 27, 1921), New York, p. 369.


— The Zodiac sport airship. Aerial Age, Vol. 13, No. 8 (May 2, 1921), New York, p. 182.

