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## Bibliography of Books and Published Reports on Gas Turbines, Jet Propulsion, and Rocket Power Plants

Ernest F. Fiock and Carl Halpern

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## Preface

The purpose of this Circular is to present references to published sources of information on gas turbines and jet propulsion, classified so that the reader may select with ease articles of specific interest. For convenience, the references are grouped according to subject matter. To aid in the use of the bibliography, there is included a brief introduction on the classification and rating of jet engines. The introduction also discusses the scope and arrangement of the bibliography.

E. U. CONDON, *Director.*

ii

120

# Contents

Preface.....	11
Introduction.....	1
Classification of recent power plants.....	1
Rating of jet engines.....	3
Scope and arrangement of the bibliography.....	5
Bibliography.....	6
100. Books, 1910 through 1950.....	6
101. Gas turbines and jet power plants.....	6
102. Atomic energy.....	8
200. Periodical reports, 1940 through 1950.....	9
201. Development and future role.....	9
202. Theory and performance.....	13
203. Turbojet and propjet engines.....	16
203.1 American engines.....	16
203.2 British engines.....	18
203.3 Engines of other nations.....	20
203.4 American military aircraft.....	20
203.5 British military aircraft.....	22
203.6 Aircraft of other nations.....	24
203.7 Commercial aircraft.....	24
203.8 Installation, accessories, and controls.....	26
203.9 Maintenance, testing, and test facilities.....	28
203.10 Fuels and lubrication.....	30
203.11 General.....	31
204. Other types of gas turbines.....	33
204.1 For locomotives.....	33
204.2 For ships.....	34
204.3 Auxiliary power plants.....	35
204.4 For miscellaneous uses.....	35
204.5 General.....	37
205. Intermittent or pulsejets.....	39
206. Ramjets.....	40
207. Compounding and thrust augmentation.....	41
208. Rockets.....	43
208.1 Liquid-propellant rockets.....	43
208.2 Jet-assisted take-off (JATO).....	44
208.3 Guided missiles.....	44
208.4 Manned aircraft propelled by rockets.....	45
208.5 Interplanetary rockets.....	46
208.6 General.....	47
209. Jet-propelled helicopter rotors and propellers.....	51
210. Compressors and their components.....	51
211. Turbines and their components.....	52
212. Combustion and combustion chambers.....	53
213. Thermal properties of working media.....	55
214. Aerodynamic factors.....	57
215. Metallurgy, machining, and welding.....	58
216. Ceramic materials in gas turbines.....	59
217. Research programs.....	60
218. Nomenclature.....	60
219. Atomic energy.....	61
220. Miscellaneous.....	63

# **Bibliography of Books and Published Reports on Gas Turbines, Jet Propulsion, and Rocket Power Plants**

Ernest F. Fiock and Carl Halpern

## **INTRODUCTION**

### **Classification of Recent Power Plants**

A prevalent error among beginning students in jet propulsion is that some sort of push on surrounding air is required for propulsion. The presence of air around the unit offers a resistance, known as drag, to its forward motion. Air also has important effects upon the jet after it has left the unit. This action alters the shape of the jet and the time in which it is brought to rest relative to the surrounding air, but has no significant effect upon the thrust developed by the jet engine.

The thrust produced by a jet engine is simply the rate of change of momentum of the material entering and leaving the engine. To produce a change in momentum, the working medium is heated by chemical reaction known as combustion. Such heating causes the working medium to increase in volume, and produces the desired increase in velocity and momentum. By the third law of motion, the unit must undergo a change in momentum which is equal in magnitude but opposite in direction to that of the working medium.

Because rockets carry not only fuel, but also some other substance which reacts with it to produce a large volume of hot gas, the *rocket power plant* is in a class by itself. The rocket is distinguished by its self-sufficiency, and it is the only type of power plant capable of operating outside the earth's atmosphere. Its jet normally has a higher temperature and velocity than that of other jet engines.

The *gas-turbine* unit is a power plant consisting essentially of an air compressor, a combustion chamber in which the temperature and velocity of the air are increased greatly by burning fuel, and a turbine driven by the hot gas in much the same fashion as steam turbines are driven by heated water vapor. In the gas turbine the compressor and combustion chamber replace the boiler of a steam plant and are much smaller and lighter. The steam plant requires relatively pure water, while the gas turbine requires no water at all. However the gas turbine requires an efficient air compressor and much power is required to drive this compressor. The steam plant can operate on coal, while the application of solid fuels in gas turbines is not fully developed. The steam plant can be started by merely firing up the boiler, while the gas turbine must be started by other means, since there can be no

combustion until the compressor is in operation and the compressor does not rotate until power is being developed by the turbine.

The *turbojet engine* is a gas-turbine unit in which the turbine develops only enough power to drive the air compressor. The forward thrust of the turbojet engine is derived from the high-velocity jet which emerges from the turbine. It is obvious that the primary application of the turbojet engine is as a power plant for aircraft.

If the turbine of a gas-turbine unit is designed to develop more power than that required to run the air compressor, which can be done by adding more turbine stages, the excess power developed by the multi-stage turbine can be utilized to drive an electric generator, propeller, or any other chosen machine. For flight application in which the turbine drives a propeller, the engine is usually called a *turboprop* or a *propjet engine*. Naturally the jet emerging from the turbine of such an engine is also utilized for its contribution to the forward thrust, though it has a lower velocity, and hence contributes less to the thrust than the jet from a turbojet.

It has been pointed out that gas-turbine units have compressors and turbines. The *ramjet engine* operates upon the same principle of propulsion, but has neither a mechanical compressor nor turbine. The ramjet derives its name from the fact that it picks up its air by virtue of its forward motion, which is commonly called its ram. Obviously combustion cannot be started in a ramjet at rest, so that such a device must be launched by rockets or from an aircraft before it can become self-propulsive. The ramjet is sometimes called an athodyd, a word created from various letters appearing in the expression *aero-thermo-dynamic duct*, which was used formerly in referring to this device.

Although the ramjet has no mechanical compressor, this does not mean that the air in its combustion chamber is at the same pressure as the air through which the device is moving. Actually the air entering the ramjet engine is compressed without the use of any moving parts by passage through a device called a diffuser. The diffuser has a smaller opening at its front than at its rear, so that the velocity of the air is decreased as it passes along the duct having a gradually increasing cross section. In this process part of the velocity head of the entering air is converted into pressure head in passing through the diffuser. In the combustion chamber which normally follows the diffuser, the pressure is therefore higher by an amount depending upon the characteristics of the diffuser and upon the forward velocity of the device. A properly designed diffuser accomplishes this transformation of velocity head into pressure head with high efficiency.

In general both the efficiency and the power output of a gas turbine can be increased by raising the temperature of the gases entering the turbine. The ability of the turbine blades to withstand high temperatures, while subjected to the enormous stresses which accompany rotation at high speeds, now limits the maximum permissible operating temperature to a value more than 1,500° F below that which can be obtained by burning gasoline in air. The temperature of the gas entering the turbine is kept within the permissible range by using an excess of air, usually about four times the amount actually required to burn the fuel completely. Hence the gas emerging from the turbine still contains much oxygen which can be used for additional combustion, if desired.

The fact that this oxygen is present in the jet leaving the turbine of a turbojet engine has made possible the development of a device known as a *tail-pipe burner* or *thrust augmenter*, for application when sudden bursts of power are required. This type of thrust augmenter is thus essentially a combustion chamber of the ramjet type installed in the tail pipe of a turbojet engine, so that extra fuel may be burned in the gases after they emerge from the turbine and before they leave the tail pipe. By this means the thrust can be increased materially above that of the normal jet. Since much more fuel is required per unit of additional thrust resulting from the augmenter than per unit thrust from the engine operating normally, the thrust augmenter must be considered as a device to be used only for emergencies.

The exhaust gases from reciprocating engines can be directed rearward in the form of jets which produce forward thrust. This process also is called thrust augmentation, and there are still other types of thrust augmenters which need not be considered here.

The type of engine employed in the German V-1 robot bomb is referred to variously as the *intermittent* or *pulsejet*, the resonance jet and the resojet. Like the ramjet it has neither mechanical compressor nor turbine. It usually has valves at the front which open to admit air, then they are closed by the explosion which follows each admission of fresh air. The adjectives intermittent and pulse have been applied since the combustion occurs as a succession of separate and distinct explosions. After each explosion in a pulsejet, the hot air escapes through the rear at high velocity and causes the pressure in the combustion chamber to fall below that of the atmosphere. When this condition is attained, atmospheric air opens the valves and rushes into the combustion chamber. Thus the pulsejet will operate while stationary, once a single explosion is set off in the combustion chamber. However, when the pulsejet is moving forward, ordinary ram also adds to the quantity of air entering through the valves, so that greater thrust can be developed when the engine is moving forward.

In all jet engines the ignition can be shut off once combustion is started. Since there are intermittent explosions in the pulsejet, it might be thought that a continuous or a timed spark would be required. However this is not the case ordinarily, since, after the first explosion, successive charges are ignited by contact with hot gas or hot metal parts.

The frequency of the explosions in a pulsejet is determined by the dimensions of the unit, which acts somewhat like an organ pipe. The theory of this type of power plant is more complicated and less completely understood than that of other types of jet engine.

### Rating of Jet Engines

In rating power plants which do not utilize jets for propulsion, the concepts of power and efficiency have been found most useful, primarily because these characteristics of a given engine do not vary greatly with flight velocity. This is not true for a jet engine, for which the power is the product of thrust and forward velocity, provided that the velocity has resulted solely from the action of the jet engine being considered. Thus if a jet engine is to be rated on a power

basis, great care must be exercised in specifying the operating conditions, particularly the flight velocity.

On the other hand, the thrust or force produced by a jet is much less dependent upon the operating conditions than is the power, and the thrust is therefore a more useful characteristic of the jet engine. As an example, consider the operation of a reciprocating engine and of a jet engine on a test stand. The former develops power which must be absorbed and which can be measured by means of torquemeter, brake, or dynamometer. The jet engine requires no such power absorber, since no power is developed. However a forward thrust, which can be perceived and measured readily, is developed by the jet and in this instance is called the *static thrust* to indicate that it is developed when the engine is at rest with respect to the earth and its atmosphere.

If it is felt desirable, for comparative purposes, to express the rating of a jet engine in terms of power, this can be done if both the thrust and velocity are known, but only when the engine being rated is solely responsible for all the velocity which has been attained. Under these circumstances the power is the product of thrust and velocity, and is usually designated as *thrust power*. Thrust power may be expressed in foot pounds per second, and if a large unit such as 1 horsepower = 550 ft-lb/sec is used, then the expression *thrust horsepower* is applied.

It is meaningless to say that a particular jet engine is a 1,000-hp engine, and it is also meaningless to say that this engine develops 1,000 lb of thrust. However if the engine develops 1,000 lb of thrust when it is the sole source of thrust in an aircraft which has attained a forward velocity of 550 ft/sec in level flight, it is perfectly definite to say that the engine develops 1,000 lb of thrust at 550 ft/sec. The thrust power under these conditions is  $1000 \times 550 = 550,000$  ft-lb/sec, and the thrust horsepower is  $550,000 / 550 = 1000$ . Only at a velocity of 550 ft/sec are the thrust in lb and the thrust horsepower equal numerically.

In the turbojet engine the power developed by the turbine is always equal to the power required to drive the compressor and accessories. This turbine power can be rated in the same way as that of more familiar types of turbines. The power of the turbine is several times the thrust power of the jet, but is not available for any purpose except driving the compressor and accessories.

In the propjet engine the turbine develops more power than is required to drive the compressor, and the excess is used to drive a propeller. The power developed at the propeller shaft can be rated in the usual way in terms of shaft horsepower. Added to this shaft power is the thrust power of the jet, which again varies with forward velocity. Hence the rating of a hypothetical propjet engine might be as follows: 2,000 shaft hp at 10,000 rpm, plus 300-lb static thrust at sea level.

It is even more difficult to apply the concept of efficiency than of power to jet engines. Actually the numerical value of efficiency depends upon the system of reference, and there has been no general agreement as to the most useful definition. It is probably better for the uninitiated to omit considerations of efficiency and to think in terms of more definite terms such as specific fuel consumption, specific impulse, and ratio of weight to thrust.



The expression *specific fuel consumption* is used somewhat loosely to mean one of the following: (a) Pounds of fuel consumed per pound of thrust per hour, which, for a turbojet engine, might be 1.3 lb/lb hr; (b) Pounds of fuel consumed per pound of thrust per second, which, for a ramjet at sea level, might be 0.001 lb/lb sec at 1,500 mph and 0.005 lb/lb sec at 300 mph for the same engine; and (c) Pounds of fuel consumed per thrust horsepower hour, which, for the turbojet engine mentioned in (a), would be 1.3 lb/thrust hp at 375 mph. Hence caution must be exercised in comparing existing numerical values of specific fuel consumption.

*Specific impulse* is the thrust obtained per unit weight of fuel consumed per unit time. Both specific fuel consumption and specific impulse, when applied to rockets, include as fuel consumed the total weight of fuel and oxidant (for example, alcohol and liquid oxygen).

The ratio of the weight of the power plant to the thrust which it develops is significant only when the operating conditions under which the thrust is developed are stated. For most turbojet engines at sea level the ratio is in the range 0.3 to 0.6.

In the literature on jet propulsion, frequent use is made of the term *Mach number*, which is simply the ratio of the velocity under consideration to the velocity of sound in gas at the same temperature. For example if a ramjet is flying at 1,500 mph through air in which the velocity of sound is 750 mph, the unit is said to be traveling at a Mach number of two.

### Scope and Arrangement of the Bibliography

The topical subdivisions and the periods covered are shown in the table of contents. Each subdivision is arranged chronologically and within the chronological sections, alphabetically by author. "Anonymous" articles appear at the end of each chronological section. References to periodicals prior to 1940 are not included because the development of practical power plants has taken place primarily since that date. Since the gas turbine and the jet engine may, in the future, utilize energy from nuclear fission, some references in this field are included.

The journal abbreviations used are those employed in Chemical Abstracts, except that letters are used for the names of familiar organizations and societies, viz NACA for National Advisory Committee for Aeronautics; ASME for American Society of Mechanical Engineers; and SAE for Society of Automotive Engineers. Volume numbers are in bold-faced type, and the date of issue is given where page numbers do not run consecutively throughout a given volume. References made to unpublished papers presented before various societies are designated by the abbreviations M. P. or Pre. These may, in some instances, be purchased from the headquarters of the society concerned.

## BIBLIOGRAPHY

### 100. BOOKS, 1910 THROUGH 1950

#### 101. GAS TURBINES AND JET POWER PLANTS

1910

H. H. Suplee, *The gas turbine*. Lippincott, Philadelphia, 1910.

1912

H. Holzwarth, *The gas turbine*. Lippincott, Philadelphia, 1912.

1914

N. Davey, *The gas turbine*. Van Nostrand, New York, 1914.

1924

W. Gentsch, *Studies with gas and oil constant-pressure turbines*. Halle, Saale, 1924.

1927

W. A. Bone and D. T. A. Townend, *Flame and combustion in gases*. Longmans, Green, London, 1927.

A. Stodola (Translation by Lowenstein), *Steam and gas turbines 2*. McGraw-Hill, New York, 1927.

1940

R. Fuchs, *Kreisprozesse der Gasturbinen und die Versuche zu ihrer Verwicklung*. Springer, Berlin, 1940.

1944

F. O. Ellenwood and C. O. Mackey, *Therodynamic charts*. Wiley, New York, 1944.

A. L. Murphy, *Rockets, dynamotors, jet motors*. Wetzel, Los Angeles, 1944.

1945

R. Cleveland and J. Wood, *The modern wonder book of the air*. John C. Winston, Philadelphia, 1945.

F. Illingworth, *Flying bomb*. Citizen Press, Victoria, Egham, Surrey, 1945.

J. H. Keenan and J. Kaye, *Thermodynamic properties of air*. Wiley, New York, 1945.

C. P. Lent, *Rocket research*. Pen-Ink, New York, 1945.

W. Ley, *Rockets*. Viking Press, New York, 1945.

H. S. Zim, *Rockets and jets*. Harcourt Brace, New York, 1945.

*Jet propulsion*. Thompson Products, Inc., Cleveland, 1945.

1946

V. F. Bolotnikov, *Some characteristics of jet-propelled airplanes*. Moscow, 1946.

S. K. Gelfenbein, *Gas turbines*. Moscow, 1946.

S. K. Gelfenbein, *Gas turbines in the blast furnace industry*. Moscow, 1946.

R. H. Goddard, *Rockets*. Am. Rocket Soc., New York, 1946.

J. Grierson, *Jet flight*. Low, London, 1946.

H. Harper, *Dawn of the space age*. Low, London, 1946.

W. Jost (Translated by Croft), *Explosion and combustion processes in gases*. McGraw-Hill, New York, 1946.

J. G. Keenan, *Elementary theory of gas turbines and jet propulsion*. Oxford University Press, New York, 1946.

B. Peril, *Rocket to the moon*. Faber, London, 1946.

A selection from Swiss patents on gas-turbine plants and their components. Bureau of Ships, NAVSHIPS 250-445-1, Vols. I and II, Navy Dept., Washington, 1946.

1947

R. A. Beaumont, *Aero engines for students, including gas turbines*. Allen & Unwin, London, 1947.

- H. M. Conway, Jr., Principles of high-speed flight. Southeastern Research Institute, Atlanta, 1947.
- J. M. J. Kooy and J. W. H. Uytendogaart, Ballistics in the future. McGraw-Hill, New York, 1947.
- J. B. Rosser, R. R. Newton, and G. L. Gross, Mathematical theory of rocket flight. McGraw-Hill, New York, 1947.
- M. Roy, Thermodynamique des systems propulsifs á reaction et de la turbine á gas. Dunod, Paris, 1947.
- R. T. Sawyer, The modern gas turbine, including jet propulsion. Prentice-Hall, New York, 2d ed., 1947.
- K. D. Wood, Airplane design. Colorado Photo-Litho Co., Boulder, 8th ed., 1947.

#### 1948

- C. E. Bowden, Model jet reaction engines. Percival Marshall, Maidenhead, Berkshire, 1948.
- E. A. Bruges and E. W. Geyer, Tables of properties of gases. Longmans, Green, London, 1948.
- J. Burchard, Rockets, guns and targets. Little, Brown, Boston, 1948.
- C. E. Chapel, Aircraft power plants. McGraw-Hill, New York, 1948.
- H. Constant, Gas turbines and their problems. Todd, London, 1948.
- H. M. Conway, Control of airplane flight path by propulsive jets. Southeastern Research Institute, Atlanta, 1948.
- R. H. Goddard, Rocket development. Prentice-Hall, New York, 1948.
- R. E. Hage Jet propulsion in commercial air transportation. Princeton University Press, Princeton, 1948.
- J. H. Keenan and J. Kaye, Gas tables. Wiley, New York, 1948.
- L. E. Neville and N. F. Silsbee, Jet propulsion progress. McGraw-Hill, New York, 1948.
- C. A. Norman and R. Zimmerman, Introduction to gas-turbine and jet-propulsion design. Harper, New York, 1948.
- G. E. Pendray, The coming age of rocket power. Harper, New York, 2d ed., 1948.
- F. X. Ross, Young people's book of jet propulsion. McBride, New York, 1948.
- R. T. Sawyer, Gas turbine construction. Prentice-Hall, New York, 1948.
- F. A. F. Schmidt, Verbrennungsmotoren; Thermodynamische und Versuchsmässige Grundlagen unter besonderer Berücksichtigung der Flugmotoren. Springer, Berlin, 1939; J. W. Edwards, Ann Arbor, 1948.
- W. H. Severns and H. E. Degler, Steam, air and gas power. Wiley, New York, 4th ed., 1948.
- M. J. Zucrow, Principles of jet propulsion. Wiley, New York, 1948.

#### 1949

- H. T. Adams, Elements of internal combustion turbine theory. Cambridge University Press, London, 1949.
- J. P. Eames, Jet-propelled aircraft power plants. Pacific Aero Tech, San Francisco, 1949.
- V. C. Finch, Jet propulsion turbojets. National Press, Millbrae, Cal., 1949.
- A. P. Fraas, Combustion engines. McGraw-Hill, New York, 1949.
- H. C. Hottel, G. C. Williams and C. N. Satterfield, Thermodynamic charts for combustion processes, Wiley, New York, 1949.
- H. K. Kaiser, Kleine Raketenkunde. Mundus Verlag, Stuttgart, Germany, 1949.
- W. Ley (Paintings by C. Bonestell), The conquest of space. Viking Press, New York, 1949.
- D. G. Shepherd, An introduction to the gas turbine. Constable and Co., London, England, 1949.
- G. P. Sutton, Rocket propulsion elements. Wiley, New York, 1949.
- W. R. Thompson, The fundamentals of gas turbine technology. Power Jets Ltd., London, 1949.
- A. R. Weyl, Guided missiles. Temple Press, London, 1949.
- Combustion engines manual. United States Naval Institute, Annapolis, Md., 1949.

#### 1950

- A. Ananoff, L'Astronautique. Librairie Arthème Fayard, Paris, France, 1950.
- C. E. Chapel, Jet aircraft simplified. Aero Pubs. Inc., Los Angeles, 1950.
- A. C. Clarke, Interplanetary flight—An introduction to astronautics. Temple Press, London, 1950.

- M. Fishenden and O. A. Saunders, *An introduction to heat transfer*. Clarendon Press, Oxford, England, 1950.
- R. Friedrich, *Gasturbinen mit Gleichdruckverbrenung*. G. Braun, Karlsruhe, Germany, 1950.
- F. W. Godsey, Jr. and L. A. Young, *Gas turbines for aircraft*, McGraw-Hill, New York, 1950.
- A. W. Judge, *Modern gas turbines*. 1st Ed. 1947; 2nd Ed. Chapman and Hall, London, 1950.
- E. H. Lewitt, *Thermodynamics applied to heat engines*. 4th Ed. Pitman, London, 1950.
- J. Liston, *Fundamentals of powerplants for aircraft*. Tri-State Offset Co., Cincinnati, 1950.
- W. Proell and N. J. Bowman, *A handbook of space flight*. Perastadion Press, 1950.
- R. Schlaifer and S. D. Heron, *Development of aircraft engines and aviation fuels*. Harvard Business School, Boston, 1950.
- G. G. Smith, *Gas turbines and jet propulsion*. 4th Ed. 1946; 5th Ed., Iliffe and Sons, London, 1950.
- E. T. Vincent, *The theory and design of gas turbines and jet engines*. McGraw-Hill, New York, 1950.
- R. J. Welsh, *Gas turbines for industrial power*. Technical Press, Kingston Hill, Surrey, England, 1950.
- P. H. Wilkinson, *Aircraft engines of the world*. Issued annually since 1946. Paul H. Wilkinson, New York, and Pitmans, London, 1950.
- R. N. Wimpers, *Internal ballistics of solid-fuel rockets*. McGraw-Hill, New York, 1950.
- H. G. Wintersteen, *Jet propulsion*. International Textbook Co., Scranton, Pa., 1950.

1951

- B. Lewis and G. von Elbe, *Combustion, flames and explosions of gases*. 1st Ed. Cambridge Univ. Press, London, 1938; 2d Ed. Academic Press, New York, 1951.

## 102. ATOMIC ENERGY

1945

- J. De Ment, *Uranium and atomic power*. Andrew Technical Service, Chicago, 1945.
- J. De Ment and H. C. Dake, *Uranium and atomic power*. Chemical Pub. Co., Brooklyn, 1945.
- D. Dietz, *Atomic energy in the coming era*. Mead, New York, 1945.
- G. G. Hawley and S. W. Lefson, *Atomic energy in war and peace*. Reinhold, New York, 1945.
- J. J. O'Neill, *Almighty atom*. Washburn, New York, 1945.
- J. K. Robertson, *Atomic artillery and the atomic bomb*. Van Nostrand, New York, 1945.
- H. De W. Smyth, *Atomic energy for military purposes*. Princeton University Press, Princeton, 1945.
- R. F. Yates, *Atom smashers*. Didier, New York, 1945.

1946

- G. A. Bankoff, *Boon of the atom*. Faber, London, 1946.
- Carnegie Endowment for International Peace, Committee on Atomic Energy, *Utilization and control of atomic energy*. The Endowment, 1946.
- M. Davidson, *Mid-twentieth century atom*. Hutchinson, London, 1946.
- G. Gamow, *Atomic energy and human life*. Macmillan, New York, 1946.
- D. Masters and K. Way, *One world or none*. McGraw-Hill, New York, 1946.
- R. D. Potter, *Atomic revolution*. McBride, New York, 1946.
- R. D. Potter, *Young people's book of atomic energy*. McBride, New York, 1946.
- A. K. Solomon, *Why smash atoms?* Harvard University Press, Cambridge, 1946.
- N. C. Turner, *Atomic energy for peace and war*. Oliver, Edinburgh, 1946.

1947

- C. Goodman, *The science and engineering of nuclear power*. Addison-Wesley Press, Cambridge, 1947.
- S. Hecht, *Explaining the atom*. Viking Press, New York, 1947.

Documents of the U. S. Atomic Energy Commission, available from Document Sales Agency, P. O. Box 62, Oak Ridge, Tenn.: (a) No. MDDC-539, J. Chipman, Metallurgy in the development of atomic power (Oct. 1946); (b) No. MDDC-792, F. C. Von de Lage, Atomic power engineering (Mar. 1947); (c) No. MDDC-1014, Course in nuclear physics for engineers (June 1947); (d) No. MDDC-1304, M. C. Leverett, Some engineering and economic aspects of nuclear energy (Sept. 1947).

#### 1948

K. K. Darrow, Atomic energy. Wiley, New York, 1948.  
E. S. C. Smith, A. H. Fox, R. T. Sawyer, and H. R. Austin, Applied atomic power. Prentice-Hall, New York, 1948.  
Selected bibliography on atomic energy, for sale by Supt. of Documents, Wash., D. C., 15 cents (U. S. Atomic Energy Commission, April 1948).

#### 1949

J. S. Allen, Atomic energy and society. International Publishers, New York, 1949.  
C. F. Behrens, Atomic medicine. C. C. Nelson, Appleton, Wis., 1949.  
G. Gamow and C. L. Critchfield, Theory of atomic nucleus and nuclear energy sources. Oxford University Press, New York, 1949.  
C. D. Goodman, Science and engineering of nuclear power. Addison-Wesley Press, Cambridge, Mass., 1949.  
M. L. Oliphant, Atomic age. Macmillan, New York, 1949.  
S. C. Rothmann, Constructive uses of atomic energy. Harper and Bro., New York, 1949.  
D. S. Shybekay, Atomic energy in the transportation business. Shybekay, Chicago, 1949.  
D. S. Shybekay, Additional applications of atomic energy. Shybekay, Chicago, 1949.  
F. Soddy, Story of atomic energy. William S. Heinman, New York, 1949.  
J. Tutin, Atomic energy year book. Temple Press, London, 1949.  
R. B. Way, Atomic power. Wells Gardner, Darton and Co., London, 1949.

#### 1950

L. A. DuBridge and P. C. Aebersold, Power from the atom. Murray and Gee, Culver City, Calif., 1950.  
F. Gaynor, Pocket encyclopedia of atomic energy. Philosophical Lib., New York, 1950.  
The effects of atomic weapons. McGraw-Hill, New York, 1950.

## 200. PERIODICAL REPORTS, 1940 THROUGH 1950

### 201. DEVELOPMENT AND FUTURE ROLE

#### 1940

A. Hausenstein, History of the development of the rocket. Z. ges. Schless- u. Sprengstoffw. 34, 135 (1939); 35, 8 (1940).  
M. Gautier, The possibilities of the constant-pressure gas turbine. Genie civil 116, 117, 132 and 148 (1940).  
A. Meyer, The combustion gas turbine: Its history, development and prospects. Inst. Mech. Eng. (London), J. and Proc. 141, 197 (1939); 142, 393 (1940); Brown Boveri Rev. 26, 127 (1939); Mech. Eng. 61, 645 (1939); 62, 880 (1940).

#### 1941

J. Ackeret, Present and future problems of airplane propulsion. NACA Tech. Mem. No. 976 (1941).  
J. T. Rettaliata, The gas turbine. Allis-Chalmers Elec. Rev. 6, 20 (Sept. 1941); Engineer 170, 63 and 78 (1940); Trans. ASME 63, 115 (1941).  
A. Schuette, Prospects of gas turbine installations. Elektrotech. Z. 62, 150 (1941).

**1942**

- J. Ackeret and D. C. Keller, Aerodynamic heat-power engine operating on a closed cycle. *NACA Tech. Mem. No. 1034* (1942).
- G. G. M. Carr-Harris, Development and uses of gas turbines. *Modern Power and Eng.* **36**, 24 (Jan. 1942); 23 (Feb. 1942); 55 (Mar. 1942).
- G. G. Smith, An examination of the possibilities of the combustion gas turbine: turbines in conjunction with air screws. *Flight and Aircraft Engr.* **42**, 417 and 439 (1942).

**1943**

The gas turbine. *Machinery* (London) **62**, 150 (1943).

**1944**

- A. K. Bruce, John Barber and the gas turbine. *Engineer* **178**, 506 (1944); 181, 216 (1946).
- F. K. Fischer and C. A. Meyer, The combustion gas turbine. *Combustion* **15**, No. 11, 32 (1944); *Power Plant Eng.* **48**, No. 5 (1944); *Aero Digest* **47**, 100 (Oct. 1, 1944); *Steel* **114**, No. 18, 110 (1944); *Natl. Petroleum News* (II), R308 (1944); *Marine Eng. and Shipping Rev.*, 169 (May 1944); *Elec. World* **121**, 52 (Apr. 29, 1944); *Power* **88**, 91 (May 1944).
- P. M. Heldt, Gas turbine development—past and present. *Automotive and Aviation Inds.* **91**, 26 (Aug. 1, 1944).
- A. Morstell and S. E. Norberg, Jet propulsion problems. *Tek. Tid.* **74**, 871 (1944).
- S. A. Moss, The gas turbine—an engineering dream for 150 years. *Power Plant Eng.* **48**, 90 (Feb. 1944); An engineering possibility today. *Power Plant Eng.* **48**, 79 (Mar. 1944).
- M. M. Munk, Has jet propulsion arrived? *Aero Digest* **44**, 49 (Feb. 1, 1944).
- H. Pfenninger, Present day possibilities of the combustion turbine. *Brown Boveri Rev.* **31**, 173 (May 1944).
- J. K. Salisbury, Gas turbine developments. *Steel* **115**, No. 6, 104 (1944).
- P. R. Sidler, Prospects for gas turbine power. *Power* **88**, 68 (Mar. 1944).
- C. R. Soderberg and R. B. Smith, The gas turbine—present status and immediate prospects. *Power Plant Eng.* **48**, 70 (Apr. 1944).
- S. A. Tucker, Why bother with turbines? *Power* **88**, 64 (Feb. 1944); Gas turbines, present status and future prospects. *Mech. Eng.* **66**, 303 (1944).
- G. B. Warren, Potentialities, limitations of the combustion gas turbine. *Elec. World* **122**, 83 (Oct. 21, 1944); 99 (Nov. 11, 1944).
- B. Wood, The future of the gas turbine. *Engineer* **177**, 202, 224 and 242 (1944).

**1945**

- C. Carmichael, Forecasting aircraft propulsion. *Machine Design* **17**, 103 (Apr. 1945).
- H. Constant, L. J. Cheshire, A. R. Howell, P. Lloyd, D. N. Walker, R. G. Voysey, J. Reeman, and T. A. Taylor, The development of the internal combustion turbine. *Inst. Mach. Eng. (London), J. and Proc.* **153**, 409 (1945).
- C. D. Flagle and F. W. Godsey, Jr., The place of the gas turbine in aviation. *Automotive and Aviation Inds.* **92**, 33 (June 1, 1945); *Aviation* **44**, 131 (June 1945); Gas turbine-propeller jet drive and reciprocating engines. *Aero Digest* **50**, 60 (Aug. 1, 1945).
- A. E. Hintermann, The development of constant-pressure gas turbines for aircraft. *Flugwehr und Technik* **7**, 81 (1945).
- A. McSurley, Jet-driven props may power personal planes of the future. *Aviation News* **5**, 7 (Dec. 24, 1945).
- A. Meyer, Can combustion gas turbines run on cheap fuel oil? Abstract: *Brown Boveri Rev.* **32**, 246 (July 1945).
- S. R. Puffer and J. S. Alvord, The gas turbine in aviation. *Mech. Eng.* **67**, 803 (1945).
- C. A. Scarlott, G. E. Pendray, C. A. Meyer, and A. H. Redding, The day dawns for jet propulsion. *Westinghouse Engr.* **5**, No. 2, 47 (1945).
- F. Whittle, The early history of the Whittle jet-propulsion gas turbine. *Aeroplane* **69**, 445, 503 and 543 (1945); *Flight* **48**, 309 (1945).
- Gas turbines for aircraft propulsion. *Automotive and Aviation Inds.*, **92**, 18 (May 1, 1945).

**1946**

- W. G. Carter, The application of jet propulsion to military aircraft. *J. Roy. Aeronaut. Soc.* **50**, 347 (1946).
- R. M. Clarkson, The application of the gas turbine in its forms to the field of commercial aviation. *J. Roy. Aeronaut. Soc.* **50**, 333 (1946).
- H. J. Clyman, Jet propulsion and gas turbines in aviation. *SAE M. P.*, Philadelphia, Pa. (Dec. 1945).
- J. Foster, Jr., Comprehensive chronology of British turbojet developments. *Aviation* **45**, 78 (Apr. 1946).
- F. M. Green and J. E. Wallington, Aircraft propulsion. *Engineer* **182**, 516 (1946).
- F. W. Godsey, Jr., Gas turbines and aircraft. *SAE Journal* **54**, 458 (1946).
- S. G. Hooker, The application of the gas turbine to aircraft and propulsion. *J. Roy. Aeronaut. Soc.* **50**, 298 (1946).
- C. Keller, The Escher Wyss-AK closed-cycle turbine, its actual development and future prospects. *Trans. ASME* **68**, 791 (1946).
- R. P. Kroon, Jet propulsion engines and propeller-drive gas turbines—their application in future aviation. *J. Franklin Inst.* **241**, 167 (1946).
- A. E. Louks, The future of the gas turbine. *Air Reserve Gazette*, 1 (Aug. 1946).
- W. G. A. Perring, A critical review of German long-range rocket development. *J. Roy. Aeronaut. Soc.* **50**, 483 (1946); *J. Am. Rocket Soc.*, No. 65, 1 (Mar. 1946).
- J. W. Smith, Gas turbines of the future. *Automotive and Aviation Inds.* **95**, 40 (Nov. 1, 1946).
- M. Summerfield, The rocket's future influence on transport designs. *Aviation* **45**, 73 (Jan. 1946).
- P. B. Taylor and S. T. Robinson, Possibilities of the turbojet power plant. Abstract: *SAE Journal* **54**, 20 (Oct. 1946).
- F. Whittle, Turbojet to rule tomorrow's skies. *SAE Journal* **54**, 17 (Oct. 1946).
- H. A. Winne, Power—where do we go from here? *Mech. Eng.* **68**, 1032 (1946).
- Aeronautics in 1945, *Engineer* **181**, 8, 30 and 52 (1946).
- Gas turbines of the future. *Automotive and Aviation Inds.* **95**, 40 (Nov. 1, 1946).
- Viewpoints: turbines or reciprocating engines for air transport? *Air Trails* **29** (Apr. 1946).

**1947**

- F. R. Banks, Power units for future aircraft. Thornton Aero Engine Research Lab., Cheshire, England, Rept. No. 36 (Apr. 30, 1946); *Intava World* **6**, 79 (Sept. 1946); *SAE Journal* **55**, 31 (Sept. 1947); *Mech. Eng.* **69**, 671 (1947); *J. Roy. Aeronaut. Soc.* **51**, 35 (1947).
- E. L. Bass, Gas turbines for civil aircraft. *Shell Aviation News*, 15 (Oct. 1947).
- L. Bruchiss, Ten years of jet propulsion. *Air Trails* **30**, 42 (Sept. 1947).
- C. F. Caunter, A British aero-engine survey. *Aeronautics* **17**, 115 (Nov. 1947).
- M. U. Clauser, Trends in aircraft power plants. *Aeronaut. Eng. Rev.* **6**, 12 (Nov. 1947).
- E. F. Farrar, Design trends in turbojet and turboprop aircraft engines. Abstract: *SAE Journal* **55**, 53 (July 1947).
- A. T. Gregory and A. L. Pomeroy, Future trends in aircraft-engine design. *SAE Quart. Trans.* **1**, 529 (1947).
- E. H. Heinemann, Developments in high-speed aircraft. *Mech. Eng.* **69**, 805 (1947).
- F. W. Kolk, Future of the gas turbine in air transportation. Abstract: *SAE Journal* **55**, 80 (Feb. 1947).
- C. J. Lane, Design development of the gas turbine. Abstract: *SAE Journal* **55**, 24 (May 1947).
- R. C. Loomis, Future developments in air transportation-engines. *SAE M. P.*, Detroit (Jan. 1947).
- R. C. Mack, Supersonic air age visualized at Aeronautics Institute meeting. *Automotive and Aviation Inds.* **96**, 31 (Feb. 15, 1947).
- C. J. McCarthy, Miracles must wait. *Can. Aviation*, 28 (Sept. 1947).
- F. M. Owner, The propeller-turbine aero engine. *Aeroplane* **73**, 310 (1947).
- A. Papini, A higher temperature gas turbine. *Diesel Power and Diesel Transportation* **25**, 50 (Apr. 1947).
- J. C. Sanders, What power for light planes? *Flying*, 37 (Aug. 1947).
- H. M. Shaw, Jet propulsion: Rockets and air-stream engines will power aircraft of the future. *Army Ordnance* **31**, No. 161, 435 (1946-47).

- F. Whittle, The development of the jet-propulsion gas turbine for aircraft. *Eng. J.* 30, 316 (July 1947).
- R. Wild, Aircraft propelling plant of the future. *Flugwehr u. Technik* 9, 167, (1947).
- M. J. Zucrow and W. J. Hesse, The gas-turbine power plant—its potentialities and development problems. Abstract: *SAE Journal* 55, 66 (Dec. 1947).
- Aeronautics in 1946. *Engineer* 183, 12 and 42 (1947).
- Gas turbine development in 1946. *Engineer* 183, 54, 77 and 97 (1947).
- Recent gas-turbine progress analyzed. *SAE Journal* 55, 39 (Nov. 1947).

#### 1948

- B. W. Bruckmann, The turbojet as an advantageous powerplant for tests in research and development. *Tech. Data Digest* 13, 13 (Apr. 15, 1948).
- H. Constant, The prospects of land and marine gas turbines. *Instn. Mech. Eng. J. and Proc.* 159, 191 (1948).
- J. C. Floyd, Leadership in future air travel destiny of jet transport. *Can. Aviation*, 26 (May 1948).
- W. S. Friedman, Jets for commerce. *Air Force* 31, 18 (Aug. 1948).
- R. M. Hazen, Turbojet development and producing problems. *Aero Digest* 56, 69 (Mar. 1948).
- C. L. Johnson, The 1955 air transport. *Western Flying*, 10 (Dec. 1948).
- R. R. Kay, The transport plane of 1955. *Automotive Inds.* 99, 37 (Nov. 15 1948).
- R. P. Kroon, Trends in turbojet design. *Aero Digest* 56, 68 (Mar. 1948).
- J. K. Northrop, Aviation history—1903 to 1960. U. S. Library of Congress, Information Office, Press Release No. 521 (Nov. 3, 1948).
- W. W. Parrish, Five hundred mph jet transport seen possible by 1950. *Am. Aviation* 12, 13 (June 15, 1948).
- N. F. Silsbee, Jet-propelled airliners. *Aero Digest* 57, 46 (Aug. 1948).
- C. R. Soderberg, The gas turbine and its significance as a prime mover. *Proc. Natl. Acad. Sci. U. S.* 34, 239 (1948).
- E. W. Still, Power plant development. *Aeroplane* 75, 495 (1948).
- J. E. Talbert and J. C. Smith, Aerothermodynamic design of turbines for aircraft power plants. *J. Aeronaut. Sci.* 15, 556 (1948).
- A. N. Tifford, The application of gas turbines to aircraft. *Aeronaut. Eng. Rev.* 7, 33 (July 1948).
- S. A. Tucker, How gas turbines fit into future power plants. *Mech. Eng.* 70, 796 (1948).
- R. W. Young, The prospect of large turboprops. *Aero Digest* 56, 70 (Mar. 1948).
- Aeronautics in 1947. *Engineer* 185, 21 and 48 (1948).
- Gas turbine development in France. *Aeroplane* 75, 640 (1948).
- Internal combustion turbines. *Flight* 54, 580 (1948).
- Jet propulsion in civil aircraft. *Aeroplane* 75, 794 (1948).
- Prospects of land and marine gas turbines. *Engineering* 166, 589 (1948).
- Supersonic role awaits turbojets. *Aviation Week* 49, 28 (Aug. 30, 1948).
- Turbine-powered 145-ton ships to fly in 1950. *Automotive Inds.* 98, 41 (Feb. 15, 1948).
- Turbojet, propjet or piston engine. *Hawker Rev.* 1, 7 (May 1948).
- Windmills or jets? *Flight* 54, 786 (1948)
- 1948 reaction power plants directory. *Aero Digest* 56, 77 (Mar. 1948).

#### 1949

- J. W. Adderley, German gas-turbine developments during the period 1939–1945. *Brit. Intelligence Objectives Subcom. Overall Rept. No. 12*, London (1949).
- W. G. Lundquist and G. S. Kelley, Jr., Optimum fields of application for air-consuming aircraft power plants. 2d Internat. Aeronaut. Conference, p. 9, *Inst. Aeronaut. Sci.*, New York, 1949.
- J. T. McNarney, What is happening in the field of rockets, jet propulsion and supersonic flight. *Tech. Data Digest* 14, 15 (Jan. 15, 1949).
- D. R. Shoults, Significance of new turbine engines to transport airplane design. *ASME M. P. Baltimore* (Mar. 1949).
- Aeronautics in 1948. *Engineer* 187, 55 (1949).
- Critical review of gas turbine progress. *Engineer* 187, 44 and 66 (1949).
- Gas turbines in 1948. *Engineer* 187, 81, 109 and 127 (1949).
- Jet airliners three years away. *Aviation Week* 50, 30 (Jan. 24, 1949).



1950

- H. Constant, The gas turbine in perspective. *Instn. Mech. Eng., J. and Proc.* **163**, 163 (1950).  
O. A. Saunders, Gas turbines for aircraft. *Engineering* **170**, 293 (1950).  
R. G. Worcester, World trends in jet aircraft design. *Am. Aviation* **14**, 31 (Nov. 13, 1950).

## 202. THEORY AND PERFORMANCE

1941

- A. Ananoff, Problems of the reaction engine. How a liquid-fuel rocket motor functions. *Astronautics* No. 48, 9 (1941).

1942

- S. Campini, Analytical theory of the Campini propulsion system. *NACA Tech. Mem. No. 1010* (1942).  
Gohlke, Thermal-air jet propulsion. *Aircraft Eng.* **14**, 32 (1942).  
O. Martin, Steam or gas turbine. *Wärme* **65**, 419 (1942).  
M. Roy, Simplified formulae applied to the gas turbine. *Compt. rend.* **214**, 298 (1942).  
D. G. Samaras, Thermodynamic performance considerations of jet propulsion. *Natl. Research Council Can., Div. Mech. Eng., Rept. No. ME-57* (Feb. 1942).

1943

- C. B. M. Dale, The efficiencies of gas turbines. *Engineering* **156**, 474 (1943).  
P. Jackson, Efficiencies of combustion turbines. *Engineering* **156**, 534 (1943).  
W. Nusselt, Energieumsatz in der Gas- und Ölturbine. *Wärme* **66**, 139 (1943).  
H. Pfenninger, Die Gasturbine mit Abwärmerückgewinnung durch Luftvorwärmung. *Wärme* **66**, 200 (1943).  
E. Schmidt, Calculation of the gas turbine process. *Z. Ver. deut. Ing.* **87**, 372 (1943).

1944

- J. Ackeret, Remarks on jet propulsion of aircraft. *Schweiz. Bauz.* **12**, 235 (1944).  
S. J. Davies and M. I. Fawzi, Efficiencies of combustion turbines. *Engineering* **156**, 401 and 421 (1943); **157**, 181 and 221 (1944).  
R. Eksbergian, On the reaction of fluids and fluid jets. *J. Franklin Inst.* **237**, 385 (1944).  
Flight and propulsion spectrum. *Automotive and Aviation Inds.* **91**, 26 (Nov. 1, 1944).

1945

- Z. Fonberg, General theory of reaction propulsion. *J. Am. Rocket Soc.* No. **63**, 2 (Sept. 1945).  
Z. Krzywoblocki, Principles of rocket and jet propulsion. *Polish Eng. Rev.* **72** (Oct.-Dec. 1945).  
G. E. Pendray, An introduction to jet propulsion. *J. Am. Rocket Soc.* No. **64**, 15 (Dec. 1945).  
Combustion turbines. *Brown Boveri Rev.* **32**, 8 (Jan.-Feb. 1945).

1946

- P. Bielkowicz, Evolution of energy in jet and rocket propulsion. *Aircraft Eng.* **18**, 419 (1946).  
W. F. Durand, Jet propulsion. *Mech. Eng.* **68**, 191 (1946).  
B. Hamlin and F. Spenceley, Comparison of propeller and reaction-propelled airplane performance. *J. Aeronaut. Sci.* **13**, 425 (1946).  
W. R. Hawthorne, Factors affecting the design of jet turbines. *SAE Journal* **54**, 347 (1946).  
S. G. Hooker, High speed flight. *Aeroplane* **70**, 125, 159 and 216 (1946).  
M. Z. Krzywoblocki, Preliminary calculation of the mass ratio, range and average coefficients of efficiency of a long-distance stratospheric jet plane. *J. Franklin Inst.* **241**, 255 (1946).  
J. F. Manildi, Theory of operation and fields of application of the turbojet, ramjet and pulsejet. *Abstract: SAE Journal* **54**, 75 (Nov. 1946).

- S. A. Moss and W. B. Foote, Some elementary details of ramming intake and propulsive jets for airplanes. *J. Aeronaut. Sci.* 13, 111 (1946).
- G. E. Pendray, An introduction to rockets and jet propulsion. *Mech. Eng.* 68, 611 (1946).
- E. R. Relf, Modern aerodynamic developments. *Aeroplane* 70, 645 and 675 (1946).
- N. D. Sanders, Performance parameters for jet-propulsion engines. NACA Tech. Note No. 1106 (1946).
- H. Serbin, Gas-turbine engine performance. *Aero Digest* 53, 78 (Nov. 1946).
- D. D. Streid, Gas turbine fundamentals. *Mech. Eng.* 68, 127 (1946).
- D. T. Williams, The reaction jet as a means of propulsion at high speeds. NACA Wartime Rept. No. E-78 (1946).
- M. J. Zucrow, The rocket power plant. *SAE Journal* 54, 375 (1946).
- Aircraft propulsion. *Engineering* 162, 593 (1946).
- Gas turbines. *Brown Boveri Rev.* 33, 8 (Jan.-Feb. 1946).

#### 1947

- J. Ackeret, On the theory of rockets. *Bull. Brit. Interplanet. Soc.* 1, 37 (Sept. 1946); *Helv. Phys. Acta* 19, 103 (1946); *J. Brit. Interplanet. Soc.*, 116 (Mar. 1947).
- R. E. Bolz, Graphical solution for the performance of continuous-flow jet engines. *SAE Quart. Trans.* 1, 235 (1947).
- E. A. Boniface, Analyzing the jet. *Air Transport* 5, 29 (Feb. 1947)
- A. C. Clarke, Principles of rocket flight. *Aeroplane* 72, 14 and 48 (1947).
- F. M. Green and J. E. Wallington, Aircraft propulsion. *Inst. Mech. Eng. (London), J. and Proc.* 156, 176 (1947).
- J. Jonas, Jet airplane range considerations. *J. Aeronaut. Sci.* 14, 124 (1947).
- J. H. Keenan and J. Kaye, A survey of calculated efficiencies of jet power plants. *J. Aeronaut. Sci.* 14, 437 (1947).
- R. V. Kleinschmidt, Value of wet compression in gas-turbine cycles. *Mech. Eng.* 69, 115 (1947).
- J. Kreitner and F. Nettel, The universal optimum power cycle for elastic fluid turbine power plants. *ASME Pre. No.* 47-A-43 (1947).
- A. L. Lowell, Guide to power-plant selection. *Aeronaut. Eng. Rev.* 6, 22 (Apr. 1947).
- K. O. Lundberg, Useful load ratio with jet and airscrew propulsion of aircraft. *J. Roy. Aeronaut. Soc.* 51, 686 (1947).
- A. J. R. Lysholm, A contribution to the solution of the gas turbine problem. *Engineer* 183, 240 and 263 (1947).
- P. Maeder, A simple method of performance calculation for aircraft with gas turbine power plants. *Flugwehr und Technik* 9, 104 (1947).
- C. A. Meyer, Characteristics of turbojet engines at high flight speeds. *Trans. ASME* 69, 237 (1947).
- F. J. Neugebauer, A simplified method for power plant evaluation based on the combined consideration of both airframe and power plant. *Tech. Data Digest* 12, 7 (Aug. 1, 1947).
- R. K. Page, Performance calculation for jet-propelled aircraft. *J. Roy. Aeronaut. Soc.* 51, 440 (1947).
- C. B. Palmer, Performance of compressor-turbine jet-propulsion systems. NACA Wartime Rept. No. L-278 (1947).
- B. Pinkel and E. W. Hall, Study of a jet-propulsion system comprising blower, burner and nozzle. NACA Wartime Rept. No. E-212 (1947).
- H. Reindorf, Evaluation of power plants according to flight velocity, altitude and range in the space diagram. *Air Materiel Command Intelligence Translation No. F-TS-3211-RE* (June 1947).
- H. Reissner, Systematic analysis of thermal turbojet propulsion. *J. Aeronaut. Sci.* 14, 197 (1947).
- K. F. Rubert, An analysis of jet-propulsion systems making direct use of the working substance of a thermodynamic cycle. NACA Wartime Rept. No. L-714 (1947).
- B. T. Salmon, Composite-powered aircraft. *Aero Digest* 54, 61 (Mar. 1947); *SAE Journal* 55, 34 (Dec. 1947).
- K. Schaefer, On the thermodynamics of rocket propulsion. *Air Materiel Command Intelligence Translation No. F-TS-982-RE* (Feb. 1947).
- K. R. Scheuter, Theoretical notes on some jet-propulsion engines. *Engrs. Digest* 4, 151 (1947).

- H. S. Seifert, M. W. Mills, and M. Summerfield, Physics of rockets. *Am. J. Phys.* 15, 1, 121 and 255 (1947).
- S. A. Tucker, Power dividends seem available for turboprops. *Aviation* 46, 44 (June 1947).
- J. Whitney, Thermodynamic factors in turbine-aircraft design. *Aviation* 46, 46 (June 1947).
- G. P. Wood, Performance possibilities of the turbojet system as a power plant for supersonic airplanes. NACA Research Memo. No. L7H05a (1947).
- J. I. Yellott and E. F. Lype, Some effects of pressure loss on the open-cycle gas-turbine power plant. *Trans. ASME* 69, 903 (1947).
- NACA investigation of a jet-propulsion system applicable to flight. NACA War-time Rept. No. L-528 (1947).
- Performance and ranges of application of various types of aircraft propulsion systems. NACA Tech. Note No. 1349 (1947).
- Thrust, speed and power. *Aeronautics* 17, 51 (July 1947).

#### 1948

- D. G. Ainley, The performance of axial-flow turbines. *Instn. Mech. Eng., J. and Proc.* 159, 230 (1948).
- I. L. Ashkenas, Range performance of turbojet airplanes. *J. Aeronaut. Sci.* 15, 97 (1948).
- D. Bogart, D. Okrent, and L. R. Turner, Thermodynamic charts for the computation of fuel quantity required for constant-pressure combustion with diluents. NACA Tech. Note No. 1655 (1948).
- R. O. Bullock and R. E. English, The cycle analysis of gas turbine-propeller engines with turbine-blade cooling. *SAE M. P., French Lick* (June 1948).
- I. H. Driggs, Preliminary performance analysis of gas-turbine power plants. *SAE Quart. Trans.* 2, 596 (1948); *Aviation Week* 49, 29 (Nov. 15, 1948).
- M. C. Ellis, Jr., and C. E. Brown, NACA investigation of a jet-propulsion system applicable to flight. NACA Rept. No. 802 (1948).
- R. E. English and C. H. Hauser, A method of cycle analysis for aircraft gas-turbine power plant driving propellers. NACA Tech. Note No. 1497 (1948).
- A. W. Gabriel, Jr., Flight thrust analysis. *Aero Digest* 56, 60 (Apr. 1948).
- J. M. Gilchrist, Chart for the investigation of thermodynamic cycles in internal combustion engines and turbines. *Instn. Mech. Eng., J. and Proc.* 159, 335 (1948).
- F. H. Hanson, Jr., and E. A. Mossman, Effect of pressure recovery on the performance of a jet-propelled airplane. NACA Tech. Note No. 1695 (1948).
- R. V. Hensley, N. D. Sanders, and R. P. Krebs, Potential performance of the turbojet engine at subsonic and supersonic speeds. *SAE M. P., French Lick* (June 1948).
- H. C. Hill, Jet propulsion can be efficient at low speeds. *Automotive Inds.* 99, 46 (Sept. 15, 1948).
- Huber, Effect of more powerful power plants on the flight performance of turbojet fighters. *Air Materiel Command Intelligence Translation* No. F-TS-1569-RE (Sept. 1948).
- D. J. Jordan, Design of turbojet installations. *Aero Digest* 57, 74 (Nov. 1948).
- F. D. Kochendorfer and J. C. Nettles, An analytical method of estimating turbine performance. NACA Research Memo. No. E8I16 (1948).
- I. Lubbock and I. G. Bowen, The gas turbine and its combustion problems. *Inst. Petroleum-Inst. Fuel, Joint Conf. Modern Applications Liquid Fuels.* Advance Paper (1948).
- D. H. Mallinson and W. G. E. Lewis, The part-load performance of various gas-turbine engines schemes. *Instn. Mech. Eng., J. and Proc.* 159, 198 (1948).
- R. McLarren, Pressure recovery ups jet output. *Aviation Week* 49, 18 (Oct. 4, 1948).
- A. W. Morley, Equilibrium running of the simple jet-turbine engine. *J. Roy. Aeronaut. Soc.* 52, 305 (1948).
- R. B. Parisen, J. C. Armstrong, and S. C. Huntley, Theoretical evaluation of the ducted-fan turbojet engine. NACA Tech. Note No. 1745 (Nov. 1948).
- B. Pinkel and I. M. Karp, Performance charts for a turbojet system. NACA War-time Rept. No. E-241 (1948).
- E. Sanger, The prospects of jet reaction flight. *Interavia* 3, 449, 557 and 617 (1948).

- A. G. Smith, Heat flow in the gas turbine. *Instn. Mech. Eng., J. and Proc.* 159, 245 (1948).  
 E. G. Sterland, Partial-load characteristics of marine gas-turbine cycles. *Engineering* 166, 601 and 625 (1948).

#### 1949

- A. W. Goldstein, et al., Analysis of the performance of a jet engine from the characteristics of the components. *NACA Tech. Notes* No. 1459 (1947); 1701 (1948); Rept. No. 928 (1949).  
 R. C. Kohl, H. Z. Herzig, and W. J. Whitney, Effects of partial admission on the performance of a gas turbine. *NACA Tech. Note* No. 1807 (1949).  
 R. McLarren, How delta-wing aids high speed flight. *Aviation Week* 51, 21 (July 4, 1949).  
 D. L. Mordell, The exhaust-heated gas-turbine cycle. *Mech. Eng.* 71, 943 (1949).  
 N. D. Sanders and M. Behun, Generalization of turbojet engine performance in terms of pumping characteristics. *NACA Tech. Note* No. 1927 (1949).  
 R. Tennant and P. Kahn, Super-sonic thrust. *Aeroplane* 77, 74 (1949).

#### 1950.

- O. E. Balje, A contribution to the design of radial-turbomachines. *CADO Tech. Data Digest* 15, 21 (Sept. 1950).  
 T. W. F. Brown, Some factors in the use of high temperatures in gas turbines. *Inst. Mech. Engrs., J. and Proc.* 162, 167 (1950).  
 I. H. Driggs, Why we still need the propeller. *Aviation Week* 53, 28 (Oct. 23, 1950).  
 E. Duncombe, A method of calculating optimum turbine operating conditions for a range of nozzle and blade angles. *Nat. Research Council Rept. No. MT-13* (June 2, 1950).  
 H. Hausenblas, Design nomograms for turbine stages. *Motortechnische Zeit.* 11, 96 (Aug. 1950).  
 S. L. Koutz et al., Effect of heat and power extraction on turbojet-engine performance. *NACA Tech. Notes* No. 2053, 2166 and 2202 (1950).  
 C. A. Meyer, Extrapolation of static tests to predict operation of jet engines in flight. *Trans ASME* 72, 465 (1950).  
 C. A. Meyer and H. F. Faught, A method of presenting the performance of turbojet engines. *Inst. Aeronaut. Sci. Pre. No. 293* (1950).  
 T. F. Nagay and C. G. Martin, Calculated engine performance and airplane range for variety of turbine-propeller engines. *NACA Tech. Note* No. 2155 (1950); *Automotive Inds.* 103, 45 (Dec. 15, 1950).  
 A. K. Oppenheim and A. L. London, Design analysis of free-piston engine. *Automotive Inds.* 103, 46 (July 1, 1950).  
 M. Roy, Theoretical investigations on the efficiency and the conditions for the realization of jet engines. *NACA Tech. Memo. No. 1259* (1950).  
 O. A. Saunders, Gas turbines for aircraft. *Engineering* 170, 293 (1950).  
 N. F. Silsbee, Range of the jets. *Aviation Age* 14, 32 (Sept. 1950).  
 A. M. Trout and E. W. Hall, Method for determining optimum division of power between jet and propeller for maximum thrust power of a turbine-propeller engine. *NACA Tech. Note* No. 2178 (1950).  
 Aero-engine developments. *Aeroplane* 79, 131 (1950).

#### 1951

- A. S. Leonard, The irreversible adiabatic polytropic process with variable specific heat and its application to gas turbine cycle analyses. *SAE Pre. No. 570*, Detroit (1951).

## 203. TURBOJET AND PROJET ENGINES

### 203.1 American Engines

#### 1945

- New airplane power plant combines propeller and jet propulsion. *Automotive and Aviation Inds.* 93, 28 (Nov. 15, 1945).  
 Westinghouse jet engines and their components. *Automotive and Aviation Inds.* 93, 22 (Dec. 15, 1945).

**1946**

- J. Foster, Jr., Design analysis of the Westinghouse 19-B Yankee turbojet. *Aviation*, 45, 60 (Jan. 1946).
- R. S. Hall, Aircraft gas turbines with centrifugal compressors. *SAE Journal* 54, 476 (1946).
- R. C. Schulte, Design analysis of the General Electric type I-16 jet engine. *Aviation* 45, 43 (Jan. 1946).
- D. D. Streid, Development of the I-40 jet-propulsion gas turbine. *Automotive and Aviation Inds.* 94, 36 (Jan. 1, 1946); *Aviation* 45, 51 (Jan. 1946).
- G. H. Woodard and R. P. Kroon, Jet engines by Westinghouse. *Aero Digest* 52, 88 (May 1946).
- Axial flow compressor reduces jet-engine diameter. *Product Eng.* 17, 90 (Aug. 1946).
- Features of the I-40 gas turbine. *Aero Digest* 52, 61 (Jan. 1946).
- Notes on the Westinghouse Yankee (19-B) jet engine. *Aircraft Engr.* 18, 254 (1946).

**1947**

- N. Burgess, Design analysis of the General Electric TG-180 turbojet. *Aviation Week* 47, 36 (July 7, 1947).
- J. Foster, Jr., Design changes in J-33 turbojet. *Aviation Week* 47, 21 (Aug. 18, 1947).
- A. Howard and C. J. Walker, An aircraft gas turbine for propeller drive. *Mech. Eng.* 69, 827 (1947).
- H. G. Jones, Jr., Types of jet propulsion. Abstract: *SAE Journal* 55, 63 (Mar. 1947).
- W. J. King and W. R. Hawthorne, American aircraft propulsion machinery. *Instn. Mech. Eng., J. and Proc.* 157, 197 (1947).
- R. E. Small, Improvements in turbojet installations. Abstract: *SAE Journal* 55, 57 (July 1947).
- Aircraft gas turbines. *Mech. Eng.* 69, 592 (1947).
- Specifications of TG-100 and TG-180 aircraft gas turbines. *Aviation Division, General Electric Co.* (May 7, 1947).

**1948**

- J. Geschelin, J-35-A-15 turbojet engine production at Allison. *Automotive Inds.* 98, 35 (June 15, 1948).
- H. E. Grantz, The TG-100B turbine-propeller engine; A design analysis. *Aero Digest* 57, 37 (Nov. 1948).
- P. F. Martinuzzi, Gas turbines in the United States. *Flight* 54, 439 (1948).
- Aircraft gas turbine engines. *Automotive Inds.* 98, 44 (Apr. 15, 1948).
- Flader turbojet. *Aero Digest* 57, 61 (Nov. 1948).
- Northrop-Hendy-Turbodyne XT-37. *Aero Digest* 56, 56 (Feb. 1948).
- TG-190 unveiled at last. *Aero Digest* 56, 57 (June 1948).

**1949**

- S. D. Hage, The Boeing 200-HP gas turbine and the light airplane. *Aeronaut. Eng. Rev.* 8, 30 (July 19, 1949).
- R. Hotz, Allison turboprop challenges British lead. *Aviation Week* 51, 11 (Dec. 5, 1949).
- R. P. Kroon and R. B. Rogers, Trends in the application and maintenance of turbojet engines. *Aeronaut. Eng. Rev.* 8, 42 (Mar. 1949).
- R. L. Wells, Tale of a turbojet. *Aero Digest* 59, 40 (Dec. 1949).
- Internal makeup of J-34. *Aviation Week* 51, 16 (July 18, 1949).
- Stiff test for J-34. *Aero Digest* 59, 70 (Oct. 1949).
- "Turbodyne" flies at last. *Aero Digest* 59, 20 (Aug. 1949).
- Turbo-Wasp data. *Automotive Inds.* 100, 48 (Feb. 15, 1949).
- U. S. gas-turbine engines. *Aviation Week* 50, 23 (Feb. 28, 1949).

**1950**

- I. F. Angstadt, Pratt and Whitney turboprop. *Aero Digest* 61, 28 (Oct. 1950).
- J. W. Bailey, Turbojet engines—service experience. Abstract: *SAE Journal* 58, 23 (Dec. 1950).
- A. McSurely, P&W reveals most powerful turboprop. *Aviation Week* 53, 12 (Sept. 11, 1950).

- I. Stone, New high-thrust turbojet seen for G. E. *Aviation Week* 53, 21 (Dec. 4, 1950).
- A. H. Redding, Turbojet engines for supersonic flight. *ASME M. P.* 50-A-141 (1950).
- Along P&W's jet production line. *Aviation Week* 53, 22 (July 24, 1950).
- Navy turboprops. *Naval Aviation News*, 1 (May 1950).
- New turboprop so powerful it flies B-17 with other engines off. *CADO Tech. Data Digest* 15, 12 (Nov. 1950).
- Northrop's 7,500 EHP Turbodyne engine. *Am. Aviation* 14, 27 (June 1950).
- Power in the air. *Aero Digest* 61, 44 (Nov. 1950).
- Pratt and Whitney engine specifications. *Aero Digest* 61, 54 (Aug. 1950).

1951

- A. McSurely, Allison gets heavy T-40 order. *Aviation Week* 54, 14 (Jan. 1, 1951).

### 203.2 British Engines

1945

- J. D. Pearson, The Rolls-Royce Derwent. *Flight* 48, 447 (1945); *Commercial Aviation*, 26 (Oct. 1945); *Aeroplane* 69, 447 (1945); *Engineering* 160, 406 (1945).
- F. Whittle, The early history of the Whittle jet-propulsion gas turbine. *Automotive and Aviation Inds.* 90, 42 (Jan. 15, 1944); *Inst. Mech. Eng. (London), J. and Proc.* 152, 419 (1945).
- Bristol Theseus I. *Flight* 48, 597 (1945).
- de Havilland Goblin. *Flight* 48, 472 (Nov. 1, 1945); *Aeroplane* 69, 477 (1945); *Engineering* 160, 406 (1945).

1946

- H. R. Cox, British aircraft gas-turbine engine progress. *Aircraft Eng.* 18, 18 and 50 (1946); *J. Aeronaut. Sci.* 13, 53 (1946).
- J. Foster, Jr., Design details of Metro-Vickers F/3 turbojet. *Aviation* 45, 66 (June 1946).
- J. W. Morrison, British power plant progress. *Aero Digest* 53, 78 (Dec. 1946).
- The Bristol Theseus propeller turbine. *Aeroplane* 71, 307 (1946); *Engineer* 182, 258 (1946).
- Britain's aero engines. *Aeroplane* 71, 591, (1946).
- A British axial flow turbojet. *Aeroplane* 70, 281, (1946).
- de Havilland enters the jet propulsion engine field. *Aero Digest* 52, 98 (May 1946).
- Design details of Bristol Theseus turboprop. *Aviation* 45, 53 (Nov. 1946).
- The development of Rolls-Royce turbojets. *Aeroplane* 70, 167 (1946).
- Efficiency through simplicity. *Aeroplane* 70, 223 (1946).
- Engineering details of the Rolls-Royce Nene turbojet. *Aviation* 45, 73 (May 1946); *Engineer* 181, 401 (1946).
- Great power from a small compass. *Aeroplane* 70, 457 (1946).
- Jet developments at Coventry. *Aeroplane* 70, 393 (1946).
- Jet engines for flying speed record. *Engineer* 182, 151 (1946).
- The Mamba gas turbine. *Aeroplane* 71, 293 (1946).
- Metro-Vick gas turbine. *Flight* 49, 420 (1946).
- Notes on the Bristol Theseus heat-exchanger propeller turbine. *Aircraft Eng.* 18, 366 (1946).
- Notes on the de Havilland Goblin. *Aircraft Eng.* 18, 125 (1946).
- Report on British jet engines. *Aero Digest* 52, 22 (June 1946).
- River Class evolution. *Flight* 49, 131 (1946).
- Rolls-Royce gas turbine development. *Engineering* 162, 224 and 247 (1946).
- Series II Goblin. *Flight* 49, 185 (1946).
- Three British jet engines—Goblin II, Nene I and F/3. *Automotive and Aviation Inds.* 95, 28 (Sept. 1, 1946).
- The Theseus I propeller gas-turbine aero engine. *Engineering* 162, 367 (1946).
- Towards larger aircraft. *Aeroplane* 71, 294 (1946).

1947

- H. Constant, Aeroplane gas turbines. *Instn. Mech. Eng., J. and Proc.* 157, 202 (1947).
- E. S. Moulton, Development of the Goblin engine. *de Havilland Gazette*, 4 (June 1947); *J. Roy. Aeronaut. Soc.* 51, 655 (1947).

W. Nichols, British propjet progress. *Aero Digest* 54, 63 (Feb. 1947).  
D. M. Smith, Development of an axial flow gas turbine for jet propulsion. *Instn. Mech. Eng., J. and Proc.* 157, 471 (1947); *Engineer* 183, 83 and 105 (1947).  
Armstrong Siddeley ASX and Python gas turbines. *Shell Aviation News*, 23 (Sept. 1947).  
Axial flow gas turbine. *Aeroplane* 72, 98 (1947); *Engineer* 183, 102 (1947).  
British jet engines in production. *Automotive Inds.* 97, 36 (Dec. 15, 1947); *Flight* 52, 250 (1947).  
The de Havilland Ghost. *Automotive and Aviation Inds.* 96, 33 (April 1, 1947); *Engineer* 183, 191 (1947); *Aero Digest* 54, 81 (Apr. 1947); *Engineering* 163, 520 (1947).  
French and British turbojets show new features. *Aviation* 46, 42 (April 1947).  
Naiad announced. *Flight* 52, 254 (1947).  
Rolls-Royce Trent propeller-turbine aero engine. *Aeroplane* 73, 92 (1947); *Flight* 50, 79 (1947); *Engineering* 164, 201 (1947); *Engineer* 184, 89 (1947).  
Story of the Nene. *J. Am. Rocket Soc. No.* 71, 12 (Sept. 1947).  
Theseus. *Aeroplane* 72, 126 and 312 (1947); *Flight* 51, 270 (1947); *Engineering* 163, 283 (1947).

#### 1948

W. F. Bradley, British disclose gas turbine projects. *Automotive Inds.* 98, 32 (June 1, 1948).  
M. Eddy, Jets in England. *Aero Digest* 56, 26 (Apr. 1948).  
R. C. Franklin, Vampire. *Aero Digest* 57, 23 (Aug. 1948).  
W. Green, de Havilland Vampire. *Interavia* 3, 340 (1948).  
W. H. Lindsey, Development of the Mamba engine. *Aeroplane* 75, 729 (1948); *Flight* 54, 696 (1948).  
P. H. Wilkinson, Gas turbines at Farnborough. *Aero Digest* 57, 22 (Nov. 1948).  
Armstrong Siddeley "Mamba" gas-turbine propeller engine. *Engineer* 185, 301 (1948); *Interavia* 3, 259 (1948).  
Avro's Mamba-Athena. *Aeroplane* 74, 354 (1948).  
Bristol "Proteus" propeller turbine. *Shell Aviation News*, 22 (Sept. 1948).  
"Chinook" engine spearheads Canadian turbine program. *Can. Aviation*, 24 (Jan. 1948); *Flight* 53, 101 (1948); *Aero Digest* 57, 106 (Sept. 1948).  
Dart details; Rolls-Royce small turboprop described. *Flight* 54, 651 (1948).  
The Mamba power unit. *Aeroplane* 74, 333 (1948); 75, 729 (1948); *Aircraft Eng.* 20, 26 (1948); *Engineering* 165, 583 (1948); *Aero Digest* 56, 44 (June 1948).  
The "Nene" passes with honors. *Aero Digest* 57, 26 (July 1948).  
Power plants for British giants. *Aircraft* 27, 18 (Oct. 1948).  
Testing the Goblin. *Shell Aviation News*, 20 (Sept. 1948).  
A turbine for transports. *Aeroplane* 75, 733 (1948).  
Ways and Nenes. *Flight* 54, 719 (1948).

#### 1949

I. Stone, First details of Avro's Orenda turbojet. *Aviation Week* 51, 21 (Oct. 17, 1949).  
S. E. Veale, Progress in British aircraft and engines. *Western Flying*, 14 (Jan. 1949).  
D. H. Wood, Britain's jet powerplants. *Aero Digest* 59, 32 (Nov. 1949).  
Analyzing the Bristol Proteus turboprop. *Aviation Week* 51, 21 (Oct. 24, 1949).  
The Armstrong Siddeley Python. *Aeroplane* 77, 256 (1949).  
Bristol Proteus propeller turbine. *Aeronaut. Eng. Rev.* 8, 40 (Sept. 1949).  
Cutaway of British Naiad. *Automotive Inds.* 100, 40 (Feb. 15, 1949).  
The Dart turbine for civil and military use. *Aeroplane* 77, 361 (1949).  
The de Havilland "Ghost" turbojet engine. *Aero Digest* 59, 42 (Oct. 1949).  
Derwent V jet engine test. *Engineer* 187, 133 (1949).  
Double turboprop engine built in Britain. *Aviation Week* 51, 21 (July 18, 1949).  
Nenes in Australia. *Aeroplane* 77, 16 (1949).  
Power plants at Farnborough. *Aeroplane* 77, 389 (1949).  
Proteus and Coupled-Proteus turbines. *Aeroplane* 77, 783 (1949).  
The "Proteus" gas-turbine propeller aircraft engine. *Engineering*, 168, 269 (1949).  
The "Python" propeller-turbine aircraft engine, *Engineering* 168, 187 (1949).  
Severe test proves turbojet reliability. *Aviation Week* 50, 21 (Feb. 7, 1949).  
A 3,415 HP power group. *Aeroplane* 77, 482 (1949).

**1950**

- R. N. Dorey, Dart turboprop design accents long-life features. Abstract: SAE Journal 58, 60 (Nov. 1950).  
A. McSurely, Sapphire strengthens Wright's jet bid. Aviation Week 53, 12 (Oct. 16, 1950).  
P. H. Wilkinson, Armstrong Siddeley's "Adder" turbojet. Aero Digest 61, 43 (Oct. 1950).  
P. H. Wilkinson, Napier's "Coupled Naiad". Aero Digest 61, 42 (June 1950).  
D. H. Wood, Power in the air. Aero Digest 61, 40 (Dec. 1950).  
Details of Sapphire jet revealed. Aviation Week 53, 34 (Oct. 23, 1950).  
British gas turbines. Aeroplane 79, 245 (1950).  
Power plants at the S. B. A. C. display. Aeroplane 79, 333 (1950).

### **203.3 Engines of Other Nations**

**1945**

- R. Fedden, The German jet. Natl. Aeronautics, 13 (Dec. 1945); Flight 48, 626 and 661 (1945).  
German turbojet and liquid rocket units and the planes they powered. Automotive and Aviation Inds. 93, 18 (Oct. 1, 1945).  
Junkers Jumo turbojet engine. Automotive and Aviation Inds. 93, 19 (Nov. 1, 1945).

**1946**

- W. C. Gerler, The German Jumo-004 engine. SAE M. P., Detroit, (Jan. 1946).  
W. G. Lindquist and R. W. Cole, Performance characteristics of BMW-003 turbojet and comparison with Jumo-004. Automotive and Aviation Inds. 94, 30 (June 15, 1946) 95, 26 (July 1, 1946). SAE Journal 54, 503 (1946).  
R. C. Schulte, Design analysis of BMW-003 turbojet. Aviation 45, 55 (Mar. 1946).  
E. A. Simonis and A. D. Moore, The BMW-003 jet-propulsion engine. Aircraft Eng. 18, 43 (1946).  
Design and construction of German 109-011 A-O turbojet. Aviation 45, 63 (Sept. 1946).  
Gas turbine development at B. M. W. and Daimler-Benz. Combined Intelligence Objectives Subcom. Rept., H. M. Stationery Office, London (1946).  
The Junkers Jumo-004 engine. Aircraft Eng. 17, 347 (1945); 18, 10 (1946).

**1948**

- Killman, Conferences on jet engines TI011 and PTI021. Air Matériel Command Intelligence Translation No. F-TS-2834-RE (Apr. 1948).  
D. R. Maguire, Enemy jet history. J. Roy. Aeronaut. Soc. 52, 75 (1948).  
SOCEMA aircraft turbines. Flight 54, 608 (1948).  
Two Swedish turbojets. Flight 54, 594 (1948).

**1950**

- The Turbomeca ducted fan. Aeroplane 79, 385 (1950).

### **203.4 American Military Aircraft**

**1944**

- Disclose secrets of Allies' jet-propelled planes. Aero Digest 47, 107 (Oct. 15, 1944).

**1945**

- Jet and conventional engines combined in Ryan FR-1 Fireball. Aviation 44, 171 (Nov. 1945).  
The Lockheed P-80 Shooting Star. Aero Digest 49, 108 (Apr. 1, 1945); 50, 60 (Sept. 1, 1945); Aviation 44, 170 (Sept. 1945).

**1946**

- R. B. Johnston and H. S. Gordon, Composite engine aircraft as a basic conception. Aviation 45, 59 (Apr. 1946); Aircraft Eng. 18, 299 (1946).  
D. J. Keirn and D. R. Shoults, Jet propulsion and its application to high-speed aircraft. J. Aeronaut. Sci., 13, 411 (1946).



**K. Perkins, Design development of the McDonnell FD-1 Phantom.** Aviation 45, 40 (Nov. 1946).  
**Douglas doings.** Aero Digest 53, 89 (July 1946).  
**The first American jet carrier trials.** Aeroplane 71, 167 (1946).  
**Navy reveals two new jet fighters.** Aviation News 6, 9 (Nov. 25, 1946).  
**Navy's twin-jet Phantom fighter scores success in carrier test.** Aviation News 6, 11 (July 29, 1946).  
**Ryan Fireball fighter.** Aero Digest 51, 62 (Nov. 1, 1945); Aeroplane 70, 465 (1946).  
**Supersonic airplane.** Mech. Eng. 68, 897 (1946).  
**Supersonic plane and jet bombers revealed by Army Air Forces.** Aviation 45, 68 (July 1946).  
**XB-43 twin-jet bomber.** Aeronaut. Eng. Rev. 5, 86 (July 1946).  
**XP-81 fighter.** Automotive and Aviation Inds. 94, 21 (Mar. 1, 1946); Aero Digest 52, 80 (Mar. 1946).  
**Details of XP-84 jet fighter.** Aeronaut. Eng. Rev. 5, 97 (July 1946).

#### 1947

**T. Ashley, Skill, courage and money.** Southern Flight, 16 (July 1947).  
**C. Bellinger, Testing the Thunderjet.** Air Trails 30, 36 (Oct. 1947).  
**W. H. Huff, Jets at sea.** Flying, 46 (July 1947).  
**D. G. Leland, Northrup flying wing.** Aircraft Production 9, 417 (Nov. 1947).  
**J. K. Northrop, The development of all-wing aircraft.** Abstract: Aeronaut. Eng. Rev. 6, 31 (Sept. 1947).  
**K. Perkins, The McDonnell Phantom.** Air Trails 30, 22 (Oct. 1947).  
**America's jets.** Flight 52, 549 (1947).  
**Attacker lands on.** Flight 52, 541 (1947).  
**Design for jet.** Southern Flight 52, 17 (1947).  
**Eight-jet bomber (YB-49).** Mech. Eng. 69, 1028 (1947).  
**How new Douglas Skystreak will probe the transonic.** Aviation 46, 54 (May 1947); Aero Digest 54, 35 (Mar. 1947).  
**New jet bomber (XB-47).** Mech. Eng. 69, 943 (1947).  
**McDonnell Banshee XF2D-1.** Aero Digest 55, 71 (July 1947).  
**Reaction powered planes and missiles.** Aero Digest 55, 38 (Sept. 1947); 48 (Oct. 1947); 44 (Nov. 1947).  
**Transonic airplane (D-558 Skystreak).** Mech. Eng. 69, 852 (1947).

#### 1948

**S. Bangs, FJ-1 makes first carrier test.** Aviation Week 48, 13 (Mar. 22, 1948).  
**R. Hotz, Navy unwraps its fastest fighter.** Aviation Week 49, 12 (Nov. 29, 1948).  
**C. L. Johnson, Development of the Lockheed P-80A jet fighter airplane.** J. Aeronaut. Sci. 14, 659 (1947); Aircraft Eng. 20, 75 (1948).  
**R. McLarren, Panther 650 mph fighter solves jet carrier problem.** Automotive Inds. 98, 42 (Jan. 1, 1948).  
**N. F. Silsbee, Grumman Panther.** Aero Digest 57, 28 (July 1948).  
**F. A. Smith, Developing a successful jet trainer.** Western Flying, 13 (Oct. 1948).  
**All-jet bomber air force?** Flight 54, 629 (1948).  
**Boeing XB-47.** Interavia 3, 74 (1948).  
**Designing the F-80.** Flying, 33 (Dec. 1948).  
**Introducing America's first jet-propelled trainer.** Plane Facts, 28 (May 1948).  
**The mysterious "Five Engine Plane".** Aero Digest 57, 21 (Nov. 1948).  
**Navy's new "Flying Wing" fighter for carrier use completes first test.** Tech. Data Digest 13, 6 (Dec. 15, 1948).  
**New model jet fighters.** Aero Digest 57, 42 (July 1948).  
**Northrop XF-89 and X-4 announced.** Aero Digest 57, 45 (Oct. 1948); Plane Facts, 9 (Oct. 1948).  
**Northrop YB-49.** Interavia 3, 47 (1948).  
**Tailless fighter (XF7U-1) for Texas plant.** Southern Flight, 11 (Dec. 1948).  
**TF-80C.** Interavia 3, 276 (1948).  
**Thunderjets in operational service.** Plane Facts, 26 (Nov. 1948).  
**Twin-jet carrier plane "Skynight" being tested at Muroc Dry Lake.** Tech. Data Digest 13, 4 (Nov. 1, 1948).

#### 1949

**A. Marthason, A heavyweight fighter.** Aeroplane 77, 18 (1949).  
**R. McLarren, F-84 Thunderjet: A story of development.** Aviation Week 51, 20 (Sept. 5, 1949).

R. McLarren, Design highlights of North American F-86. Aviation Week 51, 18 (Nov. 21, 1949).  
 R. McLarren, Developing McDonnell Banshee. Aviation Week 51, 22 (Oct. 31, 1949).  
 R. McLarren, Douglas Skyrocket hits supersonic speed. Aviation Week 51, 10 (Oct. 3, 1949).  
 R. McLarren, Lockheed XF-90 surpasses Mach 1. Aviation Week 51, 13 (Oct. 10, 1949).  
 J. H. Meyer, XF-85 landing skid development. Aero Digest 59, 42 (Dec. 1949).  
 J. N. Murphy, Fighters for the flattops. Aero Digest 58, 34 (Jan. 1949).  
 All-weather jet fighter. Aero Digest 59, 23 (Aug. 1949).  
 Better Thunderjet. Aviation Week 51, 15 (July 4, 1949).  
 Convair (B-36D) giant gets jet boost. Aviation Week 50, 12 (Apr. 1949).  
 Delta wing. Aero Digest 59, 70 (Oct. 1949).  
 Here it is, the North American F-86. Aircraft and Airport 11, 19 (Jan. 1949).  
 Improved "Thunderjet". Aero Digest 59, 70 (Aug. 1949).  
 Lockheed anatomy. Aeroplane 77, 557 (1949).  
 Lockheed XF-90 penetration fighter. Aero Digest 59, 22 (July 1949).  
 New jet aircraft for the USAF. CADO Tech. Data Digest 14, 6 (Jan. 1, 1949).  
 New Northrup jet wing. Aviation Week 51, 13 (July 11, 1949).  
 Structural details of the Ryan FR-1 Fireball. Aircraft Eng. 21, 25 (1949).  
 Three-jet bomber. Mech. Eng. 71, 1044 (1949).  
 Three-jet XB-51 shows unusual design. Aviation Week 51, 12 (Oct. 3, 1949).  
 Thrust in triplicate. Aeroplane 77, 479 (1949).  
 U. S. military and naval aircraft. Aviation Week 50, 16 (Feb. 28, 1949).  
 USAF jet bombers. Aero Digest 59, 34 (July 1949).  
 XB-47 in new speed conquest. Aviation Week 50, 14 (Feb. 1949).

#### 1950

D. A. Anderton, Lockheed F-90 is transonic contender. Aviation Week 53, 27 (Dec. 25, 1950).  
 D. A. Anderton, Preview of fighters: McDonnell XF-88. Aviation Week 53, 27 (Sept. 4, 1950).  
 A. W. Jessup, Combat reports prove F-80 can take it. Aviation Week 53, 12 (July 31, 1950).  
 B. S. Lee, Next step in bombers, B-36F or XB-52? Aviation Week 53, 13 (Nov. 20, 1950).  
 F. H. Sharp, Current turboprop power-plant installations. Aeronaut Eng. Rev. 9, 41 (Nov. 1950).  
 Boeing B-47 Stratojet. Aero Digest 61, 22 (Nov. 1950).  
 A Boeing propjet project. Aeroplane 79, 534 (1950).  
 Evolution of the Skyshark. Aviation Week 53, 22 (Oct. 23, 1950).  
 Gas turbines for Flying Fortresses. Engineer 190, 542 (1950).  
 Grumman F9F Panther. Aero Digest 61, 24 (Dec. 1950).  
 New planes in the news. Aviation Week 53, 9 (Oct. 9, 1950).  
 Turboprop attack plane. Mech. Eng. 72, 817 (1950).  
 Turboprop installation design highlights on XP5Y-2. Aviation Week 53, 24 (Aug. 7, 1950).

#### 1951

Long-range F-84F strikes with gun, bombs, rockets. Aviation Week 54, 14 (Jan. 15, 1951).

### 203.5 British Military Aircraft

#### 1944

Disclose secrets of Allies' jet propelled planes. Aero Digest 47, 107 (Oct. 15, 1944).

#### 1946

A. H. Narracott, The engineering behind that 606 mph Meteor. Aviation 45, 69, (Jan. 1946).  
 T. S. Wade, The magnificent Meteor. Aeroplane 71, 14 (1946).  
 First jet flying-boat fighter. Aeroplane 71, 531 (1946); Engineering, 162, 466 (Nov. 15, 1946).  
 Leading the world—First twin-jet tailless. Aeroplane 71, 748 and 773 (1946).  
 More about the Meteor IV. Aeroplane 70, 200 (1946).  
 The Supermarine jet. Aeroplane 71, 293 (1946).

#### 1947

- A. Marthason, Some more about the record breaker. *Aeroplane* 73, 97 (1947).  
S. C. Poulsen, Gloster Meteor. *Aircraft Production* 9, 280 (Aug. 1947); 330 (Sept. 1947).  
Advanced trainer. *Flight* 52, 129 (1947).  
Armstrong Whitworth jet-powered flying wing. *Aviation* 46, 53 (Feb. 1947).  
The A. W. 52 shows its paces in public. *Aeroplane* 73, 808 (1947).  
British aircraft specifications and characteristics. *Aeroplane* 73, 321 (1947).  
First flight of the A. W. 52. *Flight* 52, 567 (1947).  
The Ghost Lancastrian. *Aeroplane* 73, 217 (1947).  
Jet engine tailless aircraft. *Engineering* 163, 9 (1947).  
The Mamba flies at A. S. T. *Aeroplane* 73, 581 (1947).  
Military aircraft. *Flight* 52, 284 (1947).  
Saunders-Roe jet-propelled flying boat fighter. *Flight* 52, 27 (1947); *Engineering* 164, 140 (1947); *Engineer* 184, 124 (1947); *Aeroplane* 73, 148 (1947); *Aeronautics*, 60 (Sept. 1947); 88 (Nov. 1947).

#### 1948

- W. E. Goff, Saunders-Roe SR-45. *Aircraft Production* 10, 266 (Aug. 1948).  
R. Kronfeld, From tailless glider to jet aeroplane. *Interavia* 3, 49 (1948).  
J. H. McLean, The Vampire flies in Canadian skies. *Can. Aviation*, 28 (Feb. 1948).  
R. G. Worcester, Flying the Trent-Meteor. *Airplane* 74, 365 (1948); *Can. Aviation*, 30 (Apr. 1948).  
Britain highest again. *Flight* 53, 347 (1948).  
British and Canadian jets. *Aero Digest* 57, 30 (Nov. 1948).  
Details on Canada's jet fighter. *Aviation Week* 49, 16 (Nov. 8, 1948).  
Fighter flying boat. *Flight* 54, 123 (1948).  
The Hawker jet fighters. *Aeroplane* 75, 701 (1948); *Aviation Week* 49, 20 (Nov. 15, 1948).  
Meteor miscellany. *Flight* 53, 349 (1948).  
Meteor's stable-mate. *Flight* 53, 429 (1948).  
Napier Naiad. *Flight* 54, 180 (1948).  
Provoked Attacker. *Flight* 53, 247 (1948).  
Saunders-Roe SR/45. *Interavia* 3, 105 (1948).

#### 1949

- H. Louis, The SBAC display. *Aero Digest* 59, 23 (Oct. 1949).  
J. Stuart, Farnborough report. *Aero Digest* 59, 19 (Oct. 1949).  
R. G. Worcester, Flying the Nene-Viking. *Aeroplane* 76, 46 (1949).  
R. G. Worcester, Mainly on flying the Meteor. *Aeroplane* 77, 644 (1949).  
Australia's newest fighter. *Aeroplane* 77, 139 (1949).  
Britain's first "all-swept" aircraft. *Aeroplane* 77, 817 (1949).  
The "Canberra" jet bomber aircraft. *Engineering* 168, 584 (1949).  
Details of Britain's first jet bomber. *Aeroplane* 77, 748 (1949).  
Flying display of British aircraft. *Engineering* 168, 251, 289 and 316 (1949).  
Naval jet. *Flight* 55, 72 (1949).  
A new Meteor fighter. *Aeroplane* 77, 365 (1949).  
Newcomers at Farnborough. *Aeroplane* 77, 385 (1949).  
RAF's first jet bomber. *Aero Digest* 59, 34 (July 1949).  
A review of Britain's aircraft industry. *Aeroplane* 77, 297 (1949).  
Supermarine sweep-back. *Aeroplane* 77, 366 (1949).

#### 1950

- D. A. Anderton, Avro shows second delta research craft. *Aviation Week* 53, 20 (Oct. 9, 1950).  
D. A. Anderton, Boulton Paul's transonic triangle. *Aviation Week* 53, 19 (Nov. 27, 1950).  
D. A. Anderton, Meteor PV armed for infantry support. *Aviation Week* 53, 27 (Oct. 16, 1950).  
W. F. Bradley, New engines and planes at British aero display. *Automotive Inds.* 103, 49 (Oct. 1, 1950).  
F. R. Brewster, SBAC show stars turbine craft. *Aviation Week* 53, 14 (Sept. 4, 1950).  
Ashton reports for altitude duty. *Aviation Week* 53, 42 (Nov. 20, 1950).

Australia builds British designs. *Aviation Week* 53, 14 (Aug. 28, 1950).  
 Australia's first homegrown jet. *Aviation Week* 53, 31 (Dec. 4, 1950).  
 Britain puts new planes on view. *Aviation Week* 53, 9 (Oct. 2, 1950).  
 British unveil new night fighter. *Aviation Week* 53, 15 (July 10, 1950).  
 Canadian jet fighter. *Mech. Eng.* 72, 781 (1950).  
 Canberra 2, by English Electric. *Aviation Week* 53, 32 (Oct. 30, 1950).  
 Equipment of the Royal Air Force. *Aeroplane* 79, 13 (1950).  
 For high-speed research. *Aeroplane* 79, 400 (1950).  
 "Meteor" night fighter. *Aero Digest* 61, 65 (Aug. 1950).  
 Military aircraft at the show. *Aeroplane* 79, 302 (1950).  
 Research aircraft. *Engineering* 170, 468 (1950).  
 A Vampire for two. *Aeroplane* 79, 485 (1950).  
 Vickers Supermarine 535 fighter bows in. *Aviation Week* 53, 18 (Sept. 8, 1950).

### 203.6 Aircraft of Other Nations

#### 1945

Nazi jet-propelled fighters. *Aero Digest* 48, 102 (Jan. 15, 1945).  
 J. Foster, Jr., Design analysis of Messerschmitt Me-262 jet fighter. *Aviation* 44, 115 (Oct. 1945); 115 (Nov. 1945).

#### 1946

Caproni-Campini aircraft and allied developments in Italy. Combined Intelligence Objectives Subcomm. Rept. XII-24, H. M. Stationery Office, London (1946).

#### 1947

H. F. King, A view of France. *Flight* 52, 403, 441 and 471 (1947).

#### 1948

Jet fighter 1948. *Interavia* 3, 198 (1948).

#### 1949

W. Green, Sweden swings to jets. *Can. Aviation*, 26 (Jan. 1949).  
 Soviet aircraft. *Ordnance* 33, 248 (1948-49).  
 French J-P sailplane. *Aviation Week* 51, 13 (Dec. 26, 1949).  
 Two jet fighters reveal French design progress (SO-6020 and Dassault Ouragen MD-450). *Aviation Week* 50, 34 (Apr. 4, 1949).

#### 1950

D. A. Anderton, Pulqui II: Newest Argentine jet plane. *Aviation Week* 53, 21 (Aug. 21, 1950).  
 L. Bresing, SAAB-29 turbojet fighter. *Saab Sonics* No. 10, 2 (Apr.-June 1950).  
 W. Green, Swept wing jets spearhead Russian aviation. *Can. Aviation* 23, 14 (Aug. 1950).  
 A. W. Jessup, Report from Korea on the MIG. *Aviation Week* 53, 15 (Dec. 11, 1950).  
 Comies in profile. *Air Trails*, 35, 19 (Oct. 1950).  
 Fiat G.80: First Italian turbojet plane. *Aviation Week* 53, 28 (July 31, 1950).  
 Junkers Ju. 287 turbojet swept-forward-wing bomber, Germany. *Interavia* 5, 380 (1950).  
 MG-9 turbojet fighter, USSR. *Interservices Aircraft Recognition Journal* 4, 207 (July 1950).  
 Russian jets in Korea. *Aeroplane* 79, 443 (1950).  
 Saab 29 turbojet fighter, Sweden. *Aviation Age* 14, 24 (Sept. 1950).

#### 1951

Russian planes. *Aviation Week* 54, 16 (Jan. 15, 1951).

### 203.7 Commercial Aircraft

#### 1946

British eyeing propjet for newly tested airliners. *Aviation* 45, 85 (Sept. 1946).  
 British flying wings prepare way for JP airliners. *Aviation* 45, 63 (Aug. 1946).  
 New turbine airliner. *Aeroplane* 70, 228 (1946).

**1947**

C. Gardner, London to New York via jet. *Skyways*, 32 (Aug. 1947).  
Introducing the Viscount. *Flight* 52, 568 (1947).  
The Apollo. *Flight* 52, 187 (1947).

**1948**

A. Marthason, American jet transport trends. *Aeroplane* 75, 24 and 790 (1948).  
Canada's jet airliner in jigs. *Automotive Inds.* 99, 44 (Nov. 15, 1948).  
First jet transport, the Canadian Avro XC-102. *Aviation Week* 49, 16 (Nov. 8, 1948).  
Jet-propelled personal aircraft? *Interavia* 3, 266 (1948).  
Viscount on view. *Flight* 54, 313 (1948).

**1949**

C. Dykes, Operating factors affecting the design of future civil transport aircraft. Second Internat. Aeronaut. Conference, p. 661, Inst. Aeronaut. Sci., New York, 1949.  
G. R. Edwards, Turbine-engined transport aircraft. Second Internat. Aeronaut. Conference, p. 89, Inst. Aeronaut. Sci., New York, 1949.  
J. C. Floyd, Economics of jet transport. *Aero Digest* 59, 31 (July 1949).  
R. E. Hage and R. D. Fitzsimmons, The jet transport of tomorrow. *Aero Digest* 59, 30 (Oct. 1949).  
R. B. Hotz, British offer turboprop DC-3. *Aviation Week* 51, 38 (Oct. 3, 1949).  
R. B. Hotz, British turboprops threaten U. S. market. *Aviation Week* 51, 39 (Oct. 31, 1949).  
R. B. Hotz, Detailed data on Comet revealed. *Aviation Week* 51, 16 (Nov. 21, 1949).  
R. B. Hotz, DH Comet: British firm's private gamble. *Aviation Week* 51, 46 (Oct. 24, 1949).  
R. B. Hotz, How jet transport earns profit. *Aviation Week* 51, 14 (Oct. 10, 1949).  
R. McLarren, British jet transport makes first flight. *Aviation Week* 51, 12 (Aug. 8, 1949).  
E. Rickenbacker, So we've got the jet transport! *Aero Digest* 59, 22 (Dec. 1949).  
W. A. Shrader, The Avro jetliner. *Aeronaut. Eng. Rev.* 8, 22 (Dec. 1949).  
I. Stone, Design report on Canada's Avro jet liner. *Aviation Week* 51, 15 (Oct. 3, 1949).  
P. H. Wilkinson, The Avro "Jetliner". *Aero Digest* 59, 24 (Nov. 1949).  
R. G. Worcester, Apollo flight assesment. *Aeroplane* 77, 354 (1949).  
R. G. Worcester, Engine assesment of the Mamba-Dakota. *Aeroplane* 77, 846 (1949).  
R. G. Worcester, Flying the Viscount. *Aeroplane* 77, 618 (1949).  
A turbine-engined Dakota. *Aeroplane* 77, 418 (1949).  
"Avro" jet air liner. *Engineering* 168, 462 (1949).  
Britain pushes turboprop liners. *Aviation Week* 51, 45 (Sept. 12, 1949).  
Canada's jet air liner. *Aeroplane* 77, 480 (1949).  
Canada's jet transport. *Aeroplane* 76, 72 (1949).  
Canadian jet transport flies. *Aviation Week* 51, 36 (Aug. 22, 1949).  
Comet development. *Aeroplane* 77, 189 (1949).  
"Dakota" air liner with "Mamba" engines. *Engineering* 168, 416 (1949).  
The design and propulsion of large transport aircraft. *Engineering* 168, 703 (1949).  
Economy through aerodynamic cleanness. *Aeroplane* 77, 131 (1949).  
The first flight of the de Havilland Comet. *Aeroplane* 77, 172 (1949).  
A first flight for Canada. *Aeroplane* 77, 219 (1949).  
First views of the "Comet". *Aeroplane* 77, 116 (1949).  
Gas-turbine airliners. *Mech. Eng.* 71, 1039 (1949).  
Jets on inter-city services. *Aeroplane* 77, 450 (1949).  
Jetliner debut. *Aeroplane* 77, 521 (1949).  
Jet-propelled airliner. *Mech. Eng.* 71, 840 (1949).  
The jet transport flies! *Aero Digest* 59, 23 (Sept. 1949).  
Mamba-Dakota. *Aeroplane* 77, 446 (1949).  
More news of the Comet. *Aeroplane* 77, 581 (1949).  
Performance figures for the Comet. *Aeroplane* 77, 833 (1949).  
Short-haul turboprop transport. *Aviation Week* 51, 33 (Sept. 12, 1949).

**1950**

- F. R. Brewster, Comet coming. *Aviation Week* 53, 41 (Dec. 25, 1950).  
W. Boyd, Transport's best bet: Axial flow jets. *Aviation Week* 52, 23 (May 15, 1950).  
W. Boyd, The case for the turbojet. Abstract: *SAE Journal* 58, 49 (Nov. 1950).  
C. Dykes, Getting the best from turbine transports. *Aviation Week* 53, 21 (Sept. 11, 1950).  
J. C. Floyd, The development of the Avro C102 jetliner. *Aircraft Eng.* 22, 228 (1950).  
J. C. Floyd, Features of the jetliner. Abstract: *SAE Journal* 58, 35 (June 1950).  
C. H. Grant, Taming jets for transport. *Aero Digest* 61, 38 (July 1950).  
G. W. Haldeman, Problems related to airworthiness requirements for commercial turbine-engined airplanes. *Aeronaut. Eng. Rev.* 9, 33 (Nov. 1950).  
R. M. Hazen, Turboprops recommended for 1955 turbine transports. Abstract: *SAE Journal* 58, 27 (Sept. 1950).  
A. Kartvell, Propulsion analysis for long range transport airplanes. *Aeronaut. Eng. Rev.* 9, 12 (June 1950).  
W. C. Keller, Propeller turbines in transport aircraft. *Aeronaut. Eng. Rev.* 9, 14 (Aug. 1950).  
R. D. Kelly and F. Davis, Turbine-powered transport development. *Inst. Aeronaut. Sci. Pre. No.* 281 (1950).  
J. R. Kitlo and A. W. Millson, The economics of turbine transport. *Shell Aviation News*, 18 (Apr. 1950).  
J. Longhurst, Jets and air traffic control. *Aeroplane* 79, 168, 195 and 222 (1950).  
R. McLarren, CAA and turbine airliners. *Aero Digest* 61, 58 (Aug. 1950).  
A. McSurely, Boeing offers new turboprop feederliner. *Aviation Week* 53, 15 (Nov. 20, 1950).  
R. G. Worcester, Fuel consumption of de Havilland's Comet. *Am. Aviation* 14, 23 (Aug. 1, 1950).  
The Avro Ashton, *Aeroplane* 79, 422 (1950).  
Burnelli CB-8 turboprop "Lifting Body" transport. *Aviation Operations* 14, 22 (Aug. 1950).  
Cockpit of the Comet. *Aero Digest* 61, 88 (Aug. 1950).  
Jetliner test progress. *Mech. Eng.* 72, 652 (1950).  
Six-jet flying boat projected. *Aviation Week* 53, 20 (July 10, 1950).  
Turbine transport airworthiness. *Aviation Week* 53, 37 (Aug. 14, 1950).  
Turbo liners. *Aviation Week* 53, 15 (July 24, 1950).  
The value of speed. *Flight* 57, 452 (1950).  
A new version of the Comet. *Aeroplane* 79, 473 (1950).  
Vickers Viscount 700 turboprop transport. *Flight* 58, 281 (1950).  
Viscount to enter BEA service in 1953. *Aviation Week* 53, 21 (Nov. 6, 1950).

**1951**

- R. B. Malory, Advent of turbine and Jato affect CAR. Abstract: *SAE Journal* 59, 96 (Jan. 1951).  
T. M. Self, First U. S. turboprop transport flies. *Aviation Week* 54, 15 (Jan. 8, 1951).  
R. D. Speas, Air transport developments 1949-1950 and a view to the future. *SAE Pre. No.* 545, Detroit (1951).  
ICAO study lists civil jet problems. *Aviation Week* 54, 62 (Jan. 15, 1951).

**203.8 Installation, Accessories, and Controls****1945**

- J. B. Rea, How jet propulsion simplifies cruise control. *Aviation* 44, 184 (Sept. 1945).

**1947**

- A. G. Bardwell, Jr., Aircraft turbojet and propjet starter systems. *J. Am. Rocket Soc.*, No. 69, 16 (Mar. 1947); *Mech. Eng.* 69, 577 (1947).  
M. C. Benedict, Aviation gas turbine installation problems. *SAE Journal* 54, 88 (1946); with A. W. Gabriel, Installation of jet turbines, *Aero Digest* 54, 136 (Jan. 1947).  
C. W. Chillson, G. P. Knapp, and M. Meyer, Automatic control considerations for aircraft gas turbine-propeller power plants. Abstract: *SAE Journal* 55, 68 (Feb. 1947).

- W. H. Curtis and W. J. Lansing, Study of fuel systems for jet aircraft. Abstract: SAE Journal 55, 50 (June 1947).
- M. A. Edwards and J. D. Thompson, Control of aircraft gas turbines. Inst. Aeronaut. Sci. M. P., Cleveland (Mar. 1947).
- H. Kuhl, Fundamentals of the control of gas turbines for aircraft. NACA Tech. Mem. No. 1142, 1143 and 1166 (1947).
- H. E. Schmitt, Controllability of turbojets in reference to flight performance at altitude. U. S. Army Air Force Tech. Rept. No. F-T-R-2142-ND (Mar. 1947).
- J. R. Joyce, Fuel atomizers for aircraft turbines. Shell Aviation News, 17 (Aug. 1947).
- R. E. Small, Installation engineering of aircraft turbojet engines. Automotive and Aviation Inds. 96, 30 (May 1, 1947); Abstract: SAE Journal 55, 57 (July 1947).
- J. R. Stalder and K. R. Wadleigh, A preliminary study of ram-actuated cooling systems for supersonic aircraft. NACA Research Memo. No. A7C04 (1947).
- The jet engine fuel system. Flight 49, 41 (1946); Engineer 184, 556 (Dec. 12, 1947).
- New fuel nozzle utilizes compressed air. Automotive Inds. 97, 37 (July 15, 1947).

#### 1948

- A. T. Colwell, F. F. Offner, and T. R. Thoren, Jet engine controls. SAE M. P., New York (Apr. 1948).
- J. Gospodarovicz, The installation of gas-turbine engines. Interavia 3, 146 (1948).
- M. F. Heidmann and D. Novik, Control considerations for optimum power proportionment in turbine-propeller engines. NACA Tech. Note No. 1762 (1948).
- R. R. Higginbotham, Engine installation problems in the XP-84 airplane. SAE Quart. Trans. 2, 268 (1948).
- R. McLarren, Starter developed for turbine engines. Aviation Week 49, 27 (Dec. 27, 1948).
- O. N. Lawrence, Gas turbine accessory systems. J. Roy. Aeronaut. Soc. 52, 151 (1948).
- G. A. Philbrick, W. T. Stark, and W. C. Schaffer, Electronic analog studies for turboprop control. SAE Quart. Trans. 2, 234 (1948).
- A. Porter, Basic principles of automatic control systems. Instn. Mech. Eng., J. and Proc. 159, 25 (1948).
- E. A. Watson, Fuel systems for the aero gas turbine. Engineer 184, 561 and 576 (1947); Instn. Mech. Eng., J. and Proc. 158, 187 (1948).
- Fuel pumps for gas turbines. Flight 54, 411 (1948).
- Proposed recommended practices for the preparation of new lubricating systems. Trans. ASME 70, 363 (1948).
- Turbine accessory systems. Flight 53, 102 (1948).

#### 1949

- C. S. Cody, Automatic control of turbojet engines. Trans. ASME 71, 175 (1949); Aero Digest 59, 46 (July 1949).
- M. S. Feder and R. Hood, Automatic-control considerations for turbojet engines with tailpipe burning. Inst. Aeronaut. Sci. Pre. No. 224 (1949).
- B. T. Salmon, Aircraft gas-turbine installation considerations. Mech. Eng. 71, 758 (1949).
- R. C. Treseder, Controls for gas-turbine propellers. Abstract: SAE Journal 57, 26 (Feb. 1949).
- A turbine temperature controller. Aeroplane 77, 55 (1949).

#### 1950

- M. W. Carbon, H. J. Kutsch, and G. A. Hawkins, The response of thermocouples to rapid gas-temperature changes. Trans. ASME 72, 655 (1950).
- G. L. Christian, Screens keep jet engines clean. Aviation Week 53, 42 (Nov. 13, 1950).
- A. I. Dahl and E. F. Flock, Response characteristics of temperature-sensing elements for use in the control of jet engines. J. Research Nat. Bu. Standards 45, 292 (1950); Aviation Week 53, 25 (Nov. 27, 1950).
- N. F. Frischhertz and B. E. Morrell, Development of the anti-icing system for the J47 gas turbine. SAE Pre. No. 509, Los Angeles (1950).
- R. Hawthorne, Thermal anti-icing systems for jet aircraft. Aviation Operations 20 (June 1950).

- W. O. Meckley, Jet nozzles for aircraft gas turbines. *Aeronaut. Eng. Rev.* 9, 33 (Oct. 1950).
- F. C. Mock and D. R. Ganger, Practical conclusions on gas turbine spray nozzles. *SAE Quart. Trans.* 4, 357 (1950).
- D. O. Moeller, A jet bleed aircraft cabin conditioner. *Aviation Age*, 28 (Oct. 1950).
- F. H. Sharp, Turboprop installation problems. SAE Pre. No. 515, Los Angeles (1950).
- C. M. Slipevich, J. A. Consiglio, and F. Kurata, Operating characteristics of a vibrating-type atomizing nozzle. *Ind. Eng. Chem.* 42, 2253 (1950).
- I. Stone, New props for turbine power. *Aviation Week* 53, 21 (Oct. 30, 1950).
- E. S. Van Valkenburg and N. W. Matthews, Analogue methods for turbojet thrust instrumentation. *Elec. Eng.* 69, 1004 (1950).
- W. Wahl and M. A. Sulkin, Jet engine thrust-measured in flight. Abstract: *SAE Journal* 58, 46 (Sept. 1950).
- Jet installation design problems. Symposium by a panel of experts. *Aeronaut. Eng. Rev.* 9, 28 (Apr. 1950).
- Optical torqueometer. *Aviation Week* 53, 30 (Dec. 18, 1950).

#### 1951

- F. C. Mock, Turbojet and turboprop engine controls. SAE Pre. No. 572, Detroit (1951).
- F. H. Sharp, Meeting turboprop installation problems. Abstract: *SAE Journal* 59, 74 (Jan. 1951).
- O-rings for jets. *Aviation Week* 54, 48 (Jan. 15, 1951).

### 203.9 Maintenance, Testing, and Test Facilities

#### 1945

- J. Foster, Jr., Maintenance principles for gas turbine jet engines. *Aviation* 44, 115 (Dec. 1945).

#### 1946

- S. Cooper, Servicing advantages of the jet-propulsion engine. *Aircraft Eng.* 18, 69 (1946); Servicing the Derwent I jet engine, *Aircraft Eng.* 18, 245 (1946).
- R. D. Gibson, Flight testing of jet engines. *Mech. Eng.* 68, 411 (May 1946).
- I. Stone, Inspection procedures for turbojets. *Aviation* 45, 51 (Dec. 1946).
- Combustion research laboratories of Joseph Lucas, Ltd. *Engineer* 182, 2 (1946).
- A jet servicing solution. *Aircraft Eng.* 18, 138 (1946).

#### 1947

- A. W. Brunot and W. B. Goddard, Static-load tests on an aircraft gas turbine to simulate loads produced by rapid plane maneuvers. *J. Applied Mechanics* 14, A-15 (1947).
- R. W. Pyle, Determination of turbojet engine thrust from tailpipe measurements. *J. Aeronaut. Sci.* 14, 561 (1947).
- E. E. Stoeckly, These test procedures keyed jet engine advance. *Aviation* 46, 46 (Feb. 1947).

#### 1948

- J. W. Bailey, Service experience with turbojets. *Inst. Aeronaut. Sci. Pre. No.* 139 (1948).
- W. McDole and W. Lenz, Description of Allison engine-powered test facility at Cornell Aeronautical Laboratory. Cornell Aeronautical Lab., Inc., Rept. No. 511,107-1 (Oct. 1, 1948).
- R. H. Essig, H. R. Bahanon, and D. S. Gabriel, Jet diffuser for simulating ram pressure and altitude conditions on a turbojet engine static test stand. NACA Tech. Note No. 1687 (1948).
- M. C. Hemsworth, A research and development laboratory for aircraft gas turbines. ASME M. P. No. 48-A-134 (1948).
- R. C. McLeod, Plant for testing full-scale components for gas turbines. *Engineering* 166, 1 (1948).
- S. J. Markowski and E. M. Moffatt, Instrumentation for development of aircraft power plant components involving fluid flow. *SAE Quart. Trans.* 2, 104 (1948).



Mohr, Exhaust gas thrust meter. Air Matériel Command Intelligence Translation No. F-TS-2063-RE (Mar. 1948).  
 W. R. New, A laboratory for gas-turbine development. Mech. Eng. 70, 195 (1948).  
 G. M. Preston, F. O. Black, and J. M. Jagger, Altitude-wind-tunnel tests of power-plant installation in jet-propelled fighter. NACA Wartime Rept. No. E-274 (1948).  
 W. Spillman, Jet engine test bed for high-speed conditions. Interavia 3, 263 (1948).  
 W. Winter, NACA. Interavia 3, 250 and 333 (1948).  
 Axial end piece. Aeronautics 19, 44 (Oct. 1948).  
 Canada's turbojet test facilities. Automotive Inds. 99, 28 (July 15, 1948).  
 Details of Westinghouse jet-development laboratory. Plane Facts, 7 (May 1948).  
 Jet engine repair. Aero Digest 57, 57 (Oct. 1948).  
 Jet engine test laboratory. Aero Digest 57, 46 (July 1948).  
 Lifting the secrecy lid on the Packard gas-turbine research plant. Automotive Inds. 99, 42 (Aug. 1, 1948).  
 The most severe aero engine test in history. deHavilland Gazette, No. 47, 8 (Oct. 1948).  
 New aeronautical test facilities at General Electric. Plane Facts, 22 (May 1948).  
 Service experience with turbojet engines in the U. S. Shell Aviation News, 14 (June 1948).  
 Testing the Stratojet. Aero Digest 57, 26 (Aug. 1948).  
 Wright's new facilities for testing high-output turbines. Automotive Inds. 98, 42 (June 15, 1948).

#### 1949

J. F. Manildi, Testing of jet engines under simulated air-speed and altitude conditions. Aeronaut. Eng. Rev. 8, 34 (Feb. 1949).  
 E. E. Stoeckly, Extensive facilities required for developing aircraft gas turbines. Automotive Inds. 100, 27 (Mar. 1, 1949).  
 D. H. Stuck, Jet fighter maintenance. Aero Digest 59, 18 (July 1949).  
 R. R. Templeton and M. P. Cervino, Flight testing the Wright Typhoon turboprop. SAE M. P., New York (1949).  
 Jet-engine testing. Mech. Eng. 71, 848 (1949).  
 Jets tested for sand, dust damage. Aviation Week 51, 27 (Dec. 5, 1949).  
 Jet thrust measured on ground. Aviation Week 51, 26 (Aug. 22, 1949).  
 Packard's jet-engine test facilities. Aero Digest 58, 32 (Jan. 1949).

#### 1950

J. W. Bailey, Turbojet engines—service experiences. SAE Journal 58, 23 (Dec. 1950).  
 J. A. Beavan, Recent developments in high speed research at the National Physical Laboratory. J. Roy. Aeronaut. Soc. 54, 545 (1950).  
 G. F. Champlin, Overhaul center for jet engines. Am. Helicopter 19, 6 (Aug. 1950).  
 W. F. Lindsey and W. L. Chew, the development and performance of two small tunnels capable of intermittent operation at Mach numbers between 0.4 and 4.0. NACA Tech. Note No. 2189 (1950).  
 A. C. Lovesey, Modern methods of testing aero-engines and power plants. J. Roy. Aeronaut. Soc. 54, 327 (1950).  
 W. D. Perreault, A study of turbojet overhaul experience. Am. Aviation 14, 30 (June 1950).  
 L. T. E. Thompson, Developing new weapons for air and underwater combat. Ordnance 35, 193 (Nov.-Dec. 1950).  
 AF streamlines jet overhaul. Aviation Week 53, 26 (Sept. 18, 1950).  
 Convair lab. tests ramjets at 100,000 feet at Mach. 4. CADO Tech. Data Digest 15, 8 (July 1, 1950).  
 Gas-turbine testing. Flight 57, 427 (1950).  
 G. E. dedicates aircraft gas turbine laboratory. Automotive Inds. 103, 32 (Dec. 1, 1950).  
 High-altitude test chamber. Aero Digest 61, 33 (July 1950).  
 Instrumentation in engine testing. Instrument Practice 4, 546 (Aug. 1950).  
 Jet engines prove complex to overhaul men at Tinker AF Base. CADO Tech. Data Digest 15, 18 (Nov. 1950).

Pratt & Whitney's jet-engine testing laboratory now in full operation. CADO Tech. Data Digest 15, 14 (Sept. 1950).  
Testing gas-turbine engines for aircraft. Engineering 169, 380 (1950).  
Thrust-measuring stand. Aeronaut. Eng. Rev. 9, 11 (Dec. 1950).  
Toward the goal posts of tomorrow. Aero Digest 61, 42 (Aug. 1950).  
Turbine testing. Aeroplane 78, 435 (1950).  
Willgoos lab.: proving ground for engines. Aviation Week 53, 46 (Aug. 14, 1950).

1951

P. M. Bartlett and T. A. Dickey, Turbine-engine anti-icing tested atop Mt. Washington. Abstract: SAE Journal 59, 25 (Jan. 1951).  
F. O. Carroll, New development center facilitates aircraft research. Abstract: SAE Journal 59, 50 (Jan. 1951).  
Aircraft gas turbines. Mech. Eng. 73, 22 (1951).

### 203.10 Fuels and Lubrication

1945

B. Goulston, A short discussion of jet fuels. Commercial Aviation, 40 (Dec. 1945).

1946

A. G. Cattaneo, F. G. Bollo, and A. L. Stanley, Outlook on fuels for conventionally powered and GT-powered aircraft. Automotive and Aviation Inds. 93, 30 (Dec. 15, 1945); SAE Journal 54, 55 (1946).  
E. M. Holbrook, Jet-turbine fuel. Can. Chem. Process Inds. 30, No. 2, 26 (1946).

1947

J. F. Fairlie, Composite engine fuel costs. Aero Digest 55, 44 (July 1947).  
N. Fuchs, Concerning the evaporation of small droplets in a gas atmosphere. NACA Tech. Memo. No. 1160 (1947).  
E. L. Klein, Fuels for rocket and jet power plants. Abstract: SAE Journal 55, 22 (Dec. 1947).  
A. J. Nerad, Availability of fuel being considered in design of jet aircraft engines. Petroleum Processing 2, 552 (July 1947).  
B. P. Mullins, The vaporization of fuels for gas turbines. J. Inst. Petroleum 32, 703 (1946); 33, 44 (1947).  
R. J. S. Pigott, Developments in fuels, lubricants and lubrication. Mech. Eng. 69, 573 (1947).  
W. J. Sweeney, A. J. Blackwood, and W. R. F. Guyer, Aviation gas turbine fuels. Abstract: Aeronaut. Eng. Rev. 6, 30 (Apr. 1947).  
R. Vichnievsky, Fuels for reaction motors. Bull. assoc. franc. techniciens petrole, No. 61, 3 (1947).

1948

W. E. Kuhn, The petroleum industry and jet propulsion. Aero Digest 56, 70 (Feb. 1948).  
P. Lloyd, The fuel problem in gas turbines. Instn. Mech. Eng., J. and Proc. 159, 220 (1948).  
H. A. Murray and B. S. Bailey, Gas turbine fuels and lubricants. Aero Digest 57, 58 (July 1948); Oil Gas J. 46, 53 (1948); Petroleum Engr. 19, 177 (1948).  
E. A. Smith, Fuels and lubricants for jet engines. Aeronautics 18, 32 (Jan. 1948).  
Aircraft gas turbine fuels and lubricants. Lubrication, 37 (Apr. 1948).

1949

J. W. Drinkwater, Fuels for gas turbines. Rev. inst. franc. petrole 4, 642 (1949).  
F. L. Garton, Fuels and lubricants for petrol, Diesel, and gas-turbine engines. Engineering 168, 710 (1949).  
C. S. Windebank, Lubricants for aviation gas turbines. Rev. inst. franc. petrole 4, 683 (1949).  
J. G. Withers, Performance of fuels for aviation gas turbines. Rev. inst. franc. petrole 4, 636 (1949).

1950

- E. E. Bisson and R. L. Johnson, Turbojet engine lube problem aided by supplemental lubes, additives. *SAE Journal* 58, 39 (Mar. 1950).
- E. A. Droegemueller, Aircraft turbine engine fuel requirements. Standard Oil Co of Cal., Aviation Division, Commercial Aircraft Turbine Engine Fuel and Lubricant Symposium, Los Angeles (1950).
- W. V. Hanley, Economic aspects of a wide variety of possible commercial aircraft turbine engine fuels. Standard Oil Co. of Cal., Aviation Division, Commercial Aircraft Turbine Engine Fuel and Lubricant Symposium, Los Angeles (1950).
- A. R. Ogston, Fuel for commercial jets. *Aero Digest* 60, 17 (June 1950).
- A. R. Ogston, Jet fuels—what kind and at what cost? *Petroleum Processing*, 824 (Aug. 1950).
- W. D. Perreault, Petroleum experts look at turbine fuels. *Am. Aviation* 14, 25 (Nov. 27, 1950).
- J. D. Rogers, Performance characteristics of commercial aircraft turbine fuels. Standard Oil Co. of Calif., Aviation Division, Commercial Aircraft Turbine Engine Fuel and Lubricant Symposium, Los Angeles, (1950).
- A. E. Smith, Aviation gas-turbine engine lubricants. *Aero Digest* 61, 46 (Oct. 1950).
- J. M. Stokely and J. G. Carroll, Lubrication problems of commercial aircraft turbines. Standard Oil Co. of Calif., Aviation Division, Commercial Aircraft Turbine Engine Fuel and Lubricant Symposium, Los Angeles (1950).
- Food for the gas turbine, *Aero Digest* 61, 23 (Dec. 1950).
- Kerosene for commercial jet transports. *Am Aviation* 14, 29 (June 15, 1950).

### 203.11 General

1941

- W. Piening, The efficiency of combustion turbines with constant-pressure combustion. NACA Tech. Memo. No. 975 (1941).

1944

- R. Fedden, Gas turbine and jet propulsion power plants. *Engineer* 177, 449 (1944).
- S. A. Moss, Gas turbines and turbosuperchargers. *Trans. ASME* 66, 351 (1944).
- J. K. Salisbury, The basic gas turbine plant and some of its variants. *Mech. Eng.* 66, 373 (1944).

1945

- D. F. Warner and E. L. Auyer, Contemporary jet-propulsion gas turbines for aircraft. *Mech. Eng.* 67, 707 (1945).

1946

- D. A. Anderton, These are the turbines. *Air Trails* 29, 24 (May 1946).
- W. Ehlers, Optional-jet or propeller. *Aero Digest* 53, 74 (Sept. 1946).
- D. L. Mordell, Jet-propulsion gas turbines. *Aircraft Eng.* 18, 84 (1946).
- A. H. Redding, Current problems in developing major components for aviation gas turbines. *Aeronaut. Eng. Rev.* 5, 30 (Dec. 1946).
- G. G. Smith, Turbines for aircraft. *Flight* 49, 190 (1946).

1947

- A. Dolinsky and F. W. Disch, Predicted effects of the atmosphere on turbine-type aircraft engines. *SAE Quart. Trans.* 1, 519 (1947).
- V. Ellis and W. A. Keech, Flexible mountings for turbines. *Aero Digest* 55, 58 (July 1947).
- G. W. Newton, What are the requirements of a gas turbine installation? Abstract: *SAE Journal* 55, 25 (June 1947); *Western Flying* 27, 20 (1947).
- A. H. Redding, Gas turbine propulsion systems. *Aero Digest* 54, 75 (May 1947).
- N. F. Silsbee, British vs. American jets. *Skyways*, 27 (Mar. 1947).
- Jet power boosting British air industry. *Can. Aviation*, 42 (June 1947).

1948

- S. Bangs, From supercharger to turbojet. *Aviation Week* 48, 23 (Apr. 12, 1948).
- N. Burgess, An evaluation of engine design compromises. *Inst. Aeronaut. Sci. Pre. No.* 140 (1948).

- F. W. Davis, Problems of gas turbine-propeller combinations. *Aeronaut. Eng. Rev.* 7, 31 (Apr. 1948).
- D. J. Jordan, Design of turbojet installations. *Aero Digest* 57, 74 (Oct. 1948); 74 (Nov. 1948).
- E. S. Mendelson, Turbojet engine noise. *J. Aviation Medicine* 19, 365 (Oct. 1948).
- W. Siegfried, Creep tests and their application to gas-turbine design. *Sulzer Tech. Rev.*, 21 (1948).
- H. C. Towle, Jr., Design of turbojet exhaust systems. *Inst. Aeronaut. Sci. Pre. No. 144* (1948).
- Jets are not simpler. *Flying* 43, 30 (Dec. 1948).
- Power plant production in Sweden. *Flight* 54, 216 (1948).
- Reaction powered planes and missiles. *Aero Digest* 56, 56 (Feb. 1948); 57 (Apr. 1948).

#### 1949

- N. Burgess and J. C. Buechel, Recent design refinements in turbojet engines. *Second Internat. Aeronaut. Conference*, p. 78, *Inst. Aeronaut. Sci., New York*, 1949.
- J. E. DeRemer, Sand and dust erosion in aircraft gas turbines. *Aero Digest* 59, 46 (Dec. 1949).
- F. M. Owner, The propeller gas turbine in service. *Second Internat. Aeronaut. Conference*, p. 23, *Inst. Aeronaut. Sci., New York*, 1949.
- A. Silverstein, Research on aircraft propulsion systems. *Aeronaut. Eng. Rev.* 8, 46 (May 1949).
- C. R. Soderberg, The choice of pressure ratio in aircraft gas turbine power plants. *Inst. Aeronaut. Sci. Pre. No. 218* (1949).

#### 1950

- W. Collins, Jet power for the light aircraft. *Shell Aviation News*, 14 (Apr. 1950).
- E. V. Farrar and R. E. Johnson, Do we need turboprops? *Aeronaut. Eng. Rev.* 9, 30 (July 1950).
- W. A. Fleming, L. E. Wallner and J. T. Wintler, Effect of compressor-outlet bleed off on turbojet engine performance. *NACA Research Memo. No. E50E17* (1950).
- S. C. Ghose, A comparative study of the noise from turbojet and reciprocating aircraft engines in flight. *J. Roy. Aeronaut. Soc.* 54, 697 (1950).
- M. F. Heidmann, Analysis of effect of variations in primary variables on time constant and turbine-inlet-temperature overshoot of turbojet engine. *NACA Tech. Note No. 2182* (1950).
- W. V. Hurley, Flight factors in turbojet design. *Aviation Operations*, 21 (May 1950).
- W. V. Hurley, Turbojet engine design for high-speed flights. *ASME M. P. No. 50-A-130* (1950).
- R. P. Kroon, The jet engine comes of age. *Westinghouse Engineer* 10, 194 (Sept. 1950); *Aero Digest* 61, 40 (Oct. 1950).
- R. P. Kroon and F. D. Bergvall, Subassembly procedure aids production of Westinghouse turbojet engine. *Abstract: SAE Journal* 58, 57 (July 1950).
- R. McLarren, Bleed happy. *Aero Digest* 61, 52 (July 1950).
- T. F. Nagey, Comparison of turbine-propeller engines with various cycle arrangements for subsonic flight speeds. *SAE Pre. No. 513*, Los Angeles (1950).
- J. C. Samuels and B. M. Gale, Effect of humidity on performance of turbojet engines. *NACA Tech. Note No. 2119* (1950).
- G. G. Smith, British views on jet engine design. *Abstract: SAE Journal* 58, 49 (Sept. 1950).
- B. L. Taylor III and F. L. Oppenheimer, Investigation of frequency-response characteristics of engine speed for a typical turbine-propeller engine. *NACA Tech. Note No. 2184* (1950).
- R. C. Treseder and D. D. Bowe, Design and operation of gas turbine propellers. *SAE Pre. No. 514*, Los Angeles (1950).
- A. M. Trout and E. W. Hall, Method for determining optimum division of power between jet and propeller for maximum thrust power of a turbine-propeller engine. *NACA Tech. Note No. 2178* (1950).
- Delta wing. *Aero Digest* 61, 94 (Dec. 1950).
- Gas turbine powered aircraft. *Shell Aviation News*, 18 (July 1950).
- Jet engines in production. *Aero Digest* 61, 44 (Aug. 1950).

## 204. OTHER TYPES OF GAS TURBINES

### 204.1 For Locomotives

1939

J. L. Ray, An engineering study of the combustion-turbine locomotive. Allis-Chalmers Bulletin No. B-6066 (Sept. 6, 1939).

1942

J. T. Rettaliata, The gas turbine. Allis-Chalmers Elec. Rev. 7, 26 (Mar. 1942).  
F. Steiner, Gasturbinen-Elektrolokomotive. Motortech. Z. 4, 474 (1942).

1943

P. R. Sidler, Gas-turbine locomotive with electrical transmission. Mech. Eng. 65, 261 (1943).  
Gas turbine locomotives. Brown Boveri Rev. 29, 70 (Jan.-Mar. 1942); 30, 58 (Jan.-Apr. 1943).  
2200-hp gas turbine, compact power plant. Power 87, 92 (May 1943).

1944

A. Meyer, The first gas-turbine locomotive. Brown Boveri Rev. 29, 115 (May 1942); Engineer 174, 524 (1942); Engineering 155, 15 and 130 (1943); Instn. Mech. Eng., J. and Proc. 150, 1 (1943); Machinery 64, 221 (1944).  
A. E. Muller, Betrachtungen über die Bewegungs-Widerstände von Eisenbahn im Zusammenhang mit Messfahrten zur Ermittlung des Fahrwiderstandes der Brown-Boveri Gasturbinen-Lokomotive. Brown-Boveri Rev. 31, 200 (1944).  
J. T. Rettaliata, A gas-turbine road locomotive. Mech. Eng. 66, 697 (1944).  
P. R. Sidler, Gas turbine locomotives for main-line service. Mech. Eng. 66, 689 (1944).

1945

W. Giger, The Brown Boveri gas-turbine locomotive. Brown Boveri Rev. 32, 353 (Oct.-Nov. 1945).  
J. T. Rettaliata, A gas turbine ready for rails. Allis-Chalmers Elec. Rev. 10, 20 (Mar. 1945).  
The gas-turbine locomotive. Gas Oil Power 40, 23 (Jan. 1945).

1946

Coal-burning gas-turbine locomotive. Mech. Eng. 68, 903 (1946).  
Full-scale equipment is being built for BCR locomotive. Bituminous Coal Research 6, 1 (Oct.-Dec. 1946).  
2500-hp gas-turbine electric locomotive. Engineer 182, 489 (1946).

1947

R. Eksbergian, The turbine locomotive and transmission systems. ASME M. P., Atlantic City (Dec. 1947).  
W. Giger, Gas turbine railway vehicles. ASME M. P., Atlantic City (Dec. 1947).  
T. J. Putz, 2,000-hp gas-turbine generator set. Diesel Progress, 41 (Apr. 1947).  
Gas-turbine locomotive for the Great Western Railway. Engineering 163, 168 (1947).  
New gas turbine studied for use in locomotive. Automotive and Aviation Inds. 96, 45 (Apr. 1, 1947).

1948

G. R. Fusner, The gas turbine with a waste heat boiler. Mech. Eng. 70, 515 (1948).  
A. Howard, Design features of a 4,800-hp locomotive gas-turbine power plant. Mech. Eng. 70, 301 (1948).  
A. Howard and B. O. Buckland, Test of a 4,800-hp gas-turbine power plant. ASME M. P. No. 48-A-98 (1948).  
W. B. Tucker, Construction of a gas turbine for a locomotive power plant. Mech. Eng. 70, 877 (1948).

1949

Gas-turbine locomotive. Mech. Eng. 71, 591 (1949).  
Gas-turbine locomotive for British railways. Engineering 167, 31 (1949); Engineer 187, 25 (1949).

1950

- W. F. Bradley, British experimenting with gas turbine locomotives. *Automotive Inds.* 103, 41 (Sept. 15, 1950).  
Coal-burning gas turbine. *Colliery Guard.* 180, 186 (1950).

#### 204.2 For Ships

1939

- H. G. Hammar and E. Johansson, Thermodynamics of a new type of marine machinery: Combustion engines with pneumatic power transmission. *Trans. Inst. Marine Engrs. (London)* 51, 139 (May 1939).

1942

- R. Schmid, Some reflections on the propulsion of ships by means of combustion turbines. *Brown Boveri Rev.* 29, 236 (Sept.-Oct. 1942).  
Combustion turbines for marine drives. *Brown Boveri Rev.* 29, 75 (Jan.-Mar. 1942).

1943

- C. R. Soderberg and R. B. Smith, The gas turbine as a possible marine prime mover. *Trans. Soc. Naval Architects Marine Engrs.* 51, 115 (1943).

1944

- R. Schmid, The application of the combustion turbine to the propulsion of ships. *Brown Boveri Rev.* 31, 350 (Oct. 1944).

1945

- Model of gas-turbine ship-propulsion unit. *Power* 89, 83 (Feb. 1945).

1946

- J. R. Custer, Allis-Chalmers 3500-hp gas turbine undergoing high-temperature tests. *Automotive and Aviation Inds.* 94, 28 (Apr. 15, 1946).  
The combustion turbine for ship propulsion. *Brown Boveri Rev.* 32, 81 (Jan.-Feb. 1945); 33, 50 (Jan.-Feb. 1946).  
6000-bhp gas turbine. *Mech. Eng.* 68, 983 (1946).

1947

- T. W. F. Brown, S. S. Cook, and F. W. Gardner, Steam and gas turbines for marine propulsion. *Instn. Mech. Eng., J. and Proc.* 157, 175 (1947).  
A. D. Hughes, Design and operation of some experimental high-temperature gas-turbine units. *Trans. ASME* 69, 549 (1947).  
A. Meyer, Marine gas turbine. *Engineer* 183, 146 (1947).  
W. M. Rohsenow and J. P. Hunsaker, Part-load characteristics of marine gas-turbine plants. *Trans ASME* 69, 433 (1947).  
R. Waeselynck, Some considerations on gas turbines. *Bull. Assoc. Tech. Marit. Aero.* 46, 711 (1947).  
J. I. Yellott, P. R. Broadley, and C. F. Kottcamp, Coal-burning gas-turbine locomotives. *ASME Pra.* 47-A-118 (1947).  
Gas turbine propelled motor gun boat No. 2009. *Engineer* 184, 218, 248 and 261 (1947); 185, 621 (1948); *Engineering* 164, 271 (1947).  
Gas-turbine propulsion in a naval vessel. *Metallurgia* 36, 280 (Sept. 1947).

1948

- T. W. F. Brown, British marine gas turbines. *Engineer* 186, 621, 643 and 669 (1948).  
T. A. Crowe, The gas turbine as applied to marine propulsion. *Engineer* 185, 107 (1948); *Instn. Mech. Eng., J. and Proc.* 158, 103 (1948).  
Naval development of the gas turbine. *Engineer* 185, 144 (1948).

1949

- H. Watson, Propulsion of ships by jets. *Engineering* 168, 348 (1949).

1950

- T. W. F. Brown, Marine gas-turbine research in Britain. *Mech Eng.* 72, 370 (1950).

- R. T. Simpson and W. T. Sawyer, Prospects of gas turbines in naval application. Mech Eng. 72, 712 (1950).**  
**A gas turbine driven launch. Engineer 190, 382 (1950).**  
**Gas turbine powered boat undergoes tests in England. Automotive Inds. 103, 46 (Dec. 1, 1950).**  
**60-ft. gas-turbine launch. Engineering 170, 308 (1950).**

**1951**

- Gas-turbine launch. Mech. Eng. 73, 17 (1951).**

### **204.3 Auxiliary Power Plants**

**1949**

- A. T. Babint, Small-output gas turbines. Mech. Eng. 71, 944 (1949).**  
**H. G. Conway, The relative merits of auxiliary power systems—the case for hydraulics. Second Internat. Aeronaut. Conference, p. 417, Inst. Aeronaut. Sci., New York, 1949.**  
**H. R. Haerle, The relative merits of auxiliary power systems—the case for pneumatics. Second Internat. Aeronaut. Conference, p. 473, Inst. Aeronaut. Sci., New York, 1949.**  
**R. H. Woodall, The relative merits of auxiliary power systems—the electrical aspect. Second Internat. Aeronaut. Conference, p. 439, Inst. Aeronaut. Sci., New York, 1949.**  
**British starter for turbine engines. Aviation Week 51, 27 (Oct. 17, 1949).**

**1950**

- H. M. Jacklin, Jr., Boeing's model 502 gas turbine. Abstract: SAE Journal 58, 53 (Aug. 1950).**  
**P. T. Kunigonis, Electrical starting of aircraft jet engines. Elec. Eng. 69, 335 (Apr. 1950).**  
**P. H. Wilkinson, Gas-turbine auxiliary power plants. Aero Digest 61, 30 (Mar. 1950).**  
**Avro system provides fast starting for jets. Aviation Operations, 15 (Aug. 1950).**  
**Hydrogen-peroxide auxiliary power plants. Aero Digest 61, 52 (Sept. 1950).**  
**Hydrogen-peroxide starting motors. Aero Digest 61, 33 (July 1950).**  
**Lightweight accessory power plants being built for supersonic missiles. CADO Tech. Data Digest 15, 6 (Sept. 1950).**  
**A starter for turbines. Aeroplane 79, 514 (1950).**

**1951**

- W. D. Downs, Starters for turbojet engines. SAE Pre. No. 569, Detroit (1951).**  
**H. F. Dunholter and B. T. Salmon, Very high altitude auxiliary power unit developments. SAE Pre. No. 571, Detroit (1951).**  
**New "muscle" for British jets. Aviation Week 54, 31 (Jan. 8, 1951).**

### **204.4 For Miscellaneous Uses**

**1940**

- E. Seiler, Gas power producers with free pistons. Brennstoff-u. Wärmewirt. 22, 115 (Aug. 1940).**  
**A. Stodola, Load tests of a combustion gas turbine. Power 84, 74 (Feb. 1940); Brown Boveri Rev. 27, 79 (Apr. 1940).**

**1941**

- M. Schattschneider, Die Gasturbine im Huttenwerk. Stahl u. Eisen 61, 465 (1941).**  
**Combustion gas turbines in the power field. Power Plant Eng. 45, 65 (June 1941).**

**1942**

- J. Goldsbury and J. R. Henderson, Turbines for power generation from industrial process gases. Combustion 13, No. 5, 45 (1941); Power Plant Maintenance 41, No. 6, 70 (1941); Trans. ASME 64, 287 (1942).**

**1943**

- W. G. Noack, New ways and means of compressing and heating blast air in iron works. Brown Boveri Rev. 30, 368 (Nov.-Dec. 1943).**

**K. Zinner, Die Gasturbine mit Kolbentreib-Gasenzüger. Motortech. Z. 5, No. 3, 81 (1943).**

#### **1944**

**J. T. Rettaliata, Next steps in using gas turbines. Power 88, 92 (Jan. 1944).**  
**S. A. Tucker, Gas turbines offer opportunities for process use. Chem. and Met. Eng. 51, 96 (Mar. 1944).**  
**Blast furnace blowers driven by gas turbines. Steel 114, No. 23, 122 (1944).**

#### **1945**

**J. E. Evans and R. C. Lassiat, Combustion-gas turbine in the Houdry process. Petroleum Refiner 24, 461 (1945).**  
**J. S. Haverstick and A. M. G. Moody, High-temperature gas-turbine power plants. Mech. Eng., 67, 229 (1945).**  
**W. G. Noack, Two further gas turbines ordered from Brown Boveri for electricity. Brown Boveri Rev. 32, 149 (Apr. 1945).**  
**A. E. Pew, Jr., Operating report on gas-turbine use in Sun Oil Co. refineries. Oil Gas J. 44, 118 (1945); Mech. Eng. 67, 594 (1945).**  
**H. Quiby, Report on tests of the Escher Wyss AK aerodynamic turbine. Schweiz. Bauz. 125, 269 and 278 (1945).**

#### **1946**

**J. Calderwood, Researches on internal combustion prime movers. Engineering 162, 69 and 117 (1946).**  
**Experimental gas turbine plant. Engineer 182, 51 (1946).**  
**Gas-turbine generator. Sci. American 175, 127 (Sept. 1946).**

#### **1947**

**R. H. Bright, The development of gas-turbine power plants for traction purposes in Germany. Instn. Mech. Eng., J. and Proc. 157, 375 (1947).**  
**H. O. Farmer, Free-piston compressor-engines. Instn. Mech. Eng., J. and Proc. 156, 253 (1947).**  
**J. R. Haskin, Jr., The modern gas turbine in the industrial power plant. Mech. Eng. 69, 475 (1947).**  
**H. J. Rose, Recent engineering developments in Switzerland on gas turbines and steam generators. U. S. Bur. Mines, Inform. Circ. No. 7403 (1947).**  
**C. Seippel, 10,000 kw gas turbines. Abstract; Mech. Eng. 69, 856 (1947).**  
**Emergency uses for gas turbines. Engineering 163, 285 (1947).**

#### **1948**

**R. H. H. Barr, Gas turbines for road transport. Engineer 186, 19 (1948).**  
**H. G. Bell, Gas turbines for public electricity supply. Engineer 185, 567 (1948).**  
**S. Bencze, Power turbines for natural gas expansion. Trans. ASME 70, 541 (July 1948).**  
**A. Howard and C. J. Walker, A 5000-kw gas turbine for power generation. ASME M. P. No. 43-A-83 (1948).**  
**F. J. Jenny, Production of manufactured gas using gas-turbine cycles. Chem. Eng. 55, 108 (Apr. 1948).**  
**W. Karber, The experimental gas turbine plant at the Oerlikon Works in Switzerland. Schweiz. Bauz. 66, 291 (May 22, 1948).**  
**F. L. Schwartz, Gas turbines for automobiles. Automotive Inds. 98, 30 (June 1, 1948).**  
**Auxiliary-power turbine readied. Aviation Week 49, 26 (Nov. 8, 1948).**  
**The gas turbine and electrical generation. Engineering 166, 62 (1948).**  
**Gas turbine installation in a passenger car. Automotive Inds. 99, 43 (July 15, 1948).**

#### **1949**

**J. Goldsbury, Gas-turbine power plants for operation with low-cost fuel. Trans. ASME 71, 59 (1949).**  
**S. D. Hage, The Boeing 200-hp gas turbine. SAE M. P., Detroit (Jan. 1949).**  
**L. N. Rowley and B. G. A. Skrotzki, The gas turbine as a stationary power plant. Trans. ASME 71, 35 (1949).**  
**F. L. Schwartz, Gas turbines for vehicles. Mech. Eng. 71, 944 (1949).**  
**Gas-turbine automobile. Mech. Eng. 71, 673 (1949).**



Gas-turbine operation. *Mech. Eng.* 71, 1042 (1949).  
Gas turbines for road transport. *Engineer* 187, 133 (1949).  
Jet power lowers wind tunnel cost. *Aviation Week* 51, 29 (Dec. 1949).

#### 1950

J. W. Blake, Huey gas turbine establishes excellent operating record. *Elec. Light and Power* 28, 62 (Aug. 1950).  
J. W. Blake and R. W. Tumey, Huey gas turbine ticks off 3400 hours. *Power* 94, 96 (Feb. 1950).  
A. T. Bowen, Gas turbines for industrial purposes. *Engineer* 190, 333 (1950); *Engineering* 170, 214 (1950).  
W. M. Brown, Gas-turbine-powered truck has power braking. *Automotive Inds.* 103, 43 (Dec. 15, 1950).  
W. M. Brown, More payload for same GVW possible with truck turbines. Abstract: *SAE Journal* 58, 52 (Nov. 1950).  
H. R. Cox, Industrial gas turbines. *Engineering* 169, 578 and 607 (1950); *J. Inst. Met.*, 287 (June 1950).  
H. C. Hill, Will the low priced car be turbine powered? *Automotive Inds.* 103, 41 (July 15, 1950).  
O. Howard, Operating experiences with the gas turbine at Huey station. *ASME M. P.*, Dallas (1950).  
H. M. Jacklin, Jr., Boeing's model 502 gas turbine. Abstract: *SAE Journal* 58, 53 (Aug. 1950).  
C. Keller, Closed-cycle gas turbine. *Trans. ASME* 72, 835 (1950).  
G. G. Smith, Rover's turbocar operation and design. Abstract: *SAE Journal* 58, 36 (July 1950).  
W. A. Turunen, Gas turbines in automobiles. *SAE Quart. Trans.* 4, 102 (1950).  
C. C. Willis and E. C. Goldworth, The Huey gas turbine. *Mech. Eng.* 72, 881 (1950).  
Closed-cycle gas turbine for waste heat recovery. *Engineering* 170, 243 (1950).  
1,070 brake-horse-power industrial gas turbine. *Engineering* 169, 85 (1950); 170, 533 (1950).  
Gas turbines for electrical generation in Belgium. *Engineering* 169, 249 (1950).  
Gas turbine for a waste-heat-recovery installation. *Engineer* 190, 295 (1950).  
Gas turbine production. *Mech. Eng.* 72, 816 (1950).  
The "Rover" gas-turbine motor car. *Engineering* 169, 305 (1950).

#### 1951

J. W. Blake, Combination gas turbine-steam turbine unit. *Mech. Eng.* 73, 14 (1951).  
W. M. Brown, Gas turbine propulsion for ground vehicles? *SAE Quart. Trans.* 5, 81 (1951).

### 204.5 General

#### 1940

W. Gentsch, Constant pressure gas turbine. *Brennstoff-u. Wärmewirt.* 22, 49 (Apr. 1940).

#### 1941

J. Ackert and C. Keller, Gas turbine with isothermal compression and isothermal supply. *Z. Ver. deut. Ing.* 85, 491 (May 1941).  
W. Piening, The efficiency of combustion turbines with constant-pressure combustion. *Arch. Wärmewirt.* 22, 19 (Jan. 1941); *NACA Tech. Memo.* No. 975 (1941).  
F. Sidler, Combustion gas turbine. *Gas* 17, 26 (Mar. 1941).

#### 1942

C. Keller, Die aerodynamische Turbine im Vergleich zu Dampf- und Gasturbinen. *Escher-Wyss Mitt.* 15-16, 20 (1942-3).

#### 1943

C. Keller and R. Ruegg, Die aerodynamische Turbine im Huttenwerk. *Schweiz. Bauz.* 122, 1 (1943).  
Combustion turbines. *Brown Boveri Rev.* 29, 9 (Jan.-Mar. 1942); 30, 12 (Jan.-Apr. 1943).

**1944**

- C. C. Jordan, American contribution to gas-turbine development. *Power* 88, 76 (June 1944); 82 (Aug. 1944)
- F. Nettel, Reflections on recent publications on gas turbine developments. *J. Am. Soc. Naval Eng.* 56, 225 (May 1944).
- P. W. Swain, Producer gas—future fuel for gas turbines? *Power* 88, 310 (May 1944).

**1946**

- J. Calderwood, Research on internal combustion prime movers. *Engineer* 181, 460, 483, 506 and 525 (1946).
- J. R. Carlson, The gas turbine in industry. Abstract: *SAE Journal* 54, 76 (Nov. 1946).
- E. M. Fernald, An exploratory excursion into gas-turbine patents. *Mech. Eng.* 68, 727 (1946).
- J. I. Yellott and A. D. Singh, Coal as the fuel for the gas turbine. *Natl. Engr.* 50, 448 (1946); *Am. Inst. Mining Met. Engrs., Coal Technol.* 1, No. 3, Tech. Pub. No. 2086 (1946).

**1947**

- A. Meyer, Recent developments in gas turbines. *Mech. Eng.* 69, 273 (1947).
- F. Salzmann, Regulation theory for thermal power plants employing a closed gas cycle. *Trans. ASME* 69, 329 (1947).
- Gas turbine development in 1946. *Engineer* 183, 14 and 53 (1947).
- A novel gas turbine. *Aeronautics* 16, 35 (Feb. 1947).
- Progress in railway mechanical engineering 1945-46, *Mech. Eng.* 69, 211 (1947).

**1948**

- A. J. Buchi, Turbo charging and gas turbines. *J. Am. Soc. Naval Eng.* 60, 261 (Aug. 1948).
- H. D. Emmert, Current design practices for gas-turbine power elements. *ASME M. P. No. 48-A-69* (1948).
- F. B. Karthaus, W. V. Battock, and F. F. Ross, The coal-fired gas turbine. *J. Inst. Fuel* 22, 58 (1948).
- P. R. Sidler, Performance of commercial gas turbines. *Mech. Eng.* 70, 768 (Sept. 1948).

**1949**

- A. I. Dahl and E. F. Flock, Shielded thermocouples for gas turbines. *Trans. ASME* 71, 153 (1949).
- M. A. Fisher and E. F. Davis, Studies on fly-ash erosion. *Mech. Eng.* 71, 481 (1949).
- W. E. Hammond, Transmission systems for marine-propulsion gas-turbine power plants. *Trans. ASME* 71, 43 (1949).
- D. Aronson, Design of regenerators for gas-turbine service. *Trans. ASME* 72, 967 (1950).
- B. O. Buckland, A. Y. Hillman, and H. W. Nelson, Producer gas for gas turbines. *Mech. Eng.* 72, 748 (1950).
- M. Cox and R. K. P. Stevens, The regenerative heat exchanger for gas-turbine power plant. *Instn. Mech. Eng., J. and Proc.* 163, 164 (1950).
- H. R. Hazard, A progress report on gas-turbine combustors for pulverized coal. Abstract: *Mech. Eng.* 72, 749 (1950).
- D. P. Heath and E. Albat, Properties and characteristics of fuel oils for industrial gas-turbine usage. *Mech. Eng.* 71, 943 (1949); *Trans. ASME* 72, 331 (1950).
- C. F. Kottcamp and L. O. Crocket, Some aspects of the application of residual oils as fuel for the gas turbine. *ASME M. P. 50-A-131* (1950).
- P. Lloyd and R. P. Probert, The problem of burning residual oils in gas turbines. *Instn. Mech. Eng., J. and Proc.* 163, 164 (1950).
- A. L. London and W. M. Kays, The gas-turbine regenerator—the use of compact heat-transfer surfaces. *Trans. ASME* 72, 611 (1950).
- W. M. Rohsenow, T. R. Yoos, Jr., and J. F. Brady, Optimum design of gas-turbine regenerators. *ASME M. P. 50-A-103* (1950).
- A. G. Smith and R. D. Pearson, The cooled gas turbine. *Instn. Mech. Eng., J. and Proc.* 163, 154 (1950).

## 205. INTERMITTENT OR PULSEJETS

1944

- C. Giles, The Nazi V-weapons. Long-range rockets now in use. *Astronautics*, No. 60, 4 (1944).  
M. M. Munk, Resonance reaction drives as used in flying robot bombs. *Aero Digest* 46, 54 (Sept. 1, 1944).  
The German flying bomb engine. *Automotive and Aviation Inds.* 91, 32 (Nov. 15, 1944); *Aero Digest* 46, 98 (July 15, 1944).  
Robombs—F. O. B. Wright Field. *Aero Digest* 47, 86 (Dec. 1, 1944).

1945

- D. Elliott, Small motor fuel injection. *J. Am. Rocket Soc.*, No. 64, 11 (Dec. 1945).  
L. W. Westrate, Assembly line methods applied to American robot bomb. *Automotive and Aviation Inds.* 92, 34 (Apr. 1, 1945).  
Jet engine production for robombs. *Aero Digest* 49, 134 (May 1, 1945).  
Jet-propulsion engines on the Ford assembly line. *Automotive and Aviation Inds.* 92, 31 (Feb. 1, 1945).  
U. S. Autojet tops Nazi V-1 engine. *Aviation* 44, 135 (Oct. 1945).

1946

- L. Lawrence, Jr., Pulsejets, ramjets and rockets. Abstract: *SAE Journal* 54, 75 (Nov. 1946).  
J. K. L. MacDonald and S. A. Schaaff, A gas-dynamical formulation for waves and combustion in pulse jets. *Inst. Math. and Mechanics, New York Univ.*, Rept. No. AMG-NYU 151 (June 1946).  
Pulsating jet engine to power aircraft. *Science News Letter* 50, 254 (Oct. 19, 1946).  
Tiny jet engines perfected for models. *Aviation News* 6, 10 (Mar. 1946).

1947

- L. B. Edelman, The pulsating engine—its evolution and future prospects. *SAE Quart. Trans.* 1, 204 (1947).  
R. McLarren, Project Squid probes pulsejet. *Aviation Week* 47, 26 (Dec. 1, 1947).  
F. Schultz-Grunow, Gasdynamic investigations of the pulsejet tube. *NACA Tech. Memo.* No. 1131 (1947).

1948

- A. R. Boone, Here come the midget jets. *Air Trails* 31, 24 (Nov. 1948).  
J. R. Bressman and R. J. McCready, Tests of air valves for intermittent-jet engines at speeds of 20 to 25 cycles per second. *NACA Wartime Rept.* No. E-258 (1948).  
J. R. Bressman, Effect of a low-loss air valve on the performance of a 22-inch diameter pulsejet engine. *NACA Wartime Rept.* No. E-279 (1948).  
A. L. Deans, The performance of a small resonant jet engine. *CSIR Div. of Aeronautics (Australia)*, Engines Note No. 125, File ref. ATP1647 (Aug. 1948).  
J. Lemelson, Miniature pulsejets. *Military Air News*, 14 (May 1948).  
E. J. Manganiello, M. F. Valerino, and J. H. Breisch, Endurance tests of a 22-inch-diameter pulsejet engine with neoprene-coated valve grid. *NACA Wartime Rept.* No. E-270 (1948).  
E. J. Manganiello, M. F. Valerino, and R. H. Essig, Sea-level performance tests of a 22-inch-diameter ram pulsejet engine at various simulated ram pressures. *NACA Wartime Rept.* No. E-269 (1948).  
J. C. Sanders, A preliminary evaluation of the explosion jet-propulsion engine. *NACA Wartime Rept.* No. E-243 (1948).  
M. F. Valerino, R. H. Essig, and R. F. Hughes, Effects of increase in combustion-air inlet temperature from 80° to 130° F on the sea-level performance of a 22-inch-diameter pulsejet engine. *NACA Wartime Rept.* No. E-283 (1948).  
M. A. Zipkin and G. W. Lewis, Jr., Analytical and experimental performance of an explosion-cycle combustion chamber for a jet-propulsion engine. *NACA Tech. Note* No. 1702 (1948).

1950

- H. F. Quinn, A spectrophotometric determination of exhaust gas temperatures in the pulsejet engine. *Can. J. Research* A28, 411 (1950).

## 206. RAMJETS

1941

- ✓ S. Way, Open-duct jet propulsion. Westinghouse Research Labs. Research Rept. No. SM-101 (July 14, 1941). 184

1945

- ✓ K. F. Rubert, An analysis of jet-propulsion systems making direct use of the working substance of a thermodynamic cycle. NACA Wartime Rept. No. L-714 (1945).

1946

- ✓ R. W. Bass, Project Bumblebee—the Navy's ramjet. J. Am. Rocket Soc., No. 66/67, 32 (July-Sept. 1946). 185
- ✓ W. Goss, T. Davis, and R. B. Roberts, Supersonic ramjet engine. Automotive and Aviation Inds. 95, 34 (Sept. 15, 1946). 186
- ✓ L. Lawrence, Jr., Pulse jets, ramjets and rockets. Abstract: SAE Journal 54, 75 (Nov. 1946). 187
- ✓ J. Reid and P. J. Herbert, The gas dynamic theory of the ramjet. Brit. Aeronaut. Research Council (May 1946). 188
- ✓ E. Sänger and I. Bredt, A ramjet engine for fighters. NACA Tech. Memo. No. 1106 (1946).
- ✓ H. Schwabl, Investigation of the suitability of solid propellants for ram jets. Air Matériel Command Intelligence Translation No. F-TS-1021-RE (Dec. 1946).
- ✓ Athodyds for aircraft. Flight 50, 155 (1946). 189
- ✓ Ramjets. Product Eng. 17, 140 (Aug. 1946). 190

1947

- ✓ E. Perchonok, The ramjet engine. Machine Design 19, 92 (Oct. 1947). 189
- ✓ P. Rudnick, Momentum relations in propulsive ducts. J. Aeronaut. Sci. 14, 540 (1947).
- ✓ B. Szczeniowski, Aerothermodynamic study of ramjet propulsion. Abstract: Aeronaut. Eng. Rev. 4, 31 (Apr. 1947). 192
- ✓ V-2 flying wind tunnel for ramjet testing. Product Eng. 18, 143 (June 1947). 193

1948

- ✓ J. V. Becker and D. D. Baals, Analysis of heat and compressibility effects in internal flow systems and high-speed tests of a ramjet system. NACA Wartime Rept. No. L-535 (1947); Rept. No. 773 (1948).
- ✓ W. H. Goss and E. Cook, The ramjet as a supersonic propulsion plant. Abstract: SAE Journal 56, 53 (July 1948). 194
- ✓ P. R. Hill, Parameters determining performance of supersonic pilotless airplanes powered by ram-compression power plants. NACA Wartime Rept. No. L-755 (1948).
- ✓ D. G. Samaras, Contribution to the theory and performance of ramjets. Natl. Research Council Can., Aeronaut. Rept. No. AR-3 (1948).
- ✓ E. Sänger, Fundamental principles of Lorin ramjet powered airplanes. University of Illinois, Institute of Aeronautics, Translation (1948). 195
- ✓ N. F. Silsbee, Ramjet progress. Aero Digest 57, 57 (Dec. 1948). 196
- ✓ B. Szczeniowski, Theoretical study of ramjet propulsion. Can. J. Research A26, 327 (Nov. 1948).
- ✓ Bendix designs ramjet fuel control system. Plane Facts, 12 (May 1948).
- ✓ F-80 flies on ramjet power alone. Aviation Week 49, 14 (Nov. 8, 1948). 199
- ✓ Ramjets. Flight 54, 611 (1948). 200
- ✓ Ramjets on the way. Interavia 3, 149 (1948). 201

1949

- ✓ J. P. Longwell, Combustion problems in ramjet design. J. Aeronaut. Sci. 16, 707 (1949).

1950

- ✓ E. F. Chandler, The solid-fuel ramjet. Aero Digest 61, 19 (Sept. 1950).
- ✓ H. Oberth, A rocket researcher's reflections on supersonic flight. Interavia 5, 382 (1950).

Ramjet-engine testing. *Mech. Eng.* 72, 736 (1950).  
Wright Aeronautical Corporation ramjet research. *Shell Aviation News*, 12  
(May 1950).

1951

J. W. Mullen II, J. B. Fenn and R. C. Garmon, Burners for supersonic ramjets.  
*Ind. Eng. Chem.* 43, 195 (1951).

## 207. COMPOUNDING AND THRUST AUGMENTATION

1945

C. F. Bachle, Possibilities of turbine compounding with piston engine. *Automotive and Aviation Inds.* 92, 28 (May 15, 1945); *SAE Journal* 53, 345 (1945).

1946

P. J. Campbell, Tests of exhaust propulsion nozzles. NACA Wartime Rept. No. W-43 (1946). ✓

E. W. Hall, Theoretical analysis of the performance of a diesel engine-compressor-turbine combination for aircraft. NACA Wartime Rept. No. E-31 (1946). ✓

R. W. Hannum and R. H. Zimmerman, Calculations of the economy of an 18-cylinder radial aircraft engine with an exhaust gas turbine geared to the crankshaft at cruising speed. NACA Wartime Rept. No. E-32 (1946).

R. L. Haver and H. A. Goodin, Jr., Design trends in aircraft exhaust systems. *SAE M. P.*, Detroit (Jan. 1946).

H. R. Ricardo, Turbine compounding of the piston aero engine. *J. Roy. Aeronaut. Soc.* 50, 323 (1946).

C. F. Taylor, Effect of engine exhaust pressure on performance of compressor-engine-turbine units. *SAE Journal* 54, 64 (1946).

1947

W. L. Jones and H. W. Dowman, Investigation of thrust augmentation of a 1600-pound thrust centrifugal-flow turbojet engine by injection of refrigerants. NACA Research Memo. No. E7G23 (1947). ✓

R. McLarren, Thrust augmentation offers power gain. *Aviation Week* 47, 25 (Oct. 20, 1947).

R. Papault, Combined gas and steam turbo power plant with pressurized boiler. *Genie civil* 124, 405 (1947).

E. Sanger and I. Bredt, A ramjet engine for fighters. NACA Tech. Mem. No. 1106 (1947). ✓

L. R. Turner and R. N. Noyes, The performance of a composite engine consisting of a reciprocating spark-ignition engine, blowdown turbine, and a steady-flow turbine. NACA Tech. Note No. 1447 (1947). ✓

L. R. Turner and M. D. White, Flight tests of the NACA jet-propulsion exhaust stacks on the Supermarine Spitfire airplane. NACA Wartime Rept. No. L-680 (1947). ✓

A. Weise, Practical possibilities of high altitude flight with exhaust gas turbines in connection with ignition engines—comparative thermodynamic and flight mechanical investigations. NACA Tech. Mem. No. 1124 (1947).

K. Zinner, The combination of internal combustion engine and gas turbine. NACA Tech. Mem. No. 1141 (1947).

Composite powered aircraft. *Flight* 52, 632 (1947).

Ryan "after-burner" development. *Plane Facts*, 8 (July 1947).

1948

A. D. Baxter, Power boosting of jet engines by reheat. *Aircraft Eng.* 20, 361 (1948).

W. A. Clegern, Advances in thrust augmentation for radial engine installations. *SAE Quart. Trans.* 2, 60 (1948).

F. A. Cleveland, Afterburners for turbojet engines. *J. Aeronaut. Sci.* 15, 305 (1948).

L. G. Desmon and E. W. Sams, Performance of exhaust-gas blowdown turbine and various engine systems using a 12-cylinder liquid-cooled engine. NACA Tech. Note No. 1735 (1948).

D. Gerdan and J. M. Wetzler, Allison V-1710 compounded engine. *SAE Quart. Trans.* 2, 329 (1948).

- D. J. Jordan, The next step—afterburning. SAE M. P., Los Angeles (1948).
- S. J. Kaufman and D. S. Bowman, Comparison of computed performance of composite power plants using 18-cylinder aircraft engines with 62° and 40° valve overlap. NACA Tech. Notes No. 1500 (1948) ; 1612 (1948).
- R. P. Krebs, Performance possibilities of aircraft engines utilizing gas turbines. Aeronaut. Eng. Rev. 7, 27 (June 1948).
- W. O. Meckley and L. J. Fisher, Compounding aircraft engines. Aviation 45, 50 (Nov. 1946) ; Aero Digest 56, 74 (Mar. 1948).
- A. Mendelson, Calculated performance of a compression-ignition engine-compressor-turbine combination based on experimental data. NACA Tech. Note No. 1774 (1948).
- B. Pinkel, L. R. Turner, F. Voss and L. V. Humble, Exhaust-stack nozzle area and shape for individual cylinder exhaust-gas jet-propulsion system. NACA Rept. No. 765 (1948).
- W. D. Perreault, 20% fuel saving offered by new compound engines. Am. Aviation 12, 11 (Oct. 15, 1948).
- E. F. Pierce and H. W. Welsh, Engine compounding for power and efficiency. SAE Quart. Trans. 2, 316 (1948).
- C. W. Smith, Theory of thrust augmentation. Interavia 3, 381 (1948).
- M. J. Tauschek and A. E. Bierman, An analysis of a piston-type gas-generator engine. NACA Research Memo. No. E7I10 (1948).
- E. Woll, Thrust augmentation boosts turbojet engine performance. Abstract: SAE Journal 56, 41 (June 1948).
- Compound engine. Aero Digest 57, 65 (Sept. 1948).
- Wasp Major-VDT. Aero Digest 57, 62 (Nov. 1948).
- Wright's turbo-cyclone 18. Aero Digest 57, 59 (Oct. 1948).

#### 1949

- H. H. Foster, F. R. Schuricht, and M. J. Tauschek, Experimental Study of loop-scavenged compression-ignition cylinder for gas-generator use. NACA Research Memo. E8L30 (1949).
- D. Gerdan and D. J. Jordan, Afterburning mitigates high SFC problem with turbojets. Abstract: SAE Journal 57, 36 (Feb. 1949).
- T. von Karman, Theoretical remarks on thrust augmentation. Reisser Anniv. Vol., p. 461, J. W. Edwards, Ann Arbor, 1949.
- E. J. Manganiello, Jet engine thrust augmentation and controls. Aeronaut. Eng. Rev. 8, 34 (May 1949).
- R. McLarren, Ducted fan engine under study. Aviation Week 51, 23 (July 11, 1949).
- Combination piston-jet engine developed for USAF. CADO Tech. Data Digest 14, 13 (Feb. 1, 1949).

#### 1950

- J. L. Edwards, Design of tail pipes for jet engines including reheat. Engineering 169, 191 (1950) ; J. Roy. Aeronaut. Soc. 54, 217 (1950).
- M. S. Feder and R. Hood, Analysis for control application of dynamic characteristics of turbojet engine with tail-pipe burning. NACA Tech. Note No. 2183 (1950).
- E. W. Hall, Comparison of various methods of thrust augmentation for turbojet engine. Aeronaut. Eng. Rev. 9, 25 (Jan. 1950).
- B. T. Lundin, Theoretical analysis of various thrust-augmentation cycles for turbojet engines. NACA Report No. 981 (1950).
- B. I. Sather and M. J. Tauschek, Study of compressor systems for a gas-generator engine. NACA Research Memo. No. E50H08 (1950).
- H. E. Schmitt, Turbojet afterburning without an afterburner. Aeronaut. Eng. Rev. 9, 18 (Dec. 1950).
- A. M. Trout, Theoretical turbojet thrust augmentation by evaporation of water during compression as determined by use of a Mollier diagram. NACA Tech. Note No. 2104 (1950).
- E. C. Wilcox, Turbojet thrust augmentation by evaporation of water prior to mechanical compression as determined by use of psychrometric chart. NACA Tech. Note No. 2105 (1950).
- P. H. Wilkinson, Compounding is here to stay. Aero Digest 61, 36 (Sept. 1950).
- A combination piston and turbine engine. Engineer 190, 214 (1950).
- Compound interest. Flight 58, 122 (1950).

Power recovery turbines increase output 20 percent. *Automotive Inds.* 102, 49 (June 15, 1950).  
Wright's exhaust gas slave turbine. *Am. Aviation* 14, 27 (June 15, 1950).  
Wright turbo-cyclone 18. *Aero Digest* 61, 24 (July 1950).

## 206. ROCKETS

### 206.1 Liquid-Propellant Rockets

1941

C. Giles, Tank pressure and motor efficiency, unconsidered efficiency formula factors. *Astronautics*, No. 48, 14 (1941).

1944

C. Giles, The Nazi V-weapons. Long-range rockets now in use. *Astronautics*, No. 60, 4 (1944).

1945

A. V. Da Rosa, Analysis of V-2 performance. *Aero Digest* 49, 98 (May 1, 1945).  
W. Ley, Evaluating the vaunted V-2. *Aviation* 44, 212 (Feb. 1945).  
German turbojet and liquid rocket units and the planes they power. *Automotive and Aviation Inds.* 93, 18 (Oct. 1, 1945).  
How the V-2 rocket is powered. *Automotive and Aviation Inds.* 92, 27 (Jan. 1, 1945).

1946

A. B. P. Beeton, An approximate method for estimating the performance of oxygen-oil rockets. *Brit. Aeronaut. Research Council* (June 1946).  
R. Healy, V-2's power plant provides key to future rocketry. *Aviation* 45, 63 (May 1946).  
W. Ley, V-2 and beyond. *Air Trails* 29, 26 (Mar. 1946); 36 (Apr. 1946).  
M. W. Nesbitt, Liquid-propellant rocket development. *J. Am. Rocket Soc.*, No. 68, 1 (Dec. 1946).  
Develop potent rocket engine for Navy's supersonic planes. *Aviation* 45, 71 (June 1946).  
Getting the V-2 into action. *Automotive and Aviation Inds.* 94, 42 (June 15, 1946).  
The mechanism of the German rocket bomb (V-2). *Instn. Mech. Eng., J. and Proc.* 154, 93 (1946).

1947

H. W. Burdett, Rocket power plants for aircraft. *J. Am. Rocket Soc.*, No. 69, 41 (Mar. 1947).  
A. Busemann, Rockets using liquid oxygen. *NACA Tech. Memo. No. 1144* (1947).  
R. C. Murray and J. M. F. While, Liquid oxygen as an oxidant for rocket propulsion. *Brit. Aeronaut. Research Council* (Mar. 1947).  
R. W. Porter, Analysis of the first two American V-2 flights. *J. Am. Rocket Soc.*, No. 69, 37 (Mar. 1947).  
H. Rivkins, Rockets in the desert: A report on the Ordnance firings at White Sands. *Army Ordnance* 31, No. 161, 429 (1946-47).  
J. Shesta, Rocket engine which powers supersonic XS-1. *Aviation* 46, 44 (Jan. 1947).  
C. H. Smith, M. W. Rosen, and J. M. Bridger, Super-altitude research rocket revealed by the Navy. *Aviation* 46, 40 (June 1947).  
J. H. Wyld, The liquid-propellant rocket motor. *J. Am. Rocket Soc.*, No. 70, 2 (June 1947); *Mech. Eng.* 69, 459 (1947).  
R. Youngquist, Liquid rocket motor testing. *ASME M. P.*, Atlantic City (Dec. 1947).  
H. Zborowski, Rocket power plants based on nitric acid, and their specific propulsive weights. *NACA Tech. Memo. No. 1145* (1947).  
M. J. Zucrow, Liquid-propellant rocket power plants. *Trans. ASME* 69, 847 (1947); *J. Am. Rocket Soc.*, No. 72, 26 (Dec. 1947).  
New Navy rocket aimed at ionosphere. *Aviation News* 7, 13 (May 12, 1947).  
Superspeed rocket. *Mech. Eng.* 69, 678 (1947).

1948

- W. P. Berggren, C. C. Ross, R. B. Young, and C. E. Hawk, The acid-aniline rocket-engine. *J. Am. Rocket Soc.*, No. 73, 17 (Mar. 1948).  
W. L. Clay, Results of V-2 rocket tests. Abstract: *SAE Journal* 56, 58 (Oct. 1948).  
Jonke, Change of course of A-4 rocket with Hawaii II guide beam. *Air Matériel Command Intelligence Translation No. F-TS-3090-RE* (Mar. 1948).

1949

- Martin grooms "Viking" rocket. *Aero Digest* 59, 35 (July 1949).

1950

- R. B. Canright, Problems of combustion in liquid-propellant rocket motors. *Chem. Eng. Progress* 46, 228 (May 1950).  
R. Gordon, Heat transfer problems in liquid-propellant rocket motors. *J. Am. Rocket Soc.*, No. 81, 65 (1950).  
A. G. Thatcher, The turborocket-propellant feed system. *J. Am. Rocket Soc.*, No. 82, 127 (1950).  
M. J. Zucrow and C. F. Warner, Application of white fuming nitric acid and jet-engine fuel (AN-F-58) as rocket propellants. *J. Am. Rocket Soc.*, No. 82, 139 (1950).  
Britain unveils rocket motor. *Aviation Week* 53, 30 (Oct. 9, 1950).

1951

- Viking flights prove research worth. *Aviation Week* 54, 24 (Jan. 15, 1951).

### 208.2 Jet-Assisted Take-Off (JATO)

1944

- Adapt rocket take-off for U. S. warplanes. *Aero Digest* 47, 108 (Oct. 1, 1944).

1946

- Z. Krzywoblocki, Rocket-assisted take-off. *Aero Digest* 53, 75 (Dec. 1946).  
M. J. Zucrow, Jet propulsion and rockets for assisted take-off. *Trans. ASME* 68, 177 (1946); *Aero Digest* 52, 88 (Apr. 1946).  
Jato and civil aviation. *Southern Flight*, 32 (Jan. 1946).  
L. R. Turner, Consideration of auxiliary jet propulsion for assisting take-off. *NACA Wartime Rept. No. E-49* (1946).

1947

- E. E. Nelson, Application of jet assistance to transport aircraft. Abstract: *SAE Journal* 55, 67 (Mar. 1947).  
R. C. Truax, The story of Project 3401—The pioneer rocket project of the U. S. Navy. *ASME M. P.*, Atlantic City (Dec. 1947).  
Light plane JATO seen in rocket design. *Aviation Week* 47, 21 (Sept. 22, 1947).

1949

- Britain's first. *Aeroplane* 77, 278 (1949).  
How Jato cuts Navion take-off. *Aviation Week* 51, 40 (Nov. 7, 1949).

1950

- Rockets for take-off. *Aeroplane* 79, 516 (1950).

1951

- Smokeless Jato. *Mech. Eng.* 73, 21 (1951).

### 208.3 Guided Missiles

1945

- E. J. Bulban, Nazi jet-bats which never took wing. *Aviation* 44, 172 (Oct. 1945).

1946

- J. B. Mauldin, German development in the field of rocket-powered controlled missiles. *J. Am. Rocket Soc.*, No. 65, 24 (Mar. 1946).



- D. L. Putt, German developments in the field of guided missiles. *SAE Journal* 54, 405 (1946).  
 American guided missiles. *Aviation* 45, 133 (Jan. 1946).  
 Improving the guided missile. *Aero Digest* 52, 88 (May 1946).  
 P. A. D. (Pilotless Aircraft Division). *Air Trails* 29, 40 (Mar. 1946).

#### 1947

- E. Burgess, German guided and rocket missiles. *Engineer* 184, 308, 332, 356, 381 and 407 (1947).  
 H. K. Cheney, Flight testing of guided missiles. *Inst. Aeronaut. Sci. M. P.*, New York (Jan. 1947).  
 A. K. Huse, Guided missile rocket power plant design and installation problems. *J. Am. Rocket Soc.*, No. 71, 16 (Sept. 1947).  
 G. Merrill, Testing naval pilotless aircraft. *J. Am. Rocket Soc.*, No. 69, 5 (Mar. 1947).  
 The Fairey guided missile. *Engineer* 183, 332 (1947); *Flight* 51, 344 (1947).  
 A new weapon. *Aeroplane* 72, 383 (1947).  
 Tiamat—NACA research missile. *Aero Digest* 54, 80 (Feb. 1947).

#### 1948

- C. E. Chapel, Guided missiles. *Radio News*, 39 (Jan. 1948).  
 D. V. Gallery, Guided missiles. *Aero Digest* 57, 27 (Dec. 1948).  
 A. P. Gertz, Commercial possibilities of guided missiles and pilotless aircraft. *Sperryscope* 11, No. 6, 14 (1948); *U. S. Air Services* 33, 9 (Oct. 1948).  
 L. O. Grondahl, Guided bombs in World War II. *J. Franklin Inst.* 245, 87 (1948).  
 W. Ley, Limitations of the long-range missile. *Ordnance* 33, 189 (1948-49).  
 J. K. Nothrop, A look into the future. *Western Flying*, 9 (Dec. 1948).  
 A. R. Weyl, Guided missiles. *Aeroplane* 74, 641 and 695 (1948); 75, 101, 285, 475 and 616 (1948).  
 Graphic and analytical method of determining flight paths of guided missiles. *Air Matériel Command Intelligence Translation* No. F-TS-3855-RE (Aug. 1948).  
 Operation Rumpelkammer. *Aeroplane Spotter* 9, 54 (Mar. 6, 1948).

#### 1949

- R. E. Gibson, Supersonic guided-missiles progress. *Aero Digest* 59, 40 (July 1949).  
 C. B. Millikan, Guided-missiles development. *Aero Digest* 59, 38 (Sept. 1949).  
 Firebird air-to-air missile. *Aviation Week* 51, 15 (Nov. 14, 1949).  
 Guiding the "Gorgon." *Aero Digest* 58, 61 (Feb. 1949).  
 Missiles enter production stage. *Aviation Week* 50, 15 (Feb. 7, 1949).  
 Navy completes test on Gorgon IV's. *CADO Tech. Data Digest* 14, 13 (Mar. 15, 1949).  
 Radio-controlled bombs (Tarzon, Razon, and the JB-2 Pulsejet). *CADO Tech. Data Digest* 14, 14 (Mar. 1, 1949).

#### 1950

- N. M. Bengston, Tactical use of guided missiles. *Ordnance* 35, 184 (Nov.-Dec. 1950).  
 R. E. Gibson, Supersonic guided missiles. *J. Am. Rocket Soc.*, No. 78, 129 (1950); No. 79, 155 (1950).  
 H. M. Mott-Smith, Aerodynamics research for guided missiles. *Naval Ordnance Laboratory Rept. No. 113* (Mar. 1, 1950).  
 Air bearing gyro for missile guidance. *Aviation Week* 53, 28 (Dec. 4, 1950).  
 The Navy's Bat. *Naval Aviation News*, 1 (June 1950).  
 Ram air, steam drive turbines. *Aviation Week* 53, 34 (Aug. 14, 1950).  
 Supersonic test missile. *Mech. Eng.* 72, 736 (1950).

### 208.4 Manned Aircraft Propelled by Rockets

#### 1946

- E. Burgess, Rocket-propelled interceptor-fighters. *J. Am. Rocket Soc.*, No. 65, 18 (Mar. 1946); *Aeroplane* 70, 36 (1946).  
 R. A. Cole, German rocket aircraft and their power plants. *Abstract: SAE Journal* 54, 74 (Nov. 1946).

- B. Healy, How Nazis' Walter engine pioneered manned rocket-craft.** *Aviation* 45, 77 (Jan. 1946).  
**H. F. King, Rocket fighters.** *Flight* 49, 519 (1946).  
**W. J. Osborn, Jr., Construction and performance of the Baka-Japanese jet-driven suicide bombs.** *J. Am. Rocket Soc.*, No. 65, 20 (Mar. 1946).  
**J. Woolams, How we are preparing to reach supersonic speeds.** *Aviation* 45, 38 (Sept. 1946).  
**First XS-1 powered flight opens drive to supersonic speeds.** *Aviation News* 6, 9 (Dec. 16, 1946).  
**Unique features built into XS-1.** *Aviation News* 6, 12 (Dec. 2, 1946).

#### 1947

- A. D. Baxter, Aircraft rocket motors.** *Aircraft Eng.* 19, 249 (1947).  
**A. K. Huse, Rocket engines as applied to future aircraft power plants.** Abstract: *SAE Journal* 55, 24 (Nov. 1947).  
**P. B. Klein, Research aircraft (XS-1).** *Mech. Eng.* 69, 813 (1947).  
**R. M. Stanley and R. J. Sandstrom, Development of the XS-1 supersonic research airplane.** Abstract: *Aeronaut. Eng. Rev.* 6, 23 (Aug. 1947); 29 (Sept. 1947).

#### 1948

- T. F. Reinhardt, Factors affecting the selection of propellants for rocket-powered aircraft.** *SAE M. P.*, New York (Apr. 1948).  
**R. A. Smith, The man-carrying rocket.** *J. Brit. Interplanet. Soc.* 7, 101 (May 1948).  
**More about the X-1.** *Aviation Week* 49, 16 (Nov. 15, 1948).

#### 1949

- "Polygon", Rocket fighters for home defense.** *Aeroplane* 77, 282 (1949).  
**T. F. Reinhardt, Factors affecting the range of rocket-powered aircraft.** *Aeronaut. Eng. Rev.* 8, 32 (Oct. 1949).  
**Rocket-jet airplane.** *Mech. Eng.* 71, 596 (1949).  
**X-1 makes own power take-off.** *Aviation Week* 50, 13 (Jan. 17, 1949).

#### 1950

- J. J. Haggerty, Jr., Big push from a small package.** *Am. Aviation* 14, 17 (July 1, 1950).  
**B. J. Hurren, A thousand eyes for one.** *Aircraft* 28, 26 (Sept. 1950).  
**Rocket air tests,** *Aviation Week* 53, 34 (Dec. 8, 1950).

#### 1951

- J. von Lonkhuyzen, Problems faced in designing famed X-1.** *Aviation Week*, 54, 22 (Jan. 1, 1951).

### 208.5 Interplanetary Rockets

#### 1946

- E. Burgess, Into space.** *Aeronautics* 15, 52 (Nov. 1946).  
**R. L. Farnsworth, Rocket to the moon.** *American Helicopter* 5, 19 (Mar. 1946).  
**F. J. Malina, Is the sky the limit?** *Army Ordnance* 31, No. 157, 45 (1946-47).  
**E. M. Rogers, Man-made satellites; gravity-free rockets no longer impossible.** *Army Ordnance* 31, No. 159, 247 (1946-47).  
**L. R. Shepherd, The problem of interplanetary propulsion.** *Bull. Brit. Interplanet. Soc.*, 55 (Nov. 1946).

#### 1947

- F. J. Malina and M. Summerfield, The problem of escape from the earth by rocket.** *J. Aeronaut. Sci.* 14, 471 (1947).  
**A. V. St. Germain, The conquest of interplanetary space.** *Western Flying*, 14 (Oct. 1947); 20 (Nov. 1947).  
**L. Spitzer, Jr., The rocket—a tool for exploring the universe.** Abstract: *Mech. Eng.* 69, 670 (1947).  
**Gravity-free rockets.** *Mech. Eng.* 69, 29 (1947).

**1948**

- F. H. Clauser, Flight beyond the earth's atmosphere. SAE Quart. Trans. 2, 563 (1948).  
K. W. Gatland, The expendable-tank step rocket. Aeronautics 19, 40 (Dec. 1948).  
R. McLarren, "Escape" rocket design research indicates practical solution near. Aviation Week 48, 23 (March 1, 1948).  
J. P. Sellers, Influence of earth's gravitation on requirements of the vertical trajectory rocket with special reference to escape. J. Am. Rocket Soc., No. 75, 126 (Sept. 1948).  
C. E. Wilson, Jr., Robots into space. Rocketscience 2, 26 (June 1948).  
Space weapon development. Aircraft 26, 12 (Sept. 1948).

**1950**

- H. Bartenbach, Celestial mechanics and rockets. J. Space Flight 2, 1 (Nov. 1950).  
A. C. Clarke, Space travel in fact and fiction. J. Brit. Interplanet. Soc. 9, 213 (Sept. 1950).  
A. V. Cleaver, Interplanetary flight. Aircraft 28, 12 (July 1950).  
M. Conley, An earth-moon orbit. J. Space Flight 2, 1 (June 1950).  
K. W. Gatland, A. E. Dixon and A. M. Kunesch, Initial objectives in astronautics. J. Brit. Interplanet. Soc. 9, 155 (July 1950).  
L. J. Grant, Jr., Further studies in the economics of a space station. J. Space Flight 2, 1 (May 1950).  
S. Herrick, Space rocket trajectories. J. Brit. Interplanet. Soc. 9, 235 (Sept. 1950).  
W. Proell, The significance of monatomic gases in planetary space operations. J. Space Flight 2, 1 (Oct. 1950).

**208.6 General****1940**

- F. J. Malina, Characteristics of the rocket motor unit based on the theory of perfect gases. J. Franklin Inst. 230, 433 (1940).

**1941**

- E. F. Chendler, Rockets for defense. Jet-propelled shells offer advantages. Astronautics No. 51, 3 (1941).  
R. Healy, Thrust of powder rocket charges. Commercial types tested. Astronautics No. 51, 6 (1941).  
B. Smith and E. G. Lill, Whirling test stands for simple motors. Astronautics No. 48, 15 (1941).  
Report on motor tests of June 8, 1941 at Midvale, N. J. Astronautics No. 49, 3 (1941).

**1942**

- T. S. Gardner, The rating of rocket fuels. I. The determination of approximate relative ratings by the use of heat capacities of the discharge gases. J. Tenn. Acad. Sci. 17, 302 (1942).  
R. Healy, The black powder rocket charge; its military uses. Astronautics No. 53, 3 (1942).  
E. Sänger. Recent results on rocket flight technique. NACA Tech. Memo. No. 1012 (1942).

**1944**

- L. Manning, Rockets and pseudo-rockets. Astronautics, No. 60, 8 (1944).

**1945**

- A. V. Da Rosa, Notes on rocket fuels. A comparison of the relative values of fuels. J. Am. Rocket Soc., No. 61, 4 (Mar. 1945).  
H. N. Marsh, The development and production of rocket propellants in World War II. Chem. Inds. 57, 65 (1945).  
G. E. Pendray, Robert H. Goddard. Science 102, 521 (1945).  
J. J. Pesqueira, Frictionless flow in a rocket motor. J. Am. Rocket Soc., No. 61, 8 (May 1945).  
M. Summerfield, Applications of rocket propulsion, SAE M. P. Southern California (May 1945).

**1946**

- H. W. Burdett, The variable nozzle as a means of maintaining rocket engine efficiency when throttling. *J. Am. Rocket Soc.*, No. 68, 39 (Dec. 1946).
- E. Burgess, Rocket efficiencies. *Aeronautics* 14, 46 (Jan. 1946).
- L. David, Rockets for research. *Air News*, 28 (Apr. 1946).
- H. G. Jones, Jr., Development of rocket ammunition. *Mech. Eng.* 68, 317 (1946).
- P. A. Kylberg and L. G. Sunblad, Rocket fuels. *Tek. Tid.* 76, 1117 (1946).
- L. Lawrence, Jr., Pulsejets, ramjets and rockets. *SAE Journal* 54, 75 (Nov. 1946).
- H. A. Liebhafsky, Use of hydrazine hydrate as a fuel. *Chimie & industrie* 56, 19 (1946).
- R. McLarren, Rocket engine fuels. *Automotive and Aviation Inds.* 95, 20 (Aug. 15, 1946).
- W. R. Maxwell, W. Dickenson, and E. F. Caldin, Adiabatic expansion of a gas stream containing solid particles. *Aircraft Eng.* 18, 350 (1946).
- R. W. Porter, Rocket propulsion. *Coast Artillery J.* 5, 13 (Sept.-Oct. 1946).
- H. Raech, Jr., Trends in rocket propulsion. *Machine Design* 18, 133 (June 1946).
- E. R. Schoenholtz, Jet planes and gaps in the Army Air Forces. *J. Am. Rocket Soc.*, No. 68, 29 (Dec. 1946).
- L. C. Young, Atomic hydrogen, the fuel of the future. *J. Am. Rocket Soc.*, No. 66/67, 35 (Sept.-Nov. 1946).
- AAF rocket project awaits V-2 results. *Aviation News* 6, 10 (Nov. 4, 1946).
- Japan's fuels and lubricants: Research on rocket fuels of the hydrogen peroxide-hydrazine type. *Brit. Intelligence Objectives Subcomm. Rept. No. B. I. O. S./J. A. P./826* (1946).
- Rocket control. *Bell Labs. Record* 24, 183 (May 1946).
- Rockets. *Product Eng.* 17, 130 (July 1946).

**1947**

- A. Africano, The rocket research of Dr. R. H. Goddard. *J. Am. Rocket Soc.*, No. 71, 28 (Sept. 1947).
- L. Bruchiss, Rocket power. *Skyways*, 33 (Feb. 1947).
- R. Healy, Rocket engine developments. *Aero Digest* 55, 38 (Nov. 1947).
- J. Humphries, Problems in rocket development. *J. Brit. Interplanet. Soc.* 6, 100 (Mar. 1947).
- H. R. Ivey, E. N. Bowen, Jr., and L. F. Oborny, Introduction to the problem of rocket-powered aircraft performance. *NACA Tech. Note No. 1401* (1947).
- D. A. Kimball, Commercial application of rocket power. *J. Am. Rocket Soc.*, No. 69, 34 (Mar. 1947).
- E. H. Krause, High-altitude research with V-2 rockets. *Proc. Am. Phil. Soc.*, 430 (Dec. 1947).
- A. S. Leonard, Some possibilities for rocket propellants. *J. Am. Rocket Soc.*, No. 68, 12 (Dec. 1946); No. 72, 10 (Dec. 1947).
- R. Levy, Propergols, propellant fuels for self-propellant rockets. *Chimie & industrie* 57, 221 (1947).
- R. D. Marsh and E. G. Ewing, Operation woodpile. *Pacific Rockets* 2, 10 (1947).
- W. P. Munger, Pumps and turbines for rocket engines. *ASME M. P.*, Atlantic City (Dec. 1947).
- L. Perruche, The chemistry of rockets. *La Nature*, 123 (1947).
- T. F. Reinhardt, Regenerative rocket cooling. *Abstract: Aeronaut. Eng. Rev.* 6, 31 (Apr. 1947).
- W. C. Roberts, Selection and design of rocket power plants. *Inst. Aeronaut. Sci.*, M. P., New York (Jan. 1947).
- H. E. Ross and R. A. Smith, Rocket formulae. *J. Brit. Interplanet. Soc.* 6, 124 (Mar. 1947).
- G. P. Sutton, Gaging rocket engine forces and flows. *Aviation* 46, 46 (Apr. 1947); *Thermochemistry of rocket propellants. J. Am. Rocket Soc.*, No. 72, 2 (Dec. 1947).
- M. Victor, Rockets. *Rev. aluminium* 24, 69 (1947).
- H. Walter, Report on rocket power plants based on hydrogen peroxide. *NACA Tech. Memo. No. 1170* (1947).
- W. H. Wheeler, H. Whittaker, and H. H. M. Pike, Solid and liquid propellants. *J. Inst. Fuel* 20, 137 (1947).
- G. White, Flight control of rockets. *Aero Digest* 54, 50 (May 1947).
- J. W. Wyld, Technical notes on German rocket development. *J. Brit. Interplanet. Soc.* 6, 69 (May 1947).

Guided missile skin-temperature tests. *Plane Facts*, 10 (Aug. 1947).  
New methods developed for evaluating rocket motors. *Aviation Week* 47, 20 (Sept. 29, 1947).  
Operation Neptune. *Flight* 52, 446 (1947).  
Robot rockets challenge sonic barrier. *Popular Mechanics*, 128 (Dec. 1947).  
Rocket research. *Mech. Eng.* 69, 677 (1947).  
Rocket research at St. Eval. *Aeroplane* 73, 517 (1947).

#### 1948

L. R. Brantley, Fluorine. *Pacific Rockets* 3, 11 (1948).  
M. Brunet, Powder rockets. *Tech. Sci. Aero.* 1946, 165; *Fuel Abstracts (N. S.)* 4, No. 3, 89 (1948).  
E. G. Chandler, Tank pressure from combustion chamber. *J. Am. Rocket Soc.*, No. 75, 119 (Sept. 1948).  
J. C. Coe, Telemetering guided-missile performance. *Proc. Inst. Radio Engrs., Waves and Electrons Section* 36, 1404 (Nov. 1948).  
A. O. Cookman, Jr., Needle-nose rocket probes sonic speed. *Popular Mechanics*, 114 (Jan. 1948).  
A. D. Crow, The rocket as a weapon of war in the British forces. *Engineer* 184, 510 and 532 (1947); *Instn. Mech. Eng., J. and Proc.* 158, 15 (1948).  
T. L. Davis, Early Chinese rockets. *Technol. Rev.*, 101 (Dec. 1948).  
P. Duwez and H. L. Wheeler, Jr., Experimental study of cooling by injection of a fluid through a porous material. *J. Aeronaut. Sci.* 15, 509 (1948).  
R. Edse, Calculation of the specific impulse of rocket propellants. *Air Material Command Intelligence Translation No. F-TR-1164-ND* (May 1948).  
K. W. Gatland, Development of rocket flight. *J. Brit. Interplanet. Soc.* 7, 113 (May 1948); *Expendable rockets. J. Brit. Interplanet. Soc.* 7, 160 (July 1948).  
F. W. F. Gleason, Rockets in history. *Ordnance* 32, 327 (1947-48); *The growth of rocket ordnance. Ordnance* 32, 397 (1947-48).  
G. S. James, A comparison between the ballistite unrestricted solid-propellant rocket and the micrograin solid-propellant rocket. *Astro-Jet* 1948, No. 21, 2.  
D. A. Kimball, The present and future of rockets. *J. Am. Rocket Soc.*, No. 73, 9 (Mar. 1948).  
M. Mann, Tracking the rockets. *Ordnance* 33, 23 (1948-49).  
R. McLarren, Rocket researchers sift fuels to reduce high consumption. *Aviation Week* 48, 18 (Jan. 26, 1948).  
H. Oberth, The rocket missile. *Rocketscience* 2, 29 (June 1948); *The synergy problem. Rocketscience* 2, 17 (June 1948); 60 (Sept. 1948).  
S. S. Penner, Radiation from rocket flames. *J. Applied Phys.* 19, 278, 392 and 511 (1948); *Am. J. Phys.* 16, 475 (1948).  
S. S. Penner and S. Weinbaum, Some considerations of the effect of radiation on the performance of liquid-fuel rockets. *J. Optical Soc. Am.* 38, 599 (1948).  
S. S. Penner and R. C. Whiteman, Impulse determinations of rockets by means of rotating systems. *Rev. Sci. Instruments* 19, 428 (July 1948).  
L. T. Pockman, Rocket power and frame of reference. *Am. J. Phys.* 16, 322 (1948).  
J. R. Randolph, The mass-ratio problem. *J. Am. Rocket Soc.*, No. 73, 37 (Mar. 1948).  
D. J. Ritchie, Rocket propulsive efficiency. *Rocketscience* 2, 32 (June 1948); 43 (Sept. 1948).  
C. C. Ross and R. B. Young, The design of tanks for liquid-propellant rocket power plants. *J. Am. Rocket Soc.*, No. 75, 107 (Sept. 1948).  
M. C. Sanz, Five-pound thrust liquid monopropellant rocket. *J. Am. Rocket Soc.*, No. 75, 122 (Sept. 1948).  
L. R. Shepherd and A. V. Cleaver, The atomic rocket. *J. Brit. Interplanet. Soc.* 7, 185 (Sept. 1948); 234 (Nov. 1948).  
K. R. Stehling, Rocket propulsion. *Eng. J.* 31, 162 (Mar. 1948).  
G. P. Sutton, Rocket motors. *Machine Design* 20, 101 (Dec. 1948).  
The Australian rocket range. *Aircraft* 26, 16 (Sept. 1948).

#### 1949

D. Altman and S. S. Penner, Adiabatic flow through a rocket nozzle with and without composition change. *J. Franklin Inst.* 245, 421 (1948); *J. Chem. Phys.* 17, 56 (1949).  
T. A. Bergstrahl, Upper atmospheric measurements by means of large rockets. *Inst. Aeronaut. Sci. M. P., New York* (Jan. 1949).

- A. K. Huse, Rocket fuel injector uses jet impingement. Abstract: SAE Journal 57, 63 (Feb. 1949).
- P. Matthieu, On the dynamics of rockets. Schweiz. Arch. 15, 129 (1949).
- R. McLarren, What upper air means to missiles. Aviation Week 51, 21 (Aug. 22, 1949).
- K. F. Mundt, Major developments in the field of rocket engines. Western Flying, 11 (Jan. 1949).
- H. Oberth, Possible applications of the liquid fuel rocket on earth. Rocketscience 3, 3 (Mar. 1949).
- S. S. Penner, Maintenance of near equilibrium during isentropic expansions through a nozzle. J. Am. Chem. Soc. 71, 788 (1949).
- D. J. Ritchie, The rocket engine. Rocketscience 3, 15 (Mar. 1949).
- M. G. Whybra, The atomic rocket engine. Rocketscience 3, 7 (Mar. 1949).
- F. Zwicky and C. C. Ross, Nitromethane as a monopropellant. SAE M. P. New York (1949).
- Color television tried in ramjet run. Aviation Week 51, 26 (July 18, 1949).
- First air-to-air missile. Aero Digest 59, 28 (Dec. 1949).
- Hostile to bombers. Acroplane 77, 691 (1949).
- Study corrosion in rocket engines. Aviation Week 51, 25 (July 4, 1949).

#### 1950

- R. Bloom, Jr., N. S. Davis, Jr., and S. D. Levine, Hydrogen-peroxide as a propellant. J. Am. Rocket Soc., No. 80, 3 (1950).
- R. H. Boden, Heat transfer in rocket motors and the application of film and sweat cooling. ASME M. P. 50-A-53 (1950).
- R. E. Bolz and J. D. Nicholaides, A method of determining some aerodynamic coefficients from supersonic free-flight tests of a rolling missile. J. Aeronaut. Sci. 17, 609 (1950).
- N. Bowman, Nitrogen dioxide derivatives in rocket fuels. J. Space Flight 2, 1 (1950).
- J. D. Broatch, An apparatus for the measurement of ignition delays of self-igniting fuels. Fuel 29, No. 5, 106 (1950).
- W. G. Cass, Exothermic decomposition of nitromethane. Aircraft Eng. 22, 238 (1950).
- H. L. Clark, Sun follower for V-2 rocket. Electronics 23, 71 (Oct. 1950).
- M. P. Dunnam, Hazards involved in the use of rocket propellants. CADO Tech. Data Digest 15, 30 (Nov. 1950).
- K. A. Ebricke, The Peenemuende Rocket Center. Rocketscience 4, 57 (Sept. 1950); 81 (Dec. 1950).
- F. R. Gantmacher and L. M. Levin, Equations of motion of a rocket. NACA Tech. Memo. No. 1255 (1950).
- D. F. Gunder and D. R. Friant, Stability of flow in a rocket motor. J. Appl. Mech. 17, 327 (1950).
- J. Himpan, Calculation of the volume of rocket combustion chambers. Aircraft Eng. 22, 191 (1950).
- H. B. Horne, Jr., Problems facing the rocket industry relating to military planning. J. Am. Rocket Soc., No. 82, 107 (Sept. 1950).
- D. F. Lawden, Minimal trajectories. J. Brit. Interplanet. Soc. 9, 179 (July 1950).
- H. Oberth, The optimum velocity. Rocketscience 4, 51 and 75 (Sept., Dec. 1950).
- A. E. Puckett, Optimum performance of rocket-powered missiles. Inst. Aeronaut. Sci. Pre. No. 279 (1950).
- D. H. Ross, Nitrogen tetroxide as an oxidizer in rocket propulsion. J. Am. Rocket Soc., No. 80, 24 (1950).
- E. Saenger, The construction problems of rocket motors. Weltraumfahrt 1950, No. 1, 2.
- G. E. Simpson, Handling liquid oxygen. J. Am. Rocket Soc., No. 80, 18 (1950).
- M. Summerfield, Fundamental problems in rocket research. J. Am. Rocket Soc., No. 81, 79 (1950).
- J. A. Van Allen, Rockets for studying the upper atmosphere. Aero Digest 61, 20 (Sept. 1950).
- M. G. Whybra, Detroit Rocket Society liquid propellant program. Rocketscience 4, 67 (Sept. 1950).
- C. E. Wilson, Jr., Pacific Coast rocket news. Rocketscience 4, 69 (Sept. 1950).
- Micro rocket, Mech. Eng. 72, 816 (1950).

**RMI rocket test stand simulates flight attitudes. Aviation Week 53, 33 (Aug. 14, 1950).**

**1951**

**Clothing protects rocket fuel handlers. Aviation Week 54, 34 (Jan. 15, 1951).**

### **209. JET-PROPELLED HELICOPTER ROTORS AND PROPELLERS**

**1943**

**C. Giles, Jet-propelled helicopters. Aeronautics, No. 58, 5 (1943).**

**1946**

**R. H. Miller, Jet propulsion applied to helicopter rotors. J. Aeronaut. Sci. 13, 639 (1946).**

**J. C. Sanders and N. F. Sanders, Preliminary study of a propeller powered by gas jets issuing from blade tips. NACA Tech. Note No. 1155 (1946).**

**1947**

**M. Berry, Little Henry the ramjet helicopter. Am. Helicopter 6, 10 (Dec. 1947).**

**D. Cowle, Doblhoff WNF jet helicopter. Plane Facts, 15 (July 1947).**

**E. S. Franklin, The helicopter and jet propulsion. Am. Helicopter 6, 22 (June 1947).**

**J. Friedenberg, Jet power applied to helicopters. Am. Helicopter 6, 14 (Apr. 1947).**

**R. McLarren, McDonnell flies ramjet helicopter. Aviation Week 47, 14 (Nov. 24, 1947).**

**1948**

**A. Klemin, And now—the ramjet helicopter. Aero Digest 56, 45 (Jan. 1948).**

**A pulsejet helicopter. Aero Digest 57, 54 (Nov. 1948).**

**Ramjet helicopter. Mech. Eng. 70, 27 (1948).**

**Ramjet powered rotors used on flyable test stand. Tech. Data Digest, 13, 10 (Sept. 1, 1948).**

**"Little Henry." Interavia 3, 84 (1948).**

**1949**

**C. D. Denny, Design criteria for jet-propelled helicopter rotors. Trans. ASME 71, 1 (1949).**

**R. C. Marquardt, Preliminary development of a jet-propelled helicopter. Aeronaut. Eng. Rev. 8, 41 (Mar. 1949).**

**C. R. Wood, Jr. The McDonnell ramjet helicopter, Inst. Aeronaut. Sci. Pre. No. 172 (1949).**

**Jets for helicopters. Aeroplane 77, 607 (1949).**

**New copter tests pulsejet power. Aviation Week 50, 22 (Feb. 14, 1949).**

**Pulsejet copter. Aviation Week 51, 16 (Nov. 14, 1949).**

**1950**

**A. Charrion, The development of jet helicopters in France. Aircraft Eng. 22, 292 (1950).**

**F. L. B. Doblhoff, The helicopter pressure jet. Mech. Eng. 72, 658 (1950); Aeronaut. Eng. Rev. 9, 36 (Sept. 1950).**

**J. M. Elliot, Advantages of pulsejets for helicopters. Am. Helicopter 18, 9 (Apr. 1950).**

**A. Gessow, An analysis of the autorotative performance of a helicopter powered by rotor-tip jet units. NACA Tech. Note No. 2154 (1950).**

**W. Stewart and M. F. Burle, The application of jet propulsion to helicopters. Brit. Ministry of Supply C. P. No. 8 (1950).**

**A French jet-driven helicopter (S. O. 1100 Ariel II). Esso Air World 3, 28 (July-Aug. 1950).**

**Proving pulsejets for helicopters. Aeroplane 79, 136 (1950).**

### **210. COMPRESSORS AND THEIR COMPONENTS**

**1943**

**A. J. R. Lysholm, A new rotary compressor, Instn. Mech. Eng., J. and Proc. 150, 11 (1943).**

**1945**

K. Campbell and J. E. Talbert, Some advantages and limitations of centrifugal and axial aircraft compressors. *SAE Journal* 53, 607 (1945).

**1948**

- S. M. Bogdonoff, NACA cascade data for the design of high-performance axial-flow compressors. *J. Aeronaut. Sci.* 15, 89 (1948).
- A. D. S. Carter, Three-dimensional-flow theories for axial compressors and turbines. *Instn. Mech. Eng., J. and Proc.* 159, 255 (1948).
- I. M. Davidson, The axial compressor blade fouling problem. *Proc. Seventh Int. Congr. Appl. Mech.* 2, Part I, 200 (1948).
- A. I. Ponomareff, Axial-flow compressors for gas turbines. *Trans. ASME* 70, 295 (1948).
- A. Vazsonyi, On the aerodynamic design of axial flow compressors and turbines. *J. Applied Mech.* 15, 53 (1948).
- F. L. Wattendorf, Factors influencing the utilization of high mass flow in axial flow compressors. *Proc. Seventh Int. Congr. Appl. Mech.* 2, Part II, 398 (1948).
- H. Woodhouse, Inlet conditions of centrifugal compressors for aircraft engine superchargers and gas turbines. *J. Aeronaut. Sci.* 15, 403 (1948).

**1949**

- J. W. Blanton, High-pressure applications of the supersonic compressor. *Inst. Aeronaut. Sci. Pre. No.* 217 (1949).
- R. O. Bullock, Compressors and turbines in high-pressure-ratio power plants. *Aeronaut. Eng. Rev.* 8, 26 (May 1949).
- R. S. Hall, Aerodynamic problems in axial compressors for aircraft jet engines. *Inst. Aeronaut. Sci. Pre. No.* 216 (1949).
- Shao-Pan Liang, Performance analysis of centrifugal compressors. *Aeronaut. Eng. Rev.* 8, 48 (Mar. 1949); *J. Aeronaut. Sci.* 16, 435 (1949).
- A. Mendelson, Aerodynamic hysteresis as a factor in critical flutter speed of compressor blades at stalling conditions. *J. Aeronaut. Sci.* 16, 645 (Nov. 1949).
- D. L. Mordell, Contraflow contrarotating turbo-compressors. *Can J. Research F* 27, 285 (1949).
- J. E. Talbert and J. E. Sanders, Multistaged centrifugal compressors for operation at high-pressure ratios. *Inst. Aeronaut. Sci. Pre. No.* 215 (1949).
- Chung-Hua Wu and L. Wolfenstein, Application of radial equilibrium condition to axial-flow compressor and turbine design. *NACA Tech. Note No.* 1795 (1949).

**1950**

- M. J. Brunner and R. E. McNair, Blading for axial-flow compressors. *ASME M. P.* 50-A-113 (1950).
- A. R. Howell and R. P. Bonham, Over-all and stage characteristics of axial-flow compressors. *Instn. Mech. Eng., J. and Proc.* 163, 165 (1950).
- R. McLarren, The supersonic compressor. *Aero Digest* 61, 50 (Oct. 1950).
- C. Pfeiderer, The sonic barrier in centrifugal and axial-flow compressors. *Engineers Digest* 11, 316 (Sept. 1950).
- Compressors for aircraft gas turbines. *Engineering* 170, 511 (1950).
- Compressor using water for gas-turbine research. *Engineering* 170, 485 (1950).

**211. TURBINES AND THEIR COMPONENTS****1945**

J. S. Haverstick and A. M. G. Moody, Blade cooling helps gas turbines to higher temperatures. *Power* 89, 82 (Jan. 1945).

**1946**

- J. Hodge, Stressing of gas turbine blading. *Engineering* 182, 559 (1946).
- W. J. Kearton, Calculation of the stresses in a turbine wheel by the method of superposition. *Instn. Mech. Eng., J. and Proc.* 155, 73 (1946).
- N. C. Price, Mechanical design considerations influencing blading performance in aircraft gas-turbine power plants. *Abstract: SAE Journal* 54, 32 (Dec. 1946).



**1947**

- C. T. Evans, Jr., Materials for power gas turbines. *Trans. ASME* 69, 601 (1947).  
E. Pollman, Temperatures and stresses on hollow blades for gas turbines. NACA Tech Memo. No. 1183 (1947).

**1948**

- H. K. O. Adenstedt, German methods in developing turbine-wheel blades for the Jumo 004. *Tech. Data Digest* 13, 7 (Mar. 15, 1948).  
H. H. Ellerbrock, Jr., NACA investigations of gas-turbine-blade cooling. *J. Aeronaut. Sci.* 15, 721 (Dec. 1948).  
C. A. Hoffman and G. M. Ault, Application of statistical methods to study of gas-turbine-blade failure. NACA Tech. Note No. 1603 (1948).  
T. A. Kestell, Manufacture of turbine blades for the Whittle engine. *Instn. Mech. Eng., J. and Proc.* 153, 66 (1948).  
O. W. Schey, The advantages of high inlet temperature for gas turbines and effectiveness of various methods of cooling the blades. *ASME Pre. No.* 48-A-105 (1948).  
W. C. Stewart and H. C. Ellinghausen, Comparison of high-temperature alloys tested as blades in a type-B turbosupercharger. *AMSE Pre. No.* 48-A-96 (1948).  
A. Vazsonyi, On the aerodynamic design of axial flow compressors and turbines. *J. Appl. Mech.* 15, 53 (1948).  
A. Woodhouse, Turbine blades that resist heat. *Aero Digest* 57, 74 (Aug. 1948).  
Inspecting turbine blades. *Aircraft Production* 10, 354 (Oct. 1948).  
A new Nimonic blade material. *Aeroplane* 75, 481 (1948).  
Testing turbine wheels. *Aero Digest* 57, 57 (Aug. 1948).  
Turbo-jet operated with cold blades. *Aviation Week* 49, 28 (Oct. 11, 1948).

**1949**

- V. L. La Valle and M. C. Huppert, Effects of several design variables on turbine-wheel weight. NACA Tech. Note No. 1814 (1949).  
M. J. Lighthill and F. J. Bradshaw, Thermal stress in turbine blades. *Phil. Mag.* 40, 770 (1949).  
G. F. C. Rogers, Stresses in turbine rotors of disc construction. *Engineering* 167, 121 (1949).  
R. L. Wiseman, Teeth for jets. *Aero Digest* 58, 40 (Jan. 1949).  
Checking jet blades. *Aero Digest* 58, 36 (Jan. 1949).

**1950**

- G. M. Ault and G. C. Deutsch, Review of NACA research on materials for gas turbine blades. *SAE Quart. Trans.* 4, 398 (1950).  
A. T. Colwell, K. M. Bartlett, and R. E. Cummings, Seven ways to produce turbine blades. *Abstract: SAE Journal* 58, 48 (June 1950).  
E. Duncombe, A method of estimating optimum turbine operating conditions for a range of nozzle and blade angles. *Nat. Research Council Can. Rept. No.* MT-13 (June 2, 1950).  
H. Kohlmann, The development of a hollow blade for exhaust gas turbines. NACA Tech. Memo. No. 1289 (1950).  
D. A. Nutt, Experimental determination of the natural modes of vibration of gas-turbine blades. *Engineering* 170, 323 (1950).  
J. W. Tomlinson, The dynamic balancing of turbines and impellers. *Aircraft Eng.* 22, 175 (1950).  
Turbine-blade polishing. *Aircraft Production* 12, 248 (Aug. 1950).

**212. COMBUSTION AND COMBUSTION CHAMBERS****1945**

- P. Lloyd, Combustion in the gas turbine. *Instn. Mech. Eng., J. and Proc.* 153, 462 (1945).

**1946**

- R. J. Bender, Use of ether as an ignition agent. *Automotive and Aviation Inds.* 95, 40 (Sept. 1, 1946).  
N. A. Hall, Fuel-air ratio required for constant-pressure combustion of hydrocarbon fuels. *Abstract: SAE Journal* 54, 32 (Dec. 1946).

- M. A. Mayers and W. W. Carter, The elbow combustion chamber. *Trans. ASME* 68, 391 (1946).
- F. C. Mock, Engineering development of the jet-engine and gas-turbine burner. *SAE Journal* 54, 218 (1946).
- R. P. Probert, The influence of spray particle size and distribution in the combustion of oil droplets. *Phil. Mag.* 37, 94 (1946).
- M. Roy, A unidimensional theory of jet combustion chambers. *Compt. rend.* 222, 835 (1946).
- D. G. Shepherd, Combustion in the gas turbine. *Engineer* 181, 268 and 300 (1946).
- B. Szczeniowski, Theoretical analysis of combustion gas. *Rev. trimestr. Can.* 32, 196 and 294 (1946).

#### 1947

- J. H. Childs, R. J. McCafferty, and O. W. Surine, Effect of combustor inlet conditions on combustion in turbo-jet engines. *SAE Quart. Trans.* 1, 266 (1947); *NACA Tech. Note No. 1357* (1947).
- J. H. Childs, R. J. McCafferty and O. W. Surine, Effect of combustor inlet conditions on performance of an annular turbojet combustor. *NACA Rept. No. 881* (1947).
- G. Damkohler, Effect of turbulence on the flame velocity in gas mixtures. *NACA Tech. Memo. No. 1112* (1947).
- W. R. Hawthorne, Design of combustion chambers for gas turbines. *Inst. Aeronaut. Sci., M. P.* (1947).
- A. E. Hershey, Development and testing of a gas-turbine combustor. *Trans. ASME* 69, 859 (1947).
- R. McLarren, Altitude blow-out of jet engines under widespread investigation. *Aviation Week* 47, 22 (Nov. 24, 1947).
- I. I. Pinkel and H. Shames, Analysis of jet propulsion engine combustion-chamber pressure losses. *NACA Tech. Note No. 1180* (1947).
- D. G. Samaras, Gasdynamic aspects of combustion in jet propulsion. *Abstract: Aeronaut. Eng. Rev.* 6, 24 (Oct. 1947).
- E. A. Watson and J. S. Clarke, Combustion and combustion equipment for aero gas turbines. *J. Inst. Fuel* 21, 1 (Oct. 1947); *Flight* 51, 555 (1947).
- S. Way and E. P. Walsh, Development of annular combustion chambers. *SAE M. P., New York* (Apr. 1947).
- Gas-turbine combustion problems. *Aeroplane* 72, 588 (1947).

#### 1948

- B. O. Buckland and D. C. Berkey, Combustion system for burning Bunker C oil in a gas turbine. *ASME Pre. No. 48-A-109* (1948).
- G. Damkohler and R. Edse, Detonation properties of fuel-air mixtures for use in reaction propulsion. *Air Matériel Command Intelligence Translation No. F-TS-978-RE* (Mar. 1948).
- R. T. Dittrich, Effects of fuel-nozzle carbon deposition on combustion efficiency of a single tubular-type, reverse-flow combustor at simulated altitude conditions. *NACA Tech. Note No. 1618* (1948).
- L. C. Gibbons and E. R. Jonash, Effect of fuel properties on the performance of the turbine engine combustor. *ASME Pre. No. 48-A-104* (1948).
- H. R. Hazard and F. D. Buckley, Experimental combustion of pulverized coal at atmospheric and elevated pressures. *Trans. ASME* 70, 729 (Aug. 1948).
- F. U. Hill and H. Mark, Performance of experimental turbo-jet engine combustors. I. Performance of a one-eighth segment of an experimental turbo-jet engine combustor. *NACA Research Memo. No. E7J13* (1948).
- H. C. Hottel, G. C. Williams, and C. N. Satterfield, Generalized thermodynamics of high-temperature combustion. *Trans. ASME* 70, 667 (1948).
- R. V. Kleinschmidt, Energy-temperature relations in the combustion of fuels in gas turbines. *Trans. ASME* 70, 821 (1948).
- B. Lewis and G. von Elbe, Combustion. *Ind. Eng. Chem.* 40, 1590 (1948).
- B. Lewis and G. von Elbe, Ignition and flame stabilization in gases. *Trans. ASME* 70, 307 (1948).
- P. Lloyd, Determination of gas-turbine combustion-chamber efficiency by chemical means. *Trans. ASME* 70, 335 (1948).
- A. L. London, Gas turbine plant combustion-chamber efficiency. *Trans. ASME* 70, 317 (1948).
- W. T. Olson and E. Bernardo, Temperature measurements and combustion efficiency in combustors for gas-turbine engines. *Trans. ASME* 70, 329 (1948).

- T. W. Reynolds and E. R. Ebersole, Effect of hydrocarbon type and chain length on the uniform flame movement in quiescent fuel-air mixtures. NACA Tech. Note No. 1609 (1948).
- A. H. Shapiro, D. Rush, W. A. Reed, D. G. Jordan, and G. Farnell, High-output combustion of ethyl alcohol and air. Trans. ASME 70, 161 (1948).
- R. P. Wallis, Combustion. Engineering 165, 549 (1948).
- W. J. Wohlenberg, The influence of reaction interface extension in the combustion of gaseous fuel constituents. Trans. ASME 70, 143 (1948).
- Jet engine combustion research. Aero Digest 57, 57 (July 1948).
- Jet propulsion boosts interest in flame mechanics. Chem. Eng. News 26, 2892 (1948).

#### 1949

- J. Barr, Behavior of a combustion system using exhaust gas recirculation. Fuel 28, 241 (1949).
- J. Barr and B. P. Mullins, Combustion in vitiated atmospheres. Fuel 28, 181, 200, 205, 225, 228 (1949).
- L. M. Bollinger and D. T. Williams, Effect of Reynolds number in turbulent-flow-range on flame speeds of Bunsen burner flames. NACA Rept. No. 932 (1949).
- F. R. Caldwell, F. W. Ruegg, and L. O. Olsen, Combustion in moving air. SAE Quart. Trans. 3, 327 (1949).
- J. P. Longwell, Combustion problems in ramjet design. Inst. Aeronaut. Sci. Pre. No. 221 (1949).
- I. Lubbock, Problems of combustion in gas turbines. Rev. inst. franc. petrole 4, 625 (1949).
- A. J. Nerad, Some aspects of turbojet combustion. Aeronaut. Eng. Rev. 8, 24 (Dec. 1949).
- W. T. Olson, Aircraft jet engine combustion. Aeronaut. Eng. Rev. 8, 30 (May 1949).
- G. C. Williams, Basic studies on flame stabilization. J. Aeronaut. Sci. 16, 714 (1949).

#### 1950

- J. D. Broatch, An apparatus for the measurement of ignition delays of self-igniting fuels. Fuel 29, 106 (1950).
- C. Foure, The problem of combustion of a liquid fuel in a turbojet chamber. Rech. aero. 8, 5 (Mar.-Apr. 1950).
- K. L. Rieke and A. E. Hershey, Gas-turbine combustors for gaseous fuels. Mech. Eng. 72, 657 (1950).
- F. W. Ruegg and C. Halpern, Gravimetric analysis of exhaust gas from gas turbine combustion chambers. J. Research Nat. Bu. Standards 45, 113 (1950).
- D. G. Shepherd, Review of combustion phenomena for the gas turbine. ASME M. P. 50-A-96 (1950).
- D. B. Spalding, Combustion of liquid fuel in a gas stream. Fuel 29, 2, 25 (1950).
- J. G. Withers, Gas turbine combustion efficiency calculations. Aircraft Eng. 22, 218 (1950).
- E. A. De Zubay, Characteristics of disk-controlled flames. Aero Digest 61, 54 (July 1950).

### 213. THERMAL PROPERTIES OF WORKING MEDIA

#### 1941

- R. C. H. Heck, The new specific heats. Mech. Eng. 62, 9 (1940) ; 63, 126 (1941).

#### 1942

- R. V. Gerhart, F. C. Brunner, H. S. Mickley, B. H. Sage, and W. N. Lacey, Thermodynamic properties of air. Mech. Eng. 64, 270 (1942).
- H. Zachokke, Properties of air. Brown Boveri Mitt. 28, 183 (Aug.-Sept. 1941) ; Aircraft Eng. 14, 194 (1942).

#### 1943

- F. O. Ellenwood, N. Kulik, and N. R. Gray, Specific heats of gases. Mech. Eng. 65, 365 (1943).
- J. H. Keenan and J. Kaye, A table of thermodynamic properties of air. J. Appl. Mech. 10, 123 (1943).

**1944**

- B. Wood, A new polytropic chart for gas turbine problems. *Engineer* 178, 80 (1944).  
Gas turbine gas charts. Bu. Ships, Navy Dept., Research Memo. No. 6-44, Navships 250-330-6 (Dec. 1944).

**1946**

- W. A. Benser, W. W. Wilcox, and C. H. Voit, Charts for the rapid calculation of the work required to compress dry air. NACA Tech Note No. 1043 (1946).  
J. R. Finnicombe, New temperature-total heat-entropy chart for gases with variable specific heats. *Inst. Mech. Eng. (London), J. and Proc.* 155, 117 (1946).

**1947**

- P. Bielkowitz, Evolution of energy in jet and rocket propulsion. *Aircraft Eng.* 18, 90, 129, 163 and 206 (1946); 19, 19 (1947).  
G. M. Edleman and A. H. Shapiro, Tables for numerical solution of problems in the mechanics and thermodynamics of steady one-dimensional gas flow without discontinuities. *J. Appl. Mech.* 14, A344 (1947).  
D. Faggiani, Thermodynamic functions of diatomic gases at high temperature. *Rend. inst. Lombardo sci.* 80, No. 1 (1947).  
N. A. Hall, Mean specific heats for working media of gas-turbine power plants. *SAE Quart. Trans.* 1, 490 (1947).  
P. W. Huber and A. Kantrowitz, Heat-capacity lag measurements in various gases. *J. Chem. Phys.* 15, 275 (1947).  
A. Kantrowitz and P. W. Huber, Heat capacity lag in turbine working fluids. NACA Wartime Rept. No. L-21 (1947).  
W. D. Monroe, Expansion time-rate of gases. *J. Am. Rocket Soc.*, No. 71, 8 (1947).  
B. Pinkel and L. R. Turner, Thermodynamic data for the computation of the performance of exhaust gas turbines. NACA Wartime Rept. No. E-23 (1947).  
F. D. Rossini, et al., Selected values of properties of hydrocarbons. *Nat. Bur. Standards Circular* 461 (1947).  
R. L. Sweigert, A report on the properties of certain gases as determined at the Georgia School of Technology. ASME M. P., Atlantic City (Dec. 1947).  
L. R. Turner, Wartime work on the N. A. C. A. on thermodynamics. ASME M. P., Atlantic City (Dec. 1947).

**1948**

- M. A. Burcher, Compressible flow tables for air. NACA Tech. Note No. 1592 (1948).  
H. A. Everett, The construction of a revised temperature-entropy chart for air and its application to explosive-combustion studies. ASME Pre. No. 48-A-97 (1948).  
E. F. Flock, R. S. Jessup, and F. W. Ruegg, Definitions of heats of combustion of a fuel and current methods for their determination. *Trans. ASME* 70, 811 (Oct. 1948).  
J. M. Gilchrist, Chart for the investigation of thermodynamic cycles in internal combustion engines and turbines. *Instn. Mech. Eng., J. and Proc.* 159, 335 (1948).  
F. J. Huber, Air speed-Mach number chart. *Tech. Data Digest* 13, 18 (Sept. 1, 1948).  
V. N. Huff and C. S. Cavert, Charts for the computation of equilibrium composition of chemical reactions in the carbon-hydrogen-oxygen-nitrogen system at temperatures from 2,000° to 5,000° K. NACA Tech. Note No. 1653 (1948).  
J. Kaye, Thermodynamic properties of gas mixtures encountered in gas-turbine and jet-propulsion processes. *J. Appl. Mech.* 15, 349 (1948).  
J. Kestin, Thermodynamic properties of combustion gases. *Aircraft Eng.* 20, 234 (1948).  
O. Lutz, Technical thermodynamics of dissociating gas mixtures. *Air Matériel Command Intelligence Translation* No. F-TS-997-RE (Jan. 1948).  
H. Reindorf, Enthalpy-entropy diagram (combustion gas-kerosene). *Air Matériel Command Intelligence Translation* No. F-TR-1160-ND (Feb. 1948); *Tech. Data Digest* 13, 11 (Sept. 1, 1948).

- F. D. Rossini, Heats of formation and chemical thermodynamic properties. *Trans. ASME* **70**, 625 (1948).
- W. J. Walker, The development of variable specific heat charts and their application to internal combustion motor problems. *Instn. Mech. Eng., J. and Proc.* **159**, 301 (1948).

#### 1949

- S. S. Penner, Flow through a rocket nozzle with and without vibrational equilibrium. *J. Applied Phys.* **20**, 445 (1949).
- E. Schmidt, The total-heat, air ratio diagram: A new method for the calculation of gas-turbine cycles. *Instn. Mech. Eng., J. and Proc.* **161**, 203 (1949).

#### 1950

- J. A. Goff and S. Gratch, Zero-pressure thermodynamic properties of some monatomic gases, CO and N<sub>2</sub>. *Trans ASME* **72**, 725, 741 (1950).
- W. Griffith, Vibrational relaxation times in gases. *J. Applied Phys.* **21**, 1319 (1950).
- H. J. Hoge, Compilation of thermal properties of wind-tunnel and jet-engine gases at the National Bureau of Standards. *Trans. ASME* **72**, 779 (1950).
- V. N. Huff and S. Gordon, Tables of thermodynamic functions for analysis of aircraft propulsion systems. *NACA Tech. Note No. 2161* (1950).
- V. N. Huff and V. E. Morrell, General method for computation of equilibrium composition and temperature of chemical reactions. *NACA Tech. Note No. 2113* (1950).
- H. R. Ivey and C. W. Cline, Effect of heat-capacity lag on the flow through oblique shock waves. *NACA Tech. Note No. 2196* (1950).
- F. G. Keyes, A summary of viscosity and heat-conduction data for He, A, H<sub>2</sub>, O<sub>2</sub>, N<sub>2</sub>, CO, CO<sub>2</sub>, H<sub>2</sub>O, and air. *ASME M. P. No. 50-A-40* (1950).
- R. B. Spooner, Effect of heat-capacity lag on a variety of turbine-nozzle flow processes. *NACA Tech. Note No. 2193* (1950).
- L. R. Turner and D. Bogart, Constant-pressure combustion charts including effects of diluent action. *NACA Rept. No. 937* (1950).
- NBS-NACA tables of thermal properties of gases. (Prelim. issue available from Nat. Bur. of Standards, 1950.)

### 214. AERODYNAMIC FACTORS

#### 1946

- J. S. Alvord, Designing ducting systems to gain better turbojet performance. *Aviation* **45**, 69 (Mar. 1946).
- P. Chambre and Chia-Chiao Lin, On the steady flow of a gas through a tube with heat exchange or chemical reaction. *J. Aeronaut. Sci.* **13**, 537 (1946).
- H. Falk, The influence of the jet of a propulsion unit on nearby wings. *NACA Tech. Memo. No. 1104* (1946).
- G. A. Hankins and W. F. Cope, The flow of gases at sonic and supersonic speeds. *Engineer* **181**, 206 (1946); *Instn. Mech. Eng., J. and Proc.* **155**, 401 (1946).
- M. M. Munk, Mathematical theory of gas flow. *Aero Digest* **51**, 49 (Dec. 1 1945); **52**, 52 (Feb. 1946).
- H. S. Ribner, Field of flow about a jet and effect of jets on stability of jet-propelled airplanes. *NACA Wartime Rept. No. L-213* (1946).

#### 1947

- W. F. Davis and S. H. Brown, Wind-tunnel investigation of the effect of jet-motor operation on stability. *NACA Wartime Rept. No. A-31* (1947).
- C. L. Gillis and J. Weil, Some notes on the effects of jet-exit design on static longitudinal stability. *NACA Wartime Rept. No. L-589* (1947).
- J. L. Lankford, Investigation of pressure-loss characteristics of a turbo-jet inlet screen. *NACA Tech. Note No. 1418* (1947).
- A. H. Shapiro and W. R. Hawthorne, Mechanics and thermodynamics of steady, one-dimensional gas flow. *J. Appl. Mech.* **14**, A-317 (1947).
- A. M. O. Smith and H. E. Roberts, Jet airplane utilizing boundary layer air for propulsion. *J. Aeronaut. Sci.* **14**, 97 (1947).
- E. E. Trautwein and D. S. Gabriel, The effect of two inlet-duct designs on turbine efficiency. *NACA Wartime Rept. No. E-209* (1947).

**1948**

- A. R. Howell, The aerodynamics of the gas turbine. *J. Roy Aeronaut. Soc.* 52, 329 (1948).
- A. Kahane and L. Lees, Unsteady one-dimensional flows with heat addition or entropy gradients. *J. Aeronaut. Sci.* 15, 665 (1948).
- F. E. Marble, The flow of a perfect fluid through an axial turbo-machine with prescribed blade loading. *J. Aeronaut. Sci.* 15, 473 (1948).
- W. Perl and H. T. Epstein, Some effects of compressibility on the flow through fans and turbines. NACA Rept. No. 842 (1948).

**1950**

- G. Bruner, High aspect ratio wings. *Aeroplane* 79, 187 (1950).
- M. A. Heaslet, H. Lomax, and J. R. Spreiter, Linearized compressible-flow theory for sonic flight speeds. NACA Rept. No. 956 (1950).
- H. Luskin and H. Klein, High-speed aerodynamic problems of turbojet installations. ASME Pre. No. 50-A-102 (1950).
- V. Outman and G. S. Graff, Flight characteristics at high Mach. numbers. Abstract: *SAE Journal* 58, 56 (Dec. 1950).
- G. H. Lee, The estimation of critical Mach number. *Aeroplane* 79, 110, 216 (1950).
- Chung-Hua Wu, A general theory of three-dimensional flow with subsonic and supersonic velocity in turbomachines having arbitrary hub and casing shapes. ASME M. P. 50-A-79 (1950).

**215. METALLURGY, MACHINING, AND WELDING****1945**

- E. M. Phillips, Gas turbine metallurgy. SAE M. P., Dayton (Oct. 1945).

**1946**

- Jet materials progress slow; search for heat-resistant alloys. *Aviation News* 6, 17 (Dec. 2, 1946).
- Production of aero engine combustion system components. *Engineer* 182, 392 (1946).

**1947**

- F. S. Badger, Application of high-temperature alloy castings to gas turbines. Inst. Aeronaut. Sci. M. P., New York (Jan. 1947).
- C. A. Crawford, Nickel-chromium alloys for gas-turbine service. *Trans. ASME* 69, 609 (1947).
- J. W. Freeman, E. E. Reynolds, and A. E. White, Heat-resisting alloys for use in jet-propulsion engines. *J. Aeronaut. Sci.* 14, 693 (1947).
- W. T. Griffiths, Alloys for gas turbines. *Aircraft Production* 9, 447 (Dec. 1947).
- T. A. Kestell, Machining turbine blades. *Aircraft Production* 9, 412 (Nov. 1947); 460 (Dec. 1947).
- H. E. Lardge, Welding in the development of jet-propulsion engines. *Engineering*, 164, 366 (1947).
- N. L. Mochel, Metallurgical considerations of gas turbines. *Trans. ASME* 69, 561 (1947).
- E. M. Phillips, Metallurgical aspect of gas turbine wheels and nozzles. SAE M. P., Los Angeles (Oct. 1947).
- H. Scott and R. B. Gordon, Precipitation-hardened alloys for gas-turbine service. *Trans. ASME* 69, 583 (1947).
- W. O. Sweeny, Haynes alloys for high-temperature service. *Trans. ASME* 69, 569 (1947).
- P. R. Toolin, The high-temperature fatigue strength of several gas-turbine alloys. *Am. Soc. Testing Materials Pre. No. 9* (1947).
- Broaching jet-propulsion engine parts. *Machinery* 54, 169 (Dec. 1947).
- First jet alloy specifications evolved by SAE group. *SAE Journal* 55, 71 (Nov. 1947).
- High-temperature alloys in gas turbines. *Aeroplane* 73, 577 (1947).
- Some steels for gas turbines. *Aeroplane* 72, 340 (1947).

**1948**

- A. T. Colwell and R. E. Cummings, Turbine engine blading: manufacturing technique and fastening methods. *SAE Quart. Trans.* 2, 419 (1948).

- J. W. Freeman, E. J. Reynolds, D. N. Frey, and A. E. White, Properties of 19-19DL alloy bar stock at 1,200° F. NACA Tech. Note No. 1758 (Nov. 1948).  
 L. B. Fonda, High-temperature disk-forging developments for aircraft gas turbines. Trans. ASME 70, 1 (1948).  
 W. T. Griffiths, The problems of high-temperature alloys for gas turbines. J. Roy. Aeronaut. Soc. 52, 1 (1948).  
 Jet engine research. Steel 123, No. 15, 66 (1948).  
 The Nimonic series of alloys. Engineering 166, 595 (1948).

**1949**

- F. S. Boericke, Heat-resistant alloys for aviation. Aero Digest 59, 43 (Aug. 1949).  
 H. C. Cross and J. W. Freeman, ONR and NACA metallurgical investigation of a large forged disc of S-816 alloy. NACA Tech. Note No. 1765 (1949).  
 J. W. Freeman and H. C. Cross, NACA and ONR metallurgical investigation of two large forged discs of S-590 alloy. NACA Tech. Note No. 1760 (1949).  
 N. Silsbee, Titanium alloys for aircraft. Aero Digest 59, 38 (Aug. 1949).  
 M. H. Young, Designing for gas-turbine materials. Aeronaut. Eng. Rev. 8, 39 (May 1949).

**1950**

- J. Geschelin, Powdered iron blades for gas turbines. Automotive Inds. 103, 40 (Nov. 15, 1950).  
 W. C. Heath, Stamped jet engine parts made by special techniques. Abstract: SAE Journal 58, 29 (Aug. 1950).  
 N. L. Mochel, Metals for gas turbines. Mech. Eng. 72, 462 (June 1950).  
 R. B. Johnson, Jets test designers' and metallurgists' ingenuity. Iron Age 166, 73 (Aug. 1950).  
 H. Scott, Gas turbine alloys, 10 years later. Metals Progress 58, 503 (Oct. 1950); Westinghouse Research Labs., Sci. Paper No. 1543 (Aug. 15, 1950).  
 Heat shading of metals aids gas turbine research. Aviation Operations 14, 26 (Aug. 1950).  
 Machining aircraft turbine blades. Machinery 56, 165 (Aug. 1950).  
 Properties of Nimonic 90. Aeroplane 79, 559 (1950).

**216. CERAMIC MATERIALS IN GAS TURBINES**

**1946**

- S. W. G. Foster, Note on the use of ceramics in gas turbine design. J. Roy. Aeronaut. Sci. 50, 893 (1946).

**1947**

- F. J. Hartwig, B. W. Shelton, and R. J. Jones, Preliminary investigation of a gas turbine with Sillimanite ceramic rotor blades. NACA Tech. Note No. 1399 (1947).

**1948**

- J. R. Bressman, Ceramic materials show promise for high temperature mechanical parts. Materials & Methods, 65 (Jan. 1948).  
 R. F. Geller and W. N. Harrison, Ceramics may serve in turbines and jets. Abstract: SAE Journal 56, 46 (June 1948).  
 R. A. Jones, Ceramic coated metals for aircraft power plant applications. Steel Processing, 649 (Dec. 1948).  
 W. H. Woodward and A. R. Bobrowsky, Preliminary investigation of a ceramic lining for a combustion chamber for gas-turbine use. NACA Research Memo. No. E7H20 (1948).

**1949**

- E. L. Olcott and A. R. Bobrowsky, Ceramic research and development as related to aircraft power plants. Tech. Data Digest 14, 15 (Mar. 1949).

**1950**

- W. H. Duckworth and J. E. Campbell, Ceramics in gas turbines. Mech. Eng. 72, 128 (1950).

## 217. RESEARCH PROGRAMS

1945

R. Healy, Aeronautical supremacy demands jet and rocket research. *Aviation* 44, 152 (July 1945); 149 (Aug. 1945).

1946

H. G. Bowen, Research needs of the Navy. *Mech. Eng.* 68, 194 (1946).

1947

L. C. Craigie, AAF plans for engineering research. *SAE Journal* 55, 19 (Mar. 1947).

E. H. Heinemann, The development of the Navy-Douglas Model D-558 research project. *Aeronaut. Eng. Rev.* 6, 14 (Dec. 1947).

1948

H. Davies, Flight research at high subsonic speeds. *J. Roy. Aeronaut. Soc.* 52, 483 (1948).

R. McLarren, NACA engine research plots new boosts for jet power. *Aviation Week* 48, 9 (Mar. 29, 1948).

D. M. Patterson, The fundamental research necessary for the evaluation of cooling requirement of supersonic aircraft and missiles. *Tech. Data Digest* 13, 13 (Oct. 15, 1948).

N. R. Rosengarten, Flight testing of jet-propelled aircraft as conducted by the Air Materiel Command. *ASME Pre. No.* 48-A-90 (1948).

The DRS research program. *Rocketscience* 2, 21 (June 1948).

1949

J. W. Crowley, Jr., NACA serves the armed forces and the nation. *Aero Digest* 59, 26 (Sept. 1949).

H. L. Dryden, The aeronautical research scene. *Engineering* 167, 525, 549 (1949).

R. McLarren, New propulsion factor analyzed. *Aviation Week* 51, 18 (Nov. 7, 1949).

F. L. Thompson, Flight research at transonic and supersonic speeds with free-falling and rocket-propelled models. *Second Internat. Aeronaut. Conference*, p. 582, Inst. Aeronaut. Sci., New York, 1949.

Flight propulsion research, *Aero Digest* 59, 15 (Nov. 1949).

Jet and rocket research. *Mech. Eng.* 71, 1038 (1949).

1950

L. Crocco, Instruction and research in jet propulsion. *J. Am. Rocket Soc.*, No. 80, 32 (1950).

H. Harvey, United States research project "Squid". *Shell Aviation News*, No. 146, 16 (Aug. 1950).

Hsue-Shen Tsien, Instruction and research at the Daniel and Florence Guggenheim Jet Propulsion Center. *J. Am. Rocket Soc.*, No. 81, 51 (1950).

## 218. NOMENCLATURE

1945

G. E. Pendray, A vocabulary for jet propulsion. An essential aeronautical nomenclature. *J. Am. Rocket Soc.*, No. 61, 12 (Mar. 1945); No. 62, 13 (June 1945).

1947

F. Zwicky, Morphology and nomenclature of jet engines. *Aviation* 46, 49 (June 1947); *Aeronaut. Eng. Rev.* 6, 20 (June 1947).

1948

Symbols for combustion research. *NACA Tech. Note No.* 1507 (1948).

1949

Glossary of guided missile terms. *Antiaircraft Journal* 92, 33 (Jan.-Feb. 1949).



## 219. ATOMIC ENERGY

1941

P. Morrison, Nuclear reactions. *Am. J. Phys.* 9, 135 (1941).

1945

L. Bruchiss, Atomic energy. *Air News*, 40 (Dec. 1945).

C. Giles, Atomic powered rockets. *J. Am. Rocket Soc.*, No. 63, 5 (Sept. 1945).

C. Goodman, Utilization of atomic energy. *Automotive and Aviation Inds.* 93, 18 (Dec. 1, 1945).

D. C. M. Hume, The mighty atom. *Can. Air Cadet*, 14 (Dec. 1945).

A. E. Knowlton, Atomic-energy bomb dates new era in power. *Elec. World* 124, 100 (Aug. 11, 1945).

B. W. Sargent, Atomic power. *Eng. J. (Can.)* 28, 752 (1945).

H. D. Smyth, Atomic energy for military purposes. *Rev. Modern Phys.* 17, 351 (1945).

W. F. G. Swann, Nature and portent of atomic energy. *Aero Digest* 51, 33 (Dec. 1, 1945).

The atom—new source of energy. *Aviation* 44, 103 (Sept. 1945).

1946

C. I. Barnard, J. R. Oppenheimer, C. A. Thomas, and D. E. Lilienthal, A report on the international control of atomic energy. U. S. Dept. of State, Publication No. 2498 (1946).

H. G. Bowen, Nuclear energy as a power source. *Mech. Eng.* 68, 779 (1946).

A. H. Compton, The social implications of atomic energy. *Am. J. Phys.* 14, 173 (1946).

F. Daniels, Peacetime uses of atomic power. *Chem. Eng. News* 24, 1514 (1946).

C. Darwin, Atomic energy. *Science Progress* 34, 449 (1946).

J. R. Dunning, Development of atomic energy. *SAE M. P.*, Detroit (Jan. 1946).

N. Feather, Atomic disintegration. *J. Roy. Aeronaut. Soc.* 50, 533 (1946).

T. S. Gardner, The rating of rocket fuels. Rocket fuels using atomic energy as a primary heat source. *J. Am. Rocket Soc.*, No. 66/67, 23 (Sept.-Nov. 1946).

A. L. Hughes, Atomic energy. *Mining Congr. J.* 32, 22 and 45 (1946).

A. C. Klein, Atomic-bomb engineering. *Mech. Eng.* 68, 297 (1946); *Engineering in an atomic era.* *Mech. Eng.* 68, 1029 (1946).

W. Ley, Atomic energy. *Air Trails* 29, 24 (Jan. 1946).

D. E. Lilienthal, How can atomic energy be controlled? *Chem. Eng. News* 24, 2483 (1946).

L. Meitner, The nature of the atom. *Fortune* 33, 137 (1946).

E. J. Murphy, Development of atomic energy. *Chem. Eng. News* 24, 182 (1946).

W. F. Ogburn, The atom and aviation. *Flying*, 21 (Mar. 1946).

W. C. Pollard, Education and atomic power. *Mech. Eng.* 68, 509 (1946).

J. T. Shotwell, The international implications of atomic energy. *Am. J. Phys.* 14, 179 (1946).

C. A. Thomas, Nonmilitary uses of atomic energy. *Chem. Eng. News* 24, 2480 (1946).

H. S. Tsien, Atomic energy. *J. Aeronaut. Sci.* 13, 171 (1946).

J. A. Wheeler, The future of nuclear power. *Mech. Eng.* 68, 401 (1946).

Atomic powered rockets. *Science News Letter* 50, 358 (Dec. 7, 1946).

1947

A. H. Compton, Atomic power, its birth and its human meaning. *Elec. Eng.* 67, 857 (1947).

L. A. Du Bridge, The future of atomic energy. *Am. Gas. J.* 167, 20 (Dec. 1947).

E. Fermi, Elementary theory of the chain-reacting pile. *Science* 105, 27 (1947).

G. M. Giannini, Nuclear energy for aircraft propulsion. *Air Univ. Quart. Rev.*, 43 (Spring 1947).

H. B. Hass, The significance of atomic energy. *Abstract: SAE Journal* 55, 48 (Feb. 1947).

J. H. Lum, Engineering and economics of atomic power. *Chem. Eng.* 54, 122 (Oct. 1947).

A. O. C. Nier, Atomic power engineering—some nuclear problems. *Mech. Eng.* 69, 728 (1947).

B. R. Prentice, Atomic-power engineering—some design problems. *Mech. Eng.* 69, 721 (1947).

W. C. Redman and D. Saxon, Delayed neutrons in plutonium and uranium fission. *Phys. Rev.* **72**, 570 (1947).  
H. D. Smyth, From X-ray to nuclear fission. *Am. Scientist*, 483 (Oct. 1947).  
H. A. Winne, Sees atomic power limited to high-output installations. *Abstract: SAE Journal* **55**, 56 (Sept. 1947).  
Atom bomb. *Air Affairs* **1**, 324 (Mar. 1947).  
Atomic energy. U. S. Army Air Force Intelligence Rev. No. F-IR-135-RE (Feb. 1947).  
The atomic rocket. *Engineer* **183**, 172 (1947).  
Peacetime atomic pile. *Mech. Eng.* **69**, 854 (1947).  
Report of U. S. Atomic Energy Commission. *Metal Progress*, 378 (Sept. 1947).

#### 1948

L. B. Borst, The industrial application of nuclear energy. *Mech. Eng.* **70**, 295 (1948).  
E. U. Condon, Nuclear engineering. *Elec. Eng.* **67**, 229 (1948).  
W. F. Davidson, Nuclear reactors for power generation. *Elec. Eng.* **67**, 962 (1948).  
E. De Coursey, Human pathologic anatomy of ionizing radiation effects of the atomic bomb explosion. *Military Surgeon* **102**, 427 (1948).  
H. Etherington, Atomic power for industry. *Machine Design* **20**, 91 (July 1948).  
J. P. Healey, Air power and foreign policy. *Air Univ. Quart. Rev.*, 15 (Fall 1948).  
J. R. Huffman, Nuclear engineering. *Mech. Eng.* **70**, 217 (1948); *Mech. World* **123**, 483 (Apr. 1948).  
R. P. Johnson, The United States Atomic Energy Commission. *J. Eng. Education*, 440 (Mar. 1948).  
A. Kalitinsky, Atomic power and aircraft propulsion. *Aero Digest* **57**, 58 (Aug. 1948); *Pegasus* **12**, 1 (Aug. 1948); *Shell Aviation News*, 14 (Sept. 1948).  
D. A. Keys, Atomic energy as the servant of humanity. *Natl. Research Council of Can., NRC 1752* (1948).  
D. E. Lillenthal, Atomic energy and the engineer. *Mech. Eng.* **70**, 8 (1948).  
J. R. Menke, Nuclear fission as a source of power. *Bull. Atomic Sci.*, 115 (Apr. 1948).  
K. Z. Morgan, Protection from atomic radiation. *Ordnance* **33**, 182 (1948-49).  
J. L. H. Peck, Atomic-age air force. *Air Trails* **31**, 23 (Dec. 1948).  
S. T. Pike, Engineering problems of atomic power. *Engrs. Digest* **5**, 367 (1948).  
L. R. Shepherd and A. V. Cleaver, The atomic rocket. *J. Brit. Interplanet. Soc.* **7**, 185 (Sept. 1948); 234 (Nov. 1948).  
W. E. Shoupp, The nucleus—its structure and reactions. *Elec. Eng.* **67**, 125 (1948).  
F. Soddy, The story of atomic energy. *Engineering* **164**, 361, 409, 457, 505, 553 and 601 (1947); **165**, 25, 73, 121, 169, 217, 265, 313, 361, 424 and 472 (1948).  
Atoms go to work for industry. *Automotive Inds.* **99**, 24 (Oct. 1, 1948).  
Atomic energy research establishment. *Engineer* **186**, 114 (1948); *Engineering* **166**, 97 (1948).  
Nuclear energy for aircraft propulsion. *Interavia* **3**, 507 (1948).  
Nuclear energy in 1947. *Engineer* **185**, 24 (1948).

#### 1949

W. F. Davidson, Atomic power and fuel supply. *Mech. Eng.* **71**, 999 (1949).  
A. Kalitinsky, Atomic power and aircraft propulsion. *SAE Quart. Trans.* **3**, 1 (1949).  
J. R. Martin, Radiation—Its biological effects and problems. *Mech. Eng.* **71**, 893 (1949).  
M. G. Whybra, The atomic rocket engine. *Rocketscience* **3**, 7 (Mar. 1949).  
Nuclear energy in 1948. *Engineer* **187**, 9 (1949).  
The nuclear steam aero-turbine. *Aeroplane* **77**, 76 (1949).

#### 1950

H. A. Winnie, Atomic energy's place in your plans for the future. *Gen. Elec. Rev.* **53**, 11 (July 1950).  
Atomic-weapons effects. *Mech. Eng.* **72**, 811 (1950).  
Costs of radiation protection. *Nucleonics* **7**, 73 (Sept. 1950).  
The first atom powered bomber. *Am. Aviation* **14**, 11 (July 15, 1950).  
Graphite low-energy pile at Harwell. *Engineer* **190**, 587 (1950); *Engineering*, **170**, 497 (1950).

## 220. MISCELLANEOUS

1946

- F. Bellinger, H. B. Friedman, W. H. Bauer, J. W. Eastes, J. H. Ladd, and J. E. Ross, The system hydrogen peroxide-permanganate. *Ind. Eng. Chem.* **38**, 160 (1946).
- G. W. Brady, Propellers for aircraft gas turbines. *J. Aeronaut. Sci.* **13**, 449 (1946).
- H. Falk, The influence of the jet of a propulsion unit on nearby wings. NACA Tech. Memo. No. 1104 (1946).
- B. L. Hicks, Addition of heat to a compressible fluid in motion. NACA Wartime Rept. No. E-88 (1946).

1947

- A. G. Elliott, Turbine engine icing problems. *Aeroplane* **73**, 308 (Sept. 1947).
- S. H. Hasinger and W. T. von der Nuell, Momentum measurement by balancing an impact pendulum. *Tech. Data Digest* **12**, 7 (July 15, 1947).
- D. Jelinek, The development of high-temperature light-weight insulation for jet aircraft. *Inst. Aeronaut. Sci. M. P.*, New York (Jan. 1947).
- L. McKee, Hydrogen peroxide for propulsive power. Production and use by the Germans during World War II. *Mech. Eng.* **68**, 1045 (1946); **69**, 682 (1947).
- J. H. Potter, Elimination of waste products of high moisture content in a gas turbine. *Mech. Eng.* **69**, 820 (1947); *Power* **91**, 93 (Aug. 1947).
- D. G. Shepherd, A design for counterflow shell-and-tube heat exchangers for gas turbines. *ASME Pre. No.* 47-A-60 (1947).
- R. B. Smith, Problems in the mechanical design of gas turbines. *J. Appl. Mech.* **14**, A-99 (1947).
- Greater turbojet fuel economy object of new west coast firm. *Aviation Week* **47**, 22 (Dec. 22, 1947).
- Handling turbojets. *Mech. Eng.* **69**, 1032 (1947).
- Supersonics. *Life*, 49 (Jan. 7, 1947).

1948

- D. A. Anderton, Beyond the "barrier." *Air Trails* **31**, 21 (Nov. 1948).
- T. Andreeva, The "Buck Rogers" era in aviation. *Western Flying*, 17 (Nov. 1948).
- G. F. Anisman and M. W. Blackstone, The control of structural temperatures in jet-propelled aircraft. *Trans. ASME* **70**, 677 (1948).
- F. Bellinger, H. B. Friedman, W. H. Bauer, J. W. Eastes, and W. C. Bull, Chemical propellants—stability of mononitromethane. *Ind. Eng. Chem.* **40**, 1320 (1948).
- S. D. Black, A review of the third national propulsion meeting. *Aeronaut. Eng. Rev.* **7**, 16 (May 1948).
- G. A. Crocco, Passing through the sonic barrier. *Aircraft Eng.* **20**, 220 (1948).
- A. Falorde, Note on jet aerobatics. *Aeronautics* **19**, 75 (Nov. 1948).
- B. Gumpert, Piloting problems caused by turbojets. *Interavia* **3**, 442 (1948).
- R. N. Hadwin, Vibration analysis in jet engines. *de Havilland Gazette*, No. 43, 6 (Feb. 1948).
- W. E. Hammond, Reduction and reversing drives. *Machine Design* **20**, 149 (Feb. 1948).
- N. Macmillan, First steps in supersonics. *Aeronautics* **18**, 40 (Mar. 1948).
- S. S. Manson, Stress investigations in gas turbine disks and blades. *SAE M. P.* (Jan. 1948).
- G. May, A pilot's view on supersonic flight. *Reserve Officer* **16** (Dec. 1948).
- D. O. Moeller and O. A. Sanne, Jet aircraft cabin temperature control. *SAE M. P.* (Mar. 1948).
- J. L. H. Peck, How fast can we fight. *Air Trails* **31**, 24 (Oct. 1948).
- W. D. Perreault, Jet transports face major hurdle in traffic control. *Am. Aviation* **12**, 27 (Nov. 1, 1948).
- E. Schmidt, The design of contra-flow heat exchangers. *Engrs. Digest* **5**, 55 (1948).
- N. F. Silsbee, Centrifugal castings for jet engines. *Aero Digest* **57**, 47 (Nov. 1948).
- E. E. Stoeckly, The research challenge in aircraft propulsion. *Gen. Elec. Rev.*, 39 (Nov. 1948).
- V. W. Slater and W. S. Wood, High-strength hydrogen peroxide for rocket propulsion. *J. Brit. Interplanet. Soc.* **7**, 137 (May 1948).

**E. C. Wilcox**, Tests of an adjustable-area exhaust nozzle for jet-propulsion engines. NACA Wartime Rept. No. E-285 (1948).  
**H. Wilson**, Flying the jet. Flying, 28 (Dec. 1948).  
 Cabin conditioning problems at supersonic velocities. Tech. Data Digest 13, 5 (Dec. 15, 1948).  
 How does icing affect gas turbines? Interavia 3, 143 (1948).  
 How the Germans made high-test hydrogen peroxide. Chem. Eng. 55, 102 (Aug. 1948).  
 Icing in jets. Can. Aviation, 20 (Jan. 1948).  
 Isothermal expansion in nozzles. J. Am. Rocket Soc., No. 74, 71 (June 1948).  
 Jet engine shipped safer by new packaging method. Aviation Week 49, 24 (Oct. 1948).  
 Ram temperature—supersonic speed barrier. Aero Digest 57, 26 (Nov. 1948).  
 Research at sonic speeds. Shell Aviation News, 22 (June 1948).  
 Rocket cameras record earth's surface from 57 miles up. Flight 54, 516 (Oct. 1948).  
 Turbine cooler unit. Flight 54, 576 (1948).

#### 1949

**F. R. Brewster**, Jet fighter refuelled via new technique. Aviation Week 51, 18 (Aug. 29, 1949).  
**W. T. Dickinson**, Traffic control requirements for jet transport aircraft. SAE Quart. Trans. 3, 82 (1949).  
**A. L. London** and **C. K. Ferguson**, Test results of high-performance heat-exchanger surfaces used in aircraft intercoolers and their significance for gas-turbine intercooler design. Trans. ASME 71, 17 (1949).  
**R. McLarren**, Jet engines accent vapor trails. Aviation Week 50, 24 (Jan. 3, 1949).  
**R. McLarren**, How Navy solves its jet problems. Aviation Week 51, 33 (Oct. 17, 1949).  
**R. McLarren**, Report on telemetering in aero research. Aviation Week 51, 24 (Nov. 28, 1949).  
**G. C. Nistal**, Fuel in flight. Aero Digest, 59, 28 (Oct. 1949).  
**N. F. Silsbee**, J47 production at Ranger. Aero Digest 59, 48 (Oct. 1949).  
 Containers for jet engines. Automotive Inds. 100, 32 (Jan. 1949).  
 The R. A. F. jet-flying school. Aeroplane 77, 583 (1949).  
 Refuelling "Meteor" twin-jet fighter in flight. Engineering 168, 151 (1949).

#### 1950

**H. Davis**, **H. Kottas**, and **A. M. G. Moody**, The influence of Reynolds number on the performance of turbomachinery. ASME M. P. No. 50-A-99 (1950).  
**R. D. Kelly**, Operating problems of turbine-powered aircraft. Aeronaut. Eng. Rev. 9, 28 (Oct. 1950).  
**H. A. Klein**, Jets ablaze. Aero Digest 61, 30 (Dec. 1950).  
**K. J. Lush**, Note on the time required to make level speed measurements with a turbine jet aircraft. J. Roy. Aeronaut. Soc. 54, 651 (1950).  
**B. Pinkel**, **R. N. Noyes**, and **M. F. Valerino**, Method for determining pressure drop of air flowing through constant-area passages for arbitrary heat-input distributions. NACA Tech. Note No. 2186 (1950).  
**H. Schlichting**, Turbulence and heat stratification. NACA Tech. Memo. No. 1262 (1950).  
**W. E. Scull**, Relation between inflammables and ignition sources in aircraft environments. NACA Tech. Note No. 2227 (1950).  
**J. R. Stalder** and **D. Jukoff**, Heat transfer to bodies traveling at high speed in the upper atmosphere. NACA Rept. No. 944 (1950).  
**M. Tribus**, Intermittent heating for aircraft ice protection with application to propellers and to jet engines. ASME M. P. No. 50-A-55 (1950).  
**H. L. Wheeler, Jr.** and **P. Duwez**, Sweat cooling. Automotive Inds. 103, 40 (July 15, 1950).  
**G. E. Woods-Humphrey**, The application of pressure refuelling to flight. Aeronaut. Eng. Rev. 9, 20 (Nov. 1950).  
 Close air support with jets. Naval Aviation News, 3 (Aug. 1950).  
 Foreign aid jet plane deliveries speeded. Aviation Week 53, 12 (Dec. 4, 1950).  
 Jet noise studied. Aviation Week 53, 32 (Dec. 4, 1950).

#### 1951

Swedes pooling their jet know-how. Aviation Week 54, 33 (Jan. 15, 1951).

