GEOLOGICAL SURVEY CIRCULAR 447

SELECTED SOURCES OF INFORMATION ON U. S. AND WORLD ENERGY RESOURCES: AN ANNOTATED BIBLIOGRAPHY

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By James Trumbull

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INTRODUCTION

Of late there has been considerable interest in the amount and adequacy of energy resources available to the United States and to the world, in the shifts in use between different energy sources, and in the prospects of energy from nonconventional sources.

This bibliography supplies citations and notes the general contents of 73 summary reports in the field of energy resources of the United States, and to some extent those of the free world. Matters that are considered include resources of conventional energy materials, the availability and prospects of nonconventional energy sources, overall energy studies of certain geographic areas, production and many other types of statistics, and the probable future course of energy developments.

The bibliographic list is made up largely of general reports of recent publication. Many other valuable reports, mainly those giving details of individual or local matters, are not listed. Both earlier and more detailed reports on any subject can be located by use of the bibliographies to be found in most of the reports here listed.

The annotations are intended as guides to the type of information to be found in the reports, rather than abstracts of the subject matter. Reports concerned with more than one of the topic headings, or that do not fall within any of them, have been placed under the general heading. With few exceptions the listed reports are in English.

GENERAL REFERENCES

Abraham, Herbert, 1945, Asphalts and allied substances, their occurrences, modes of production, uses in the arts and methods of testing: 5th ed., New York, D. Van Nostrand Co., 2 v., 2142 p.

An encyclopedic work that covers terminology and classification, chemistry, geology and origin of deposits, mining, transporting, refining, descriptions of deposits throughout the world, and many other aspects of the subject. Volume 2 includes a 65-page bibliography and 294 pages of references.

Ayres, Eugene, and Scarlott, C. A., 1952, Energy sources—the wealth of the world: New York, McGraw-Hill Book Co., 344 p.

A widely known study that covers all energy sources: conventional, nuclear, and nonconventional.

Coal Age, 1960, Fuels policy—Battle in '60: Coal Age, v. 65, no. 1, p. 72–77.

Quotations from testimony on energy resources and technology in Congressional hearings in October 1959. Includes a graph of predicted United States energy requirements (by source) to the year 2000, and tables on domestic energy consumption by source and by population and gross national product for 1955 and 1975.

Eldridge, G. H., 1901, The asphalt and bituminous rock deposits of the United States: U.S. Geol. Survey 22d Ann. Rept., pt. 1, p. 209–452.

An encyclopedic description of the occurrence and geology of deposits throughout the United States, with a short introductory section on classification and analyses of the material and the distribution and origin of the deposits.

Independent Petroleum Association of America, [1959?], Maintaining energy supremacy for America: Energy Industries Forum Proc., 24 p. Sponsored by and conducted as an adjunct to the 1959 midyear meeting of the I.P.A.A.

An overall evaluation of the energy situation and policies of the United States. Contains the following papers: (1) Introduction, by Minor S. Jameson, Jr., executive vice president, I.P.A.A.; (2) Oil report, by Morgan J. Davis, president, Humble Oil and Refining Co.; (3) Natural gas report, by Paul Kayser, president, El Paso Natural Gas Co.; (4) Nuclear fuels report, by Dean A. McGee, president, Kerr-McGee Oil Industries, Inc.; (5) Electric power report, by Edwin Vennard, vice president and managing director, Edison Electric Institute; (6) Coal report, by Frank F. Kolbe, president, National Coal Assoc.

Institute of Fuel, 1961, Fuel abstracts and current titles: London, Inst. Fuels. (Published monthly.)

A monthly annotated bibliography of world literature on all technical and scientific aspects of fuel and power. Titles and annotations in English. Author and detailed subject indexes printed semiannually. Prior to May 1960 the title was "Fuel Abstracts."

Nininger, R. D., and others, 1960, Energy from uranium and coal reserves: U.S. Atomic Energy Comm., 7 p. Available from the U.S. Dept. Commerce, Office Tech. Services, Washington.

Tables of United States and free world uranium resources, recoverable coal reserves, heat energy

available from uranium under various operating conditions, and heat energy available from uranium and coal reserves under various assumptions of cost, with a brief explanatory text.

Organisation for European Economic Co-operation, 1960, Towards a new energy pattern in Europe: Paris, Organisation for European Econ. Co-op., 125 p.

A report by the Energy Advisory Commission of the O. E. E. C. Topics discussed include trends in energy consumption, production, and imports; trends of demand for individual forms of energy; forecasts of aggregate requirements; potential indigenous supplies; prospective developments in the field of nuclear energy; and financing and policy problems. Includes many brief statistical tables, and projections of data for 1965 and 1975.

President's Materials Policy Commission, 1952, The outlook for energy sources, v. 3, 43 p., [and] The outlook for key commodities, v. 2, p. 127–130, 163–170, of Resources for freedom, a report to the President by the President's Materials Policy ["Paley"] Commission: Washington, U.S. Govt. Printing Office, 5 v.

Volume 3 consists of basic studies of the status of and outlook for oil, natural gas, coal, and electric energy in the United States and the free world. Volume 2 contains data on reserves, and projections of United States demand to 1975 for those four items.

Putnam, P. C., 1953, Energy in the future: New York, D. Van Nostrand Co., 556 p.

A study of the maximum plausible world demand for energy over the next 50 to 100 years, originally prepared for the U.S. Atomic Energy Commission. Particular attention is given to population growth.

Schurr, S. H., and Netschert, B. C., 1960, Energy in the American economy, 1850–1975; an economic study of its history and prospects: Baltimore, The Johns Hopkins Press, 774 p. Published for Resources for the Future, Inc., Washington.

An exhaustive treatise in 3 parts: energy use 1850–1955; the future of energy consumption; the future of energy supply. Includes consideration of the possible impact of atomic energy, and has 120 text tables and 73 graphs in addition to 255 pages of statistical appendices.

Soper, E. K., and Osbon, C. C., 1922. The occurrence and uses of peat in the United States: U.S. Geol. Survey Bull. 728, 207 p.

Includes sections on the origin of peat and the classification of peat deposits; peat-forming floras; processes and rates of formation; physical and chemical properties; agricultural, fuel, and other uses; and the peat industry in the United States. The distribution of peat deposits is shown on a map of the Nation, and details of individual peat deposits, areas of occurrence, and the quantity of peat available are discussed on a county-by-county basis for most peat-bearing States.

United Nations, 1956, The world's requirements for energy; the role of nuclear energy, v. 1 of Proceedings of the International Conference on the Peaceful Uses of Atomic Energy, Geneva, 8 August–20 August, 1955: New York, United Nations, 479 p.

Includes "World energy requirements in 1975 and 2000" (p. 3–33) and "Contribution of nuclear energy to future world power needs" (p. 85–102), prepared by the United Nations. The latter paper contains a 6-page table of reserves of coal, lignite, petroleum, natural gas, waterpower, and per capita energy reserves for every country of the world. Three other papers discuss worldwide future energy needs (p. 34–70), 2 discuss nonconventional energy sources other than nuclear energy (p. 71–84), 34 discuss energy sources and needs in individual countries, and 24 discuss various aspects of nuclear energy. The volume is an authoritative source of information.

United Nations Department of Economic and Social Affairs, 1957a, Energy in Latin America—Study prepared by the Secretariat of the Economic Commission for Latin America: Geneva, United Nations, 268 p.

A study of many aspects of energy: sources; consumption by source, nation, and end use; trends of change in consumption; efficiency in use; resources; and institutional structure and finances. Projections to 1965 are made for production, consumption, and required capacity and investments. Fourteen annexes totaling 138 pages present much statistical and reference material, including a 20-page compilation of energy resources by country. Covers all South and Central American nations, including Mexico.

————1957b, New Sources of energy and economic development—Solar energy, wind energy, tidal energy, geothermic energy, and thermal energy of the seas: New York, United Nations, 150 p.

Includes a comparative study of the features and possibilities of those five nonconventional energy sources, a technical paper on each of them, and an annotated bibliography of 480 items.

————1959, Sources of energy and electricity production [in Africa], in Economic Survey of Africa since 1950: New York, United Nations, p. 127–133, also table 1-XVII, p. 35.

A discussion of reserves and the status (ca. 1957–58), trends, and new developments in discovery, production, and consumption of coal, petroleum, and electricity throughout the continent. The cited table gives reserves and 1957 production of crude oil, coal, hydroelectricity, and thermal electricity, by countries. Other short tables give data on production, exports, imports, and installed generating capacity.

United Nations Statistical Office, 1959, Statistical yearbook: New York, U.N. Dept. Econ. and Social Affairs, Statistical Off. (Published annually.)

A source of world statistics on many subjects. The 1959 Statistical Yearbook includes for the first

time a table showing world and regional energy production, trade, and consumption, classified by main sources—coal and lignite, crude petroleum, natural gas, and hydroelectricity. All figures are expressed as the equivalent number of metric tons of coal.

United Nations Statistical Office, 1960, World energy supplies, 1955–1958: New York, U.N. Statistical Off. Statistical Papers, ser. J, no. 3, 122 p.

Data by countries on production, trade, and consumption of coal, petroleum (crude and refined), gas, electricity, shale oil, and coke. No text other than explanation of tables. No resources data. Third in a series; the others are Statistical Papers Series J, no. 1, 1952, for 1929, 1937, 1949, and 1950; and no. 2, 1957, for 1951 through 1954.

U.S. Bureau of Mines, 1959, The Bureau of Mines synthetic liquid fuels program, 1944–55, pt. 1—Oil from coal: U.S. Bur. Mines Rept. Inv. 5506, 306 p.

A summary of results of the extensive investigations conducted under authority of the Synthetic Liquid Fuels Act of 1944. Covers gasification and underground gasification, hydrogenation, and Fischer-Tropsch synthesis. Includes an 8-page glossary, and a bibliography of reports containing more detailed descriptions of results.

———1959, Fuels, v. 2 of Minerals yearbook 1958: U.S. Bur. Mines, 484 p. (Published annually.).

An exhaustive annual statistical review of the domestic industry. Includes both a general summary and detailed figures on reserves, mining methods and equipment, production, transportation, consumption, technology, price and value, stocks, foreign trade, and world production of coal, coke and coal chemicals, fuel briquettes, peat, carbon black, natural gas and its liquids, petroleum and its products, and helium.

U.S. Congress, Joint Committee on Atomic Energy, 1960, Review of the international atomic policies and programs of the United States, by Robert McKinney (v. 1, p. 1–78R), [and] Background material for the review of the international atomic policies and programs of the United States (v. 2, 3, 4, 5, p. 79–2080): U.S. 86th Cong., 2d sess.

Volume 1 includes, on pages 29–48, a summary of the detailed information in the succeeding volumes concerning the status, prospects, costs, and resources of atomic power, the supply of conventional fuels, and the overall demand for energy in the world. Volume 3 includes several reports on the progress of nonmilitary atomic energy programs in the world. Volume 4 contains 14 reports of diverse foreign and domestic authorship on the status and prospects of nuclear-fueled electric generating capacity throughout the world, and 24 reports on nonnuclear energy resources. Among the latter are reports on the following: World consumption and availability of conventional fuels in 1975 and 2000; resources of coal, petroleum, natural gas, oil shale, and tar sands in the free world, by the U.S. Department of the Interior; the uranium and thorium resources of the free world and the Communist bloc, by the U.S. Atomic Energy Commission; future energy requirements in the United States, Latin America, Europe, the Sino-Soviet area, and Asia; and several reports on nonconventional nonnuclear energy sources. Volume 5 includes reports on the direct conversion of fission products to electricity, the peaceful applications of nuclear power for purposes other than central-station electricity generation, and progress toward controlled fusion.

U.S. Congress, Joint Economic Committee, Subcommittee on Automation and Energy Resources, 1959, Energy resources and technology, Hearings: U.S. 86th Cong., 1st sess., 352 p.

Many authoritative statements and exhibits on a great number of aspects of the general subject in the United States, with particular emphasis on prospective needs and cost relations among the conventional energy sources, and the outlook for development of newer sources. In a general way this report provides an updating of Volume 3 of the President's Materials Policy ["Paley"] Commission report, "The outlook for energy sources."

Weeks, L. G., 1959a, Fuel reserves of the future: Am. Assoc. Petroleum Geologists Bull., v. 42, no. 2, p. 431–441.

Discusses the effects of technologic improvement in increasing proved petroleum reserve estimates, and the reliability of estimates of ultimate petroleum resources. Includes estimates and discussions of world petroleum resources; oil derived from oil shale, tar sands, and coal; natural-gas resources; and atomic-energy prospects and uranium ore reserves.

———1959b, Where will energy come from in 2059?: The Petroleum Engineer for Management, v. 31, no. 9, p. A-24–31.

A forecast of United States and world energy demand and supply, by source categories, between 1959 and 2059.

World Power Conference, 5th [Vienna], 1956, Section A, Survey of the development of the national power economies from 1950 to 1954: World Power Conf., 5th, Vienna.

Forty-two reports on different aspects of energy resources in the following countries:

Austria	Pakistan	Israel	Canada
Irish Rep.	Finland	Saar	Yugoslavia
Algeria	Sweden	Greece	Federal Republic of Germany
Brazil	United Kingdom	Uruguay	
Japan	United States	Mexico (well covered)	Belgium
Australia	Switzerland		France
Turkey	Norway	Iceland	Italy
		India	Chile

A number of similar reports of earlier date will be found in the Transactions, v. 1, of the Fourth World Power Conference, London, 1952, and those of earlier conferences.

World Power Conference, 1956, Statistical yearbook of the World Power Conference, no. 8—Data on resources and annual statistics for 1952–54, edited by Frederick Brown: London, Percy Lund, Humphries and Co., 160 p.

(Issued biannually; see also nos. 1–7, dated 1942, 1944, etc.)

World statistics, solicited from each country and uniformly presented, on reserves, production, imports, exports, and stocks of conventional organic solid, liquid, and gaseous fuels (including coke, coal, wood, petroleum, benzol, alcohol, and natural and manufactured gas), waterpower, and electricity. Bibliography included. No. 4 (1948) contains a comprehensive table of coal reserves; coal reserves figures in subsequent numbers serve to supplement that table.

COAL

Averitt, Paul, 1961, Coal reserves of the United States, a progress report, January 1, 1960: U.S. Geol. Survey Bull. 1136 (in press).

The authoritative estimate of coal resources in the United States.

Carlow, C. A., 1947, World coal resources, in Seventy-five years of progress in the mineral industry, 1871–1946: New York, Am. Inst. Mining Metall. Engineers, p. 634–684.

A critique of the 1913 International Geological Congress estimate of world coal reserves.

Eavenson, H. N., 1942, The first century and a quarter of American coal industry: Pittsburgh, privately printed, 701 p.

A detailed description of the early history of coal mining in the United States. Includes many early maps, quotations from early documents, and tables of coal production by States and (for some States) counties, from the beginning of mining.

International Geological Congress, 12th [Toronto], 1913, The coal resources of the world—An inquiry made upon the initiative of the Executive Committee of the 12th International Geological Congress, Canada, 1913, with the assistance of Geological Surveys and mining geologists of different countries: Toronto, Morang and Co., 3 v. and atlas.

A treatise that is still of great value because of the extent and detail of its coverage. Most of the reserve estimates have been superseded by later ones.

Jaworek, W. G., and Schanz, J. J., Jr., 1960, Estimating long-term growth and annual variation in bituminous coal consumption: Coal Age, v. 65, no. 5 (May 1960), p. 84–90.

A study and prediction of domestic coal consumption by use categories to 1970. The authors are with the Department of Mineral Economics, Pennsylvania State University, University Park, Pa.

McGraw-Hill Publishing Co., 1958, [The] 1958 Keystone coal buyer's manual: New York, McGraw-Hill Publishing Co., 808 p.

An encyclopedia of the domestic coal-producing industry. Includes a directory of coal sales organizations; a directory of byproduct coke-oven plants in the United States and Canada, with the capacity of each; an extensive (about 100 p.) description of the characteristics, uses, and range of analyses of individual coal beds (by States); a directory (by States) of electric utility steam plants; a directory of coal docks on the inland waterways; and an extensive (about 250 p.) directory of individual coal mines and preparation plants in the United States and Canada that includes information on company officers, location, method of mining, coal-bed thickness, mining and preparation equipment, and production of each mine.

MacKay, B. R., 1947, Coal reserves of Canada—Reprint of chap. 1 and app. A of Report of the Royal Commission on Coal, 1946, [and four supplemental maps relating to estimates of coal reserves]: Ottawa, King's Printer, 113 p.

The authoritative source of information on coal reserves in Canada. Describes in detail the occurrences of coal, and includes tables of estimated reserves and many maps showing the coal fields.

National Coal Association, 1960, Bituminous coal facts—1960: Washington, National Coal Assoc., 129 p.

An illustrated compendium of mainly domestic statistics gathered from diverse sources and accompanied by a brief text. Sections on bituminous coal in general and in relation to other forms of energy, and on production, markets, utilization, transportation, manpower, reserves, and research. Also contains information on the National Coal Association and its affiliates, and a list of local Coal Operators Associations.

United Nations Economic Commission for Asia and the Far East, Secretariat, 1952, Coal and iron ore resources of Asia and the Far East: Bangkok, United Nations, 155 p.

Contains much detailed information on different aspects of coal resources and on the status of surveys, and includes many maps. The U.S.S.R. is not included.

U.S. Bureau of Mines, 1960, [Pennsylvania] Anthracite, p. 43–60; Bituminous coal, p. 111–140; [and] Lignite and peat, p. 445–461, in Mineral facts and problems, 1960: U.S. Bur. Mines Bull. 585, 1016 p.

Brief summaries, limited mostly to the United States, that cover the following: Background and present status of the industries; definitions of terms, grades, and specifications; geology, mining, and transportation; technology of preparation and use; reserves, production, consumption, and foreign trade; economic data; research; and industry outlook and problems. Each report includes a short bibliography.

PETROLEUM AND NATURAL GAS

American Association of Petroleum Geologists, 1959, [Exploratory drilling and oil and gas developments in the United States and Canada in 1958; 32 reports with no overall title]: Am. Assoc. Petroleum Geologists Bull., v. 43, no. 6, p. 1117–1436. (Published annually; appears in June issue.)

Detailed statistics on exploratory drilling in the United States, Canada, and Mexico are presented in 13 tables and are discussed and analysed in the text of a report titled "Exploratory drilling in 1958" (p. 1117–1138). Thirty-one individual papers contain many maps and tables that summarize and give a wealth of detail on developments in exploration for oil and gas in all active States or areas of the United States and Canada. Much information on stratigraphy and geologic conditions revealed by drilling is included.

American Association of Petroleum Geologists, 1959, [The] 1958 developments in foreign petroleum fields: Am. Assoc. Petroleum Geologists Bull., v. 43, no. 7, p. 1505–1732. (Published annually; appears in July issue.)

Summary reports on petroleum exploration throughout the free world, exclusive of the United States and Canada, during the calendar year preceding publication. Includes information on concessions, geological and geophysical surveys, exploratory and developmental drilling, discoveries, and production of petroleum and natural gas, with many tables and maps. The geologic settings of petroleum accumulations are described. Includes individually authored reports on Mexico, South America and the Caribbean area, Europe, Africa, the Middle East, and the Far East.

American Gas Association, American Petroleum Institute, and Canadian Petroleum Association, 1958, Reports on proved reserves of crude oil, natural gas liquids, and natural gas in the United States and Canada: Annual report, published jointly by the American Gas Association, 420 Lexington Avenue, New York 17, N. Y., The American Petroleum Institute, 50 West 50th Street, New York 20, N. Y., and the Canadian Petroleum Association, 330 Ninth Ave. West, Calgary, Alberta; v. 13, 23 p.

Contains industry-prepared estimates of proved recoverable reserves of crude oil, natural gas liquids, and natural gas.

American Petroleum Institute, 1960, Statistical bulletin—Statistical tables relative to petroleum: New York, Am. Petroleum Inst. (Published annually; appears in April.)

Presents tables of the following for the United States for all years from 1930 through the year preceding publication (figures for the 2 years next preceding publication are given by months): Production, consumption, exports, imports, and stocks of crude oil (by region or State of origin), natural gas liquids, benzol, motor fuel, kerosene, gas, oil and distillate fuel oil, residual fuel oil, total fuel oil, and lubricants. Also well completions and wells producing at the end of the year, by major areas of the country.

[Canadian] Royal Commission on Energy [Borden Commission], 1958, 1959; First report, Second report: Ottawa, Queen's Printer, 129 p.; 250 p.

The Commission was established October 15, 1957 to inquire into and to make recommendations concerning the "policies which will best serve the national interest in relation to the export of energy and sources of energy from Canada." The reports contain much useful basic information about crude oil and natural gas.

Davis, Warren, 1958, A study of the future [crude oil] productive capacity and probable reserves of the United States: Oil and Gas Jour., v. 56, no. 8 (Feb. 24), p. 105–119.

A range of possible values for each of several economic factors, in addition to the usual physical factors, was taken into account. Factors considered include such things as oil discovered per foot drilled, crude prices, petroleum demand, and reserve withdrawal rate.

Miller, R. L., 1958, [In two parts] U.S. can long supply growing gas demand; A new look at ultimate [U.S.] natural gas reserves: World Oil, v. 147, no. 4, p. 136–140, and no. 5, p. 222–224.

Contains an estimate of the possible range of ultimate natural gas reserves of the United States that is higher than previous estimates because it is based on increased estimates both of ultimate petroleum reserves and of gas-oil ratios. Trends of future domestic natural-gas consumption are also discussed.

Netschert, B. C., 1958, The future supply of oil and gas; a study of the availability of crude oil, natural gas, and natural gas liquids in the United States in the period through 1975: Baltimore, The Johns Hopkins Press, 134 p. Published for Resources for the Future, Inc., Washington.

The footnotes to the tabulations of various estimates of potential crude oil (p. 11–12) and natural gas (p. 68) reserves are a good source of reference to the many estimates made in the last decade.

Oil and Gas Journal, 1959, Experts tell what is ahead for oil, other energy: Oil and Gas Journal, v. 57, no. 47 (Nov. 16), p. 136–139.

Brief comments and opinions from eight experts on future trends and developments in energy sources.

————1960a, Review-forecast section: Tulsa, Petroleum Publishing Co. (Published annually; usually appears in a late January issue.)

Includes discussion of the year's developments in domestic exploration, drilling, producing, refining, transporting, marketing, and importing of oil and gas. Many detailed tables give the number, type, and footage of wildcat and field wells by county and State; the production, number of wells, and estimated proved recoverable reserves of crude oil by field and State; supply and demand for different products by quarters; and refinery runs, exports and imports, and much other information.

————1960b, World-wide report issue: Tulsa, Petroleum Publishing Co. (Published annually; usually appears in a late December issue.)

Includes an estimate of proved petroleum reserves, a brief statement on the year's developments, amount of production and number of wells (by field), and refinery runs (by refinery) for each nation of the free world in which oil is being produced or sought.

Simpson, R. A., and Borden, R. L., 1959, A survey of the petroleum industry in Canada, 1957 and 1958: Ottawa, Canada Dept. Mines and Tech. Surveys, Mineral Resources Div., Mineral Information Bull. MR 35, 84 p.

"This survey of the petroleum industry in Canada covers the main developments in 1957 and 1958 and presents an interrelated review of progress in each of the four principal sectors of the industry: exploration, developments and production; transportation and storage; petroleum processing; and marketing. Historical data are introduced where necessary to set 1957–58 developments in proper perspective. In certain instances, project plans covering the next few years are mentioned to give an indication of expected trends for the near future." (From the preface.) The report includes 33 tables and 7 graphs and maps.

Torrey, P. D., 1960, Can we salvage another 44 billion barrels?: Oil and Gas Jour., v. 58, no. 24 (June 13), p. 97–102.

The article is based on continuing studies of U.S. oil resources by the Secondary Recovery and Pressure Maintainance Committee of the Interstate Oil Compact Commission, of which Committee the author is chairman. The studies are made to determine the amount of oil discovered in the United States and the amount that will be recovered, and thus particular attention is given to secondary recovery methods. The report contains an original tabulation of United States oil resources as of January 1, 1960, with figures on the following for each oil-producing State: original reservoir content; amount produced to January 1, 1960, and 1959 production; proved reserves from American Petroleum Institute data, and proved reserves from Interstate Oil Compact Commission data; and additional reserves recoverable by gas and water injection and probably recoverable by new methods (e.g., thermal and miscible-phase). Information on the world distribution of known oil reserves is included.

U.S. Bureau of Mines, 1960, Petroleum and natural gas, in Mineral facts and problems 1960: U.S. Bur. Mines Bull. 585, p. 589–630.

A brief but comprehensive summary, limited mostly to the United States. Covers the background and present status of the industry; descriptions of the raw materials and products; the technology of exploring for, producing, refining, transporting, and storing them; uses of products and byproducts; reserves and production (United States and the world); consumption, conservation, and foreign trade; prices, costs, taxes, tariffs, and government policies; research; and industry outlook and problems. Includes a 22-item bibliography.

World Oil, 1960a, Forecast-review issue: Houston, Gulf Publishing Co. (Published annually; appears in February.)

An annual summary of developments in all phases of the domestic petroleum industry. Includes many tables. Similar in content to the annual Review-Forecast Section of the Oil and Gas Journal.

———1960b, International outlook issue: Houston, Gulf Publishing Co. (Published annually; appears in August.)

A summary, by countries (including those of the Communist bloc), of the year's developments in exploration, drilling, discoveries, reserves, production, and other aspects of the petroleum industry in all parts of the world.

World Petroleum Congress, 5th, 1960, Proceedings, Section 1, Geology and Geophysics: World Petroleum Cong., 5th, New York, 1099 p.

Includes individual reports on the future outlook for petroleum exploration, by A. I. Levorsen; on direct oil-detection methods and geophysical methods of prospecting for oil and gas in the Soviet Union; and on the geology, geophysics, and oil and gas possibilities of the continental shelf of the Gulf of Mexico, the emerged and submerged Atlantic Coastal Plain and the Appalachian area of the United States, eugeosynclines in general, the platform regions of the Soviet Union, and Brazil, Argentina, Austria, Turkey, Israel, southern Italy, Yugoslavia, Iran, India, the northern Sahara, French Equatorial Africa, and the Belgian Congo. Proceedings volumes of other Sections include reports on the economics of offshore petroleum development in the United States, by Bouwe Dykstra (Sec. 2, paper 1); oil shale processing techniques in Sweden (Sec. 2, paper 30); the role of petroleum in world energy supplies (Sec. 9, paper 4); and a variety of other subjects. Similar reports are to be found in the Proceedings volumes of earlier World Petroleum Congresses.

OIL SHALE

Cadman, W. H., 1948, The oil shale deposits of the world and recent developments in their exploitation and utilization, reviewed to May 1947: Inst. Petroleum Jour., v. 34, no. 290, p. 109–132.

A summary of the occurrence and development of oil shale deposits in Great Britain, France, Estonia, Sweden, Spain, Portugal, Italy, Czechoslovakia, U.S.S.R., Turkey, Bulgaria, Germany, Japan, Australia, New Zealand, Canada, South Africa, India, Burma, Brazil, and the United States.

Donnell, J. R., 1957, Preliminary report on oil shale resources of Piceance Creek basin, northwestern Colorado: U.S. Geol. Survey Bull. 1042-H, p. 255–271.

A preliminary estimate of the resources of oil shale in the largest known deposit in the United States.

Duncan, D. C., 1958, Oil shale deposits in the United States: Indep. Petroleum Assoc. America Monthly, v. 29, no. 4, p. 22, 49–51.

A summary of the resources of the higher grade oil shale deposits of the United States.

Guthrie, Boyd, and Klosky, Simon, 1951, The oil shale industries of Europe: U.S. Bur. Mines Rept. Inv. 4776, 73 p.

Details of the occurrence, resources, mining, retorting, and refining of oil shale and shale oil in Scotland, France, Sweden, Spain, Germany, and Estonia.

Hartley, F. L., and Brinegar, C. S., 1960, Oil shale—energy for the future: World Petroleum Cong., 5th, New York, 1960, Trans., Sec. 2, paper 4.

A short report on prospects, technology, and resources of oil shale in the United States. The authors are officials of the Union Oil Co. of California, which has constructed and operated a large pilot plant to process oil shale.

Institute of Petroleum, 1938, 1951, Oil shale and cannel coal: London, Inst. Petroleum, v. 1, 476 p; v. 2, 832 p.

Proceedings of the First and Second Oil Shale and Cannel Coal Conferences, organized by The Institute of Petroleum and held in Glasgow in 1938 and 1950. Eighty-five reports describe many oil shale and cannel coal deposits throughout the world, and the technology of their mining, testing, and utilization. Includes the only substantial English-language description of some deposits.

Swanson, V. E., 1960, Oil yield and uranium content of black shales: U.S. Geol. Survey Prof. Paper 356-A, p. 1–44.

Contains results of analyses of organic matter and selected chemical constituents of many black shale deposits in the United States.

U.S. Bureau of Mines, 1960, Oil shale, in Mineral facts and problems 1960: U.S. Bur. Mines Bull. 585, p. 573–580.

A brief summary of the history, properties, occurrence, mining, crushing, retorting, refining, resources, and other facets of oil shale in the United States. The bibliography lists many reports describing the work of the U.S. Bureau of Mines in this field.

ELECTRICITY AND NUCLEAR ENERGY

Electrical World, 1960, Annual electrical industry forecast issue: New York, McGraw-Hill Publishing Co. (Published annually; appears in September.)

Industry predictions, to 1975, of residential, industrial, commercial, other, and total electricity sales, as well as new-capacity additions, utility capital spending, output, peak load, capability, and construction expenditures of the electric power industry in the United States.

———1960, Fifth nuclear power report: Electrical World, v. 153, no. 20 (May 16), p. 63–82.

A detailed report on the status of civilian nuclear power facilities in the United States, including reports on the U.S. Atomic Energy Commission's 10-year program of civilian power reactor development; the characteristics of eight types of civilian power reactors, with information on the existing or planned examples of each type; a list and table of characteristics of civilian nuclear power reactor projects built or planned, and a map of their locations.

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nuclear power," including individual reports on nuclear power development and requirements in:

Canada	India	Poland	Pakistan
France	Federal Republic of Germany	Romania (People's Republic)	Uruguay
U.S.S.R.	Italy	Spain	Portugal
United Kingdom	Japan	Sweden	Burma
United States	The Netherlands	Taiwan	Belgium

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