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# Bibliography of U. S. Geological Survey Reports On Uranium and Thorium 1942 Through May 1958

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GEOLOGICAL SURVEY BULLETIN 1107-A

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# Bibliography of U. S. Geological Survey Reports On Uranium and Thorium 1942 Through May 1958

By PAUL E. SOISTER and DORA R. CONKLIN

CONTRIBUTIONS TO THE GEOLOGY OF URANIUM

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GEOLOGICAL SURVEY BULLETIN 1107-A

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the Commission*



UNITED STATES DEPARTMENT OF THE INTERIOR

FRED A. SEATON, *Secretary*

GEOLOGICAL SURVEY

THOMAS B. NOLAN, *Director*

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## CONTRIBUTIONS TO THE GEOLOGY OF URANIUM

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### BIBLIOGRAPHY OF U.S. GEOLOGICAL SURVEY REPORTS ON URANIUM AND THORIUM, 1942 THROUGH MAY 1958

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By PAUL E. SOISTER and DORA R. CONKLIN

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#### INTRODUCTION

##### REPORTS AND AUTHORS LISTED

Most of the items listed in this bibliography were prepared originally as unpublished reports by the U.S. Geological Survey for the Division of Raw Materials and the Division of Research of the U.S. Atomic Energy Commission, and subsequently released to the public during the period from 1942 through May 1958. The bibliography includes Geological Survey publications and open-file reports, Atomic Energy Commission releases of Survey reports, and articles by Survey authors in scientific journals and books. A few of the Geological Survey publications are by non-Geological Survey authors or coauthors. This report does not include abstracts published in "Chemical Abstracts," "Geological Abstracts," "Geophysical Abstracts," "Nuclear Science Abstracts," or other abstract journals.

Most of these reports concern the geology, mineralogy, or chemistry of uranium or thorium; but some are on beryllium, lithium, and other rare elements of interest in the atomic energy program.

##### METHOD OF LISTING REPORTS

The unpublished reports prepared by the Geological Survey for the Atomic Energy Commission were numbered into three of the many Atomic Energy Commission identification code series. These three series are TEI (Trace Elements Investigations report), TEM (Trace Elements Memorandum report), and RME (Raw Materials Exploration report). Only eight Geological Survey reports are in the RME series. TEI, TEM, and RME num-

bers are used in this bibliography only where such numbers are used to identify reports.

Each report listed is given an index number. Entries in the author index and the area and subject index refer to the reports by these index numbers.

Reports published by the Geological Survey (Index Nos. 1-760) are listed by type of publication (bulletins, circulars, professional papers, and maps) and in numerical order without Atomic Energy Commission series numbers. Reports released in open file (Index Nos. 800-950) are listed alphabetically by authors, and the TEI and TEM numbers are included for those reports that have been given numbers.

Trace Elements reports that have been issued by the Technical Information Service Extension of the Atomic Energy Commission (Index Nos. 1500-1807) are listed numerically by TEI, TEM, and RME numbers. (A few early Trace Elements reports were issued by the Atomic Energy Commission in the code series AECD and MDDC. They are listed here under the TEI or TEM number, but the proper identifying code number also is given after the title.)

Articles in scientific journals and books (Index Nos. 2000-2422) are separated into (a) abstracts and (b) full papers and chapters. The articles are listed alphabetically by author under a chronologic listing of each journal. Articles appearing in journals which contain only one pertinent Geological Survey paper are listed alphabetically by author under "Miscellaneous journals" at the end of each of the two sections. Atomic Energy Commission series numbers are not used for articles published in journals.

#### **EXPLANATION OF AREA AND SUBJECT INDEX**

In the index most of the areas and subjects are listed under States, "Colorado Plateau," "United States," or under a few subject categories. Information on areas outside the United States and Territories is listed by continent under "Foreign deposits."

Under many subjects, such as "Structure" and "Guides to uranium deposits," the reports listed are only those in which these subjects are of major interest.

Following is a list of most of the major headings used:

- Analytical methods and research
- Geochemistry and petrology
- Mineralogy, crystallography, and petrography
- Reconnaissance or prospecting for radioactive materials

## State:

Airborne radioactivity surveys

Areas and districts

Counties

Maps, geologic

Maps, photogeologic

Mineralogy

Minerals containing uranium, thorium, or high radioactivity

Mines, prospects, and properties

Rocks and materials containing uranium, thorium, or high radioactivity

Stratigraphic and other rock units containing uranium, thorium, or high radioactivity

Stratigraphy

Thoroughness of indexing varies with type of report. In general, reports that were not written specifically for the atomic energy program of the Geological Survey have been indexed from the titles only. Also, separate maps have been indexed by title only; therefore, areas, counties, mines, and other items on these maps may not be indicated in the index. Many of the longer reports contain their own indexes.

**ACKNOWLEDGMENTS**

Much of the material in this report has been taken from published and unpublished Geological Survey bibliographies compiled by Virginia K. Blatcher, Mary D. Bowman, Diane Curtis, Shirley S. Houser, Harriet B. Smith, Rollin C. Vickers, and Jane H. Wallace. The published bibliographies are U.S. Geological Survey Bulletin 1019-B and Circular 281.

This compilation was done on behalf of the Division of Raw Materials and Division of Research of the U.S. Atomic Energy Commission.

**AVAILABILITY OF REPORTS**

Most of the reports listed in this bibliography may be consulted in any technical library. U.S. Geological Survey bulletins (Index Nos. 1-112) and professional papers (Index Nos. 300-398) may be purchased, at the prices indicated, from the Superintendent of Documents, U.S. Government Printing Office, Washington 25, D.C. They may also be purchased, over the counter but not by mail, from the Geological Survey at 1031 Bartlett Building, Los Angeles, Calif.; 232 Appraisers Building, 630 Sansome Street, San Francisco, Calif.; 468 New Customhouse, Denver, Colo.; 602 Thomas Building, Dallas, Tex.; 504 Federal Building, Salt Lake City, Utah; and the E. F. Glover Building, Anchorage, Alaska. Circulars (Index Nos. 200-297) are free on application to the Geological Survey, Washington 25, D.C.

Survey maps (Index Nos. 400–760) covering areas east of the Mississippi River may be obtained from the U.S. Geological Survey, Washington 25, D.C.; maps of areas west of the Mississippi River may be obtained from the U.S. Geological Survey, Federal Center, Denver 2, Colo. Those Geological Survey publications that are out of print, and thus not available for purchase from official sources, are indicated by an asterisk (\*) preceding the number of the report.

Open-file reports (Index Nos. 800–950) may be inspected at the places indicated after each report (see list below), and at the U.S. Geological Survey Library, Room 1033, General Services Administration Building, Washington, D.C. Copies of these reports may be arranged for at the requestor's expense.

Some of the Geological Survey reports issued by Technical Information Service Extension (TISE) (Index Nos. 1500–1807) are available from the Office of Technical Services, U.S. Department of Commerce, Washington 25, D.C. Prices of these reports are listed after the TISE issuance date. Survey reports issued by TISE are on file at the U.S. Geological Survey Library, Room 1033, General Services Administration Building, Washington, D.C., and at the AEC depository libraries listed on page 16. Ten reports, indicated by (MFO), are available in microcard form only at AEC depository libraries.

Copies of papers published in scientific journals may be consulted at most larger public and scientific libraries and possibly may be obtained from the publishers of those journals. The Geological Survey and the Superintendent of Documents do not have copies of such reports.

*Depositories of U.S. Geological Survey open-file reports*

[Symbols are listed after each reference]

- A—Alabama Geological Survey, University, Ala.
- ABM—Arizona Bureau of Mines, University of Arizona, Tucson, Ariz.
- AF—U.S. Geological Survey, Room 5, Spencer Building, Flagstaff, Ariz.
- AH—U.S. Geological Survey, Holbrook, Ariz.
- AIA—Office of the Area Director, U.S. Bureau of Indian Affairs, Window Rock, Ariz.
- ALG—U.S. Geological Survey offices in Anchorage and College, Alaska
- ALM—U.S. Bureau of Mines, Anchorage, Alaska
- ALT—Territorial Department of Mines offices in Anchorage, College, Juneau, Ketchikan, and Nome, Alaska
- ARK—Director, Division of Geology, Arkansas Resources and Development Commission, Little Rock, Ark.
- CAFM—California Division of Mines and Geology, Ferry Building, San Francisco, Calif.

*Depositories of U.S. Geological Survey open-file reports—Continued*

- CAIT—Library, Department of Geology, California Institute of Technology, Pasadena, Calif.
- CALA—U.S. Geological Survey Public Inquiries Office, Room 1031, Bartlett Building, Los Angeles, Calif.
- CAMP—U.S. Geological Survey Library, Menlo Park, Calif.
- CASF—U.S. Geological Survey Public Inquiries Office, Room 232 Appraisers Building, San Francisco, Calif.
- CD—U.S. Geological Survey Public Inquiries Office, Room 468, New Customhouse, Denver, Colo.
- CDA—U.S. Atomic Energy Commission, Denver Branch Office, Federal Center, Denver, Colo.
- CDF—U.S. Geological Survey Library, Federal Center, Denver, Colo.
- CGJA—U.S. Atomic Energy Commission, Grand Junction Operations Office, Grand Junction, Colo.
- CONG—Director's Office, Connecticut Geological and Natural History Survey, University of Connecticut, Storrs, Conn.
- CONT—Library, Trinity College, Hartford, Conn.
- FLT—Florida Geological Survey, Florida State University, Tallahassee, Fla.
- FLU—U.S. Geological Survey, New Dining Hall, Florida State University, Tallahassee, Fla.
- GA—Georgia Department of Mines, Mining and Geology, 425 State Capitol, Atlanta, Ga.
- IM—Director's Office, Idaho Bureau of Mines and Geology, University of Idaho, Moscow, Idaho
- IND—Department of Geology, Indiana University, Bloomington, Ind.
- KY—Kentucky Geological Survey, Lexington, Ky.
- MD—U.S. Geological Survey Office, Agricultural Research Center, Beltsville, Md.
- MII—U.S. Geological Survey, Iron Mountain, Mich.
- MIL—Geological Survey Division, Department of Conservation, Lansing, Mich.
- MINN—Geology Library, University of Minnesota, Minneapolis, Minn.
- MOB—Office of the Director, Montana Bureau of Mines and Geology, Butte, Mont.
- NEV—Office of Director, Nevada Bureau of Mines, Reno, Nev.
- NJ—Geology Library, Princeton University, Princeton, N.J.
- NMG—U.S. Geological Survey, Geology Building, University of New Mexico, Albuquerque, N. Mex.
- NMM—New Mexico Bureau of Mines and Mineral Resources, New Mexico Institute of Mining and Technology, Socorro, N. Mex.
- NOC—North Carolina Department of Conservation and Development, Room 253, Education Building, Raleigh, N.C.
- NOCM—North Carolina State Museum, 101 Halifax St., Raleigh, N.C.
- NY—Library, Cornell University, Ithaca, N.Y.
- SC—Office of State Geologist, Room 108, Le Conte College, University Campus, Columbia, S.C.
- SDM—U.S. Bureau of Mines, Rapid City, S. Dak.
- SDV—State Geologist's Office, Vermillion, S. Dak.

*Depositories of U.S. Geological Survey open-file reports—Continued*

TENN—Division of Geology, State Office Building, Nashville, Tenn.

USL—U.S. Geological Survey Public Inquiries Office, Room 504, Federal Building, Salt Lake City, Utah

USLA—U.S. Atomic Energy Commission, Salt Lake Branch Office, P.O. Box 2196, Salt Lake City, Utah

UU—University of Utah, Salt Lake City, Utah

W—U.S. Geological Survey, South 157 Howard St., Spokane, Wash.

WISC—U.S. Geological Survey, 213 Science Hall, University of Wisconsin, Madison, Wis.

WY—U.S. Geological Survey, Geology Hall, University of Wyoming, Laramie, Wyo.

WYC—U.S. Geological Survey, 305 Federal Building, Casper, Wyo.

WYL—Wyoming Geological Survey, Laramie, Wyo.

WYW—U.S. Geological Survey, Worland, Wyo.

*Depository libraries of U.S. Atomic Energy Commission reports in the United States*

[Libraries marked with an asterisk (\*) are depositories for geology and mineralogy reports only. Reports available in microcard form only, at AEC depository libraries, have been indicated by (MFO)]

**ALABAMA**

Birmingham, Birmingham Public Library

**ARIZONA**

\*Tucson, University of Arizona Library

**ARKANSAS**

Fayetteville, University of Arkansas Library

**CALIFORNIA**

Berkeley, University of California General Library

Los Angeles, University of California Library

Menlo Park, Stanford Research Institute

San Diego, San Diego Public Library

**COLORADO**

Denver, Denver Public Library

**CONNECTICUT**

New Haven, Yale University Library

**DISTRICT OF COLUMBIA**

Washington, Library of Congress

**FLORIDA**

Coral Gables, University of Miami Library

Gainesville, University of Florida Library

**GEORGIA**

Atlanta, Georgia Institute of Technology Library

**ILLINOIS**

Chicago, John Crerar Library

Chicago, University of Chicago Library

Evanston, Northwestern University Library

Urbana, University of Illinois Library

**INDIANA**

Indianapolis, Indianapolis Public Library

Lafayette, Purdue University Library

*Depository libraries of U.S. Atomic Energy Commission reports in the United States—Continued*

IOWA

Ames, Iowa State College Library

KENTUCKY

Lexington, University of Kentucky Library

Louisville, University of Louisville Library

LOUISIANA

Baton Rouge, Louisiana State University Library

New Orleans, Tulane University Library

MARYLAND

Baltimore, Johns Hopkins University Library

College Park, University of Maryland Engineering and Physical Science Library

MASSACHUSETTS

Cambridge, Harvard University Library

Cambridge, Massachusetts Institute of Technology Library

MICHIGAN

Ann Arbor, University of Michigan Library

Detroit, Detroit Public Library

MINNESOTA

Minneapolis, University of Minnesota Library

MISSOURI

Kansas City, Linda Hall Library

Rolla, University of Missouri School of Mines and Metallurgy Library

St. Louis, Washington University Library

MONTANA

\*Helena, Public Library

NEVADA

\*Las Vegas, Las Vegas Public Library

NEW JERSEY

Princeton, Princeton University Library

NEW MEXICO

Albuquerque, University of New Mexico Library

\*Socorro, New Mexico Institute of Mining and Technology Library

NEW YORK

Buffalo, Lockwood Memorial Library

Ithaca, Cornell University Library

New York, Atomic Industrial Forum

New York, Columbia University Library

New York, New York Public Library

Rochester, University of Rochester Library

Schenectady, Union College Library

Troy, Rensselaer Polytechnic Institute Library

NORTH CAROLINA

Charlotte, Charlotte and Mecklenburg County Public Library

Durham, Duke University Library

Raleigh, North Carolina State College Library

OHIO

Cincinnati, University of Cincinnati Library

Cleveland, Cleveland Public Library

*Depository libraries of U.S. Atomic Energy Commission reports in the United States—Continued*

Columbus, Ohio State University Library  
 Toledo, University of Toledo Library  
 Youngstown, Youngstown University Library

## OKLAHOMA

Stillwater, Oklahoma Agricultural and Mechanical College Library

## OREGON

Corvallis, Oregon State College Library  
 Portland, Portland Public Library

## PENNSYLVANIA

Philadelphia, University of Pennsylvania Library  
 Pittsburgh, Carnegie Library of Pittsburgh  
 University Park, Pennsylvania State University, Pattee Library

## PUERTO RICO

Rio Piedras, University of Puerto Rico Main Library

## RHODE ISLAND

Providence, Brown University Library

## SOUTH CAROLINA

Columbia, University of South Carolina, McKissick Memorial Library

## TENNESSEE

Knoxville, University of Tennessee Library  
 Nashville, Joint University Libraries

## TEXAS

Austin, University of Texas Library  
 College Station, Agricultural and Mechanical College of Texas Library  
 Dallas, Southern Methodist University Library  
 \*El Paso, El Paso Public Library  
 Houston, The Rice Institute Library  
 \*Houston, University of Houston Library  
 San Antonio, San Antonio Public Library

## UTAH

\*Moab, Grand County Public Library  
 \*Provo, Brigham Young University Library  
 \*Salt Lake City, Salt Lake City Free Public Library  
 Salt Lake City, University of Utah Library  
 \*Vernal, Utah Field House of Natural History

## VIRGINIA

Blacksburg, Virginia Polytechnic Institute Library  
 Charlottesville, University of Virginia, Alderman Library

## WASHINGTON

Pullman, State College of Washington Library  
 Seattle, University of Washington Library

## WEST VIRGINIA

Morgantown, West Virginia University Library

## WISCONSIN

Madison, University of Wisconsin Library  
 Milwaukee, Milwaukee Public Library

## WYOMING

\*Casper, Natrona County Public Library  
 \*Cheyenne, Wyoming State Library



*Depository libraries of U.S. Atomic Energy Commission reports outside the United States*

**ARGENTINA**

Buenos Aires, Comision Nacional de Energia Atomica

**AUSTRALIA**

Canberra, Australian National Library

Sutherland, New South Wales, Australian Atomic Energy Commission

**AUSTRIA**

Vienna, Institut für Radiumforschung der Oesterreichischen Akademie der Wissenschaften

**BELGIUM**

Brussels, Centre d'Etudes pour les Applications de l'Energie Nucleaire

**BRAZIL**

Rio de Janeiro, Instituto Brasileiro de Bibliografia e Documentacao

**BURMA**

Rangoon, Union of Burma Applied Research Institute

**CANADA**

Ottawa, National Research Council Library

**CEYLON**

Colombo, University of Ceylon

**CHILE**

Santiago, Ministerio de Relaciones Exteriores

**COLOMBIA**

Bogotá, Instituto Colombiano de Asuntos Nucleares

**COSTA RICA**

San Pedro, University of Costa Rica Library

**CUBA**

Havana, Comision de Energia Nuclear de Cuba

**DENMARK**

Risø, Danish Atomic Energy Commission

**DOMINICAN REPUBLIC**

Ciudad Trujillo, National Palace

**EGYPT**

Cairo, Atomic Energy Commission

**ENGLAND**

Birmingham, Central Library

Bristol, Central Library

Kingston upon Hull, Central Library

Leeds, Central Library

Liverpool, Central Library

London, Central Library, Acton

London, Science Museum Library, South Kensington

Manchester, Central Library

Newcastle on Tyne, Central Library

Nottingham, Public Libraries

Sheffield, Central Library

**FINLAND**

Helsinki, Teknillisen Korkeakoulun Kirjasto

**FORMOSA (TAIWAN)**

Taipei, National Tsing Hua University Library

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*Depository libraries of U.S. Atomic Energy Commission reports outside the  
United States—Continued*

FRANCE

Gif-sur-Yvette, Centre d'Etudes Nucleaires de Saclay  
Paris, Organization for European Cooperation, Nuclear Energy Library

GERMANY

Berlin, Institut für Kernforschung Berlin  
Munich, Technische Hochschule, Bibliothek

GREECE

Athens, Greek Atomic Energy Commission

GUATEMALA

Guatemala, Comision Nacional de Energia Nuclear

HAITI

Port au Prince, National Library

ICELAND

Reykjavik, University of Iceland, Atomic Energy Library

INDIA

Bombay, Department of Atomic Energy

IRAQ

Baghdad, The Ministry of Development, Atomic Energy Division

IRELAND

Dublin, University College

ITALY

Rome, Comitato Nazionale Ricerche Nucleari

JAPAN

Tokyo, Science Section, Diet Library

KOREA

Seoul, Atomic Energy Commission, c/o Ministry of Education

LEBANON

Beirut, American University

LUXEMBOURG

Luxembourg, Ministry of Transport and Electricity

MEXICO

Mexico, D. F., Comision Nacional de Energis Nuclear

NETHERLANDS

The Hague, Reactor Centrum Nederland

NEW ZEALAND

Wellington, Department of Scientific Research

NORTHERN IRELAND

Belfast, Department of Industrial and Forensic Science

NORWAY

Lilleström, Institutt för Atomenergi

PAKISTAN

Karachi, Atomic Energy Commission

PERU

Lima, Biblioteca Nacional

PHILIPPINE REPUBLIC

Manila, Interdepartmental Committee on Atomic Energy, c/o National  
Economic Council

PORTUGAL

Lisbon, Junta de Energia Nuclear

*Depository libraries of U.S. Atomic Energy Commission reports outside the United States—Continued*

**SCOTLAND**

Glasgow, Mitchell Library

**SPAIN**

Madrid, Junta de Energia Nuclear

**SWEDEN**

Stockholm, Atomenergi AB

**SWITZERLAND**

Geneva, United Nations Library

Zurich, Institut für Physik, Technische Hochschule

**THAILAND**

Bangkok, Office of the Thai Atomic Energy Commission, Department of Science

**TURKEY**

Ankara, Turkish Atomic Energy Commission, Atomic Energy Library

**UNION OF SOUTH AFRICA**

Pretoria, Library and Information Division, South African Council for Scientific and Industrial Research

**UNITED NATIONS**

New York, N. Y., United Nations Headquarters

**URUGUAY**

Montevideo, Universidad de Montevideo

**VENEZUELA**

Caracas, Instituto Venezolano de Neurología e Investigaciones Cerebrales

**YUGOSLAVIA**

Belgrade, Federal Nuclear Energy Commission

**REPORTS**

**U.S. GEOLOGICAL SURVEY PUBLICATIONS**

[Reports that are out of print are indicated by an asterisk (\*)]

**BULLETINS**

Index No.	Bull. No.	
	936	Strategic minerals investigations, 1942. (Issued only in separate chapters.)
1		* (P) Fischer, R. P., 1942, Vanadium deposits of Colorado and Utah, a preliminary report.
	982	Contributions to economic geology, 1952. (Issued only in separate chapters.)
2		(D) Adams, J. W., 1953, Beryllium deposits of the Mount Antero region, Chaffee County, Colo. 15¢.
	988	Contributions to the geology of uranium, 1952. (Issued only in separate chapters.)
3		(A) Fischer, R. P., and Hilpert, L. S., 1952, Geology of the Uravan mineral belt. 35¢.
4		(B) Weir, D. B., 1952, Geologic guides to prospecting for carnotite deposits on Colorado Plateau. 15¢.

Index No.	Bull. No.	
5	988	(C) Staatz, M. H., and Bauer, H. L., Jr., 1953, Uranium in the East Walker River area, Lyon County, Nev. 35¢.
6		(D) Thompson, M. E., 1953, Distribution of uranium in rich phosphate beds of the Phosphoria formation. 15¢.
7		(E) Gott, G. B., and Hill, J. W., 1953, Radioactivity in some oil fields of southeastern Kansas. \$1.
8		(F) Roberts, W. A., and Gude, A. J., III, 1953, Uranium-bearing deposits west of Clancy, Jefferson County, Mont. 45¢.
9		(G) Roberts, W. A., and Gude, A. J., III, 1953, Geology of the area adjacent to the Free Enterprise mine, Jefferson County, Mont. \$1.50.
10		(H) Trites, A. F., Jr., and Tooker, E. W., 1953, Uranium and thorium deposits in east-central Idaho and southwestern Montana. 35¢.
11		(I) Nelson, J. M., 1953, Prospecting for uranium with car-mounted equipment. 15¢.
	992	Brannock, W. W., and others, 1953, Contributions to geochemistry, 1949. 65¢. (Issued in one volume.)
12		Pt. 2. Cuttitta, Frank, A photometric method for the estimation of the oil yield of oil shale, p. 15-31.
13		Pt. 3. Cuttitta, Frank, A volumetric method for the estimation of the oil yield of oil shale, p. 33-37.
14		Pt. 4. Grimaldi, F. S., and Levine, Harry, The fluorimetric determination of aluminum in phosphate rock with 8-hydroxyquinoline, p. 39-48.
15		Pt. 5. Randolph, R. B., and Grimaldi, F. S., The determination of phosphorus in rocks containing vanadium, p. 49-55.
16	1005	Thurston, W. R., Staatz, M. H., Cox, D. C., and others, 1954, Fluorspar deposits of Utah. \$1.25.
	1006	Grimaldi, F. S., May, Irving, Fletcher, M. H., and Titcomb, Jane, eds., 1954, Collected papers on methods of analysis for uranium and thorium developed by the U.S. Geological Survey. \$1. (Issued in one volume.)
17		Pt. 1. Grimaldi, F. S., May, Irving, Fletcher, M. H., and Titcomb, Jane, Summary of methods of analysis for the determination of uranium and thorium, p. 1-9.
18		Pt. 2. Foster, M. D., Stevens, R. E., Grimaldi, F. S., Schlecht, W. G., and Fleischer, Michael, Methods for the complete decomposition of rock and ore samples to be analyzed for very small amounts of uranium and thorium, p. 11-15.

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