Bibliography of North American Geology, 1958

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Bibliography of North American Geology, 1958

By RUTH REECE KING and others.

This bibliography represents work done jointly by Ruth Reece King, Virginia M. Jussen, Elisabeth S. Loud, Georgianna D. Conant, Mildred Challman Mead, and Eleanor H. de Chadenèdes.
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INTRODUCTION

The current volume lists publications that appeared during 1958 on the geology of the United States (including Alaska and Hawaii), the rest of the North American continent including Greenland, the West Indies, and adjacent islands, and also Guam and other Pacific island possessions—but not the trust territories of the United States. A few articles published before 1958 and not included in previous volumes, are cited also. Articles by American authors published in foreign journals are cited if they deal with North American localities or are of a general nature, but not if they deal only with foreign areas. Articles on North America by foreign authors are included regardless of place of publication while those of a general nature are included only if they appeared in North American journals.

The citations are listed alphabetically by author, with full title and publication data. There follows a subject index to the papers cited. Geologic names in the index are those used by the individual authors, and their listing here does not imply approval by the Geological Survey.

Assistance of Margaret E. Barcroft, Yetta C. Millman, Virginia Elizabeth Rees, Florence V. Oftedahl, Lillian B. Dawson, and Lois F. Idleman in the preparation of this volume is gratefully acknowledged. Special appreciation is due also to William H. Heers, Chief Librarian of the Geological Survey, for his advice and guidance during its preparation.


1 This bibliography represents work done jointly by Ruth Reece King, Virginia M. Jussen, Elisabeth S. Loud, Georgianna D. Conant, Mildred Challman Mead, and Eleanor H. de Chadenèdes.
ORGANIZATION OF THE INDEX

The index to a bibliography can be used most effectively when the reader is familiar with its organization. The following paragraphs describe the system of headings, subheadings, and entries used in the Index to the Bibliography of North American Geology.

Headings.—The headings comprise the main subdivisions of the index and are recognized by their position, that is, flush with the margin of the column. They can be classified into two general types: geographic and subject headings. Typical examples of the headings are Alabama, Alberta, Anticlines, Antimony. Although most of the headings remain the same in each issue of the bibliography, new ones are included and others are discontinued as the need arises.

Headings with Cross References.—Some headings have a cross reference only, that is, no entries are listed under the heading and the reader is referred to another heading. Examples are:

Aquifers. See Ground water.
Botany, fossil. See Paleobotany.
Mineral maps. See Maps, Mineral.

Some headings have entries listed under them but also have cross references to other headings of a similar or related nature. Examples are:

Mineral descriptions. See also Mineralogy.
Mineral deposits. See also Economic geology.
Economic geology. For areal, see subheading Economic geology under the states and countries. See also Mineral deposits; the more important economic minerals.

Geographic Headings.—The geographic headings are names of countries and colonial possessions in North America, the States, territories, and possessions of the United States, the provinces of Canada, and well-known physiographic areas like the Atlantic Coastal Plain and the Appalachians. Examples of geographic headings are: Alabama, Alberta, Canada, Dominican Republic, Jamaica, Mexico, Nevada, United States. Canada and United States are headings used to index papers covering the whole of these areas or more than two or three states or provinces. For example, an article on oil and gas exploration in Manitoba would be indexed under Manitoba but one on western Canada's oil and gas potentialities would be indexed only under Canada and not under each province discussed in the paper. Similarly, “Feldspar and mica deposits in the southeastern United States” would be indexed only under United States and not under the individual States described.

Subject Headings.—The subject headings deal with the subject of the paper rather than the geographic areas. They include, among others, the general subdivisions of geology, such as Economic geology, Mineralogy, Paleontology, the classes of animals, such as Brachiopoda, Mollusca, the com-
mon economic minerals and metals, such as Copper, Gold, Mica, and Silver, and other geologic entries. A few of the major subject headings and the scope of the entries listed under each are:

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<td>Area; also includes articles discussing origin of minerals or ores</td>
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<td>Mineral resources</td>
<td>Area; includes more than one mineral; not indexed to individual minerals</td>
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<tr>
<td>Mineralogy</td>
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<td>Systems</td>
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Subheadings.—Subheadings, in italics and indented two spaces, are used to group entries under the geographic headings and under four of the subject headings. Subheadings used under geographic headings are: Areas described (for general descriptions), Economic geology, Geologic maps, Ground water, Historical geology, Mineralogy, Paleontology, Petrology, Physical geology, Physiographic geology. Subheadings are used under the four subject headings for Earth, Maps, Paleontology, and Technique. Subheadings for Earth include Crust, Interior, and Temperature. Subheadings for Maps include Aeromagnetic, Geophysical, and Mineral. The Paleontology subheadings include General and the age groups, Cambrian, Ordovician, etc. Subheadings under Technique include Apparatus, Geophysical, Mineralogic, and Petrographic.

Entries.—Entries form the main subdivisions of headings, are indented four spaces, and are printed in Roman type, which is also used in the headings. Entries usually follow a subheading, but where they do not fit under any of the subheadings used, they follow the main heading directly. Under both the geographic and subject headings, the entries may be either...
geographic, subject, or a combination of the two. Each entry is followed by
the name of the author of the paper referring to it. A number following
the author's name refers to the paper so numbered in the Bibliography.
Examples of entries under geographic and subject headings are as follows:

Illinois.

*Economic geology.*


*Historical geology.*

- Mississippian, western: Collinson, C. W., 3.

Indexes.

- California, geologic maps: Strand, R. G.
- Iron.
  - Alberta, possible sources: Janes, T. H.
  - Lake Superior type, origin, role of water: Spencer, G. H., Jr.
  - Minnesota, Fillmore County: Pederson, C. A.
  - New Jersey, Dover district, magnetite: Sims, P. K., 1.
  - South Dakota, Black Hills: Gries, J. P.
  - Transportation and deposition, role of clay minerals: Carroll, D., 3.

United States, northwestern, possibilities: Binon, L. C.

*Use of Index.*—In general, if the paper sought deals with a specific mineral resource from a specific state, province, or country, it should be found under the following entries: a. the heading for the specific geographic area under the subheading *Economic geology*; b. mineral resource heading with an entry under the specific geographic area. For example, a paper on iron deposits in New Jersey might be found under:

- New Jersey.
  - *Economic geology.*
  - Iron, Dover district, magnetite: Sims, P. K., 1.

Iron.

- New Jersey, Dover district, magnetite: Sims, P. K., 1.

However, if a paper discusses iron in a particular state but also covers deposits in several other states, there will be no entry under the specific states discussed but only under the United States. Thus the index would read in such a case:

- United States.
  - *Economic geology.*
  - Iron, possibilities, northwestern: Binon, L. C.

In other words, papers covering the larger geographic area, of which the area of interest is a part, should also be examined for possible supplementary information on the particular area under study.

In the case of subjects and other special types of entry, a similar situation holds true. Most mineral names will not be indexed with an individual heading but will be found under the headings Mineral descriptions or Mineralogy, or under the Mineralogy subheading for the geographic area in which they are found. In general, items will be included under the larger, more general group heading rather than under an individual entry: that is, a special oil field, under Oil and gas fields; general papers on aeromagnetic surveys under Geophysics or Technique, *Geophysical*; Ordovician trilobites under Trilobita; etc.
SERIALS

The following list gives the abbreviated title of periodicals and serials most commonly cited in this bibliography. Included also are their complete titles, as used in library catalogs and the "Union List of Serials," and the place of publication. Periodicals cited only infrequently have been omitted from this list, but in the case of those published in foreign countries, the place of publication has been included in the citation in the bibliography proper. Guidebooks, proceedings, and related types of literature prepared for special conferences, congresses, and symposiums are not listed here as serials but are cited in the bibliography proper under the name of the editor or of the issuing society.

Am. Scientist—American Scientist. New Haven, Conn.
Arctic. Montreal, Quebec.
Asoc. Mexicana Geólogos Petroleros Bol.—Asociación Mexicana de Geólogos Petroleros Boletín. México, D.F.
BIBLIOGRAPHY OF NORTH AMERICAN GEOLOGY, 1958


Brigham Young Univ. Research Studies Geology Ser.—Brigham Young University Research Studies Geology Series. Provo, Utah.


Cahiers Géographie Québec—Cahiers de Géographie de Québec. Quebec, Quebec.


Canada Dominion Observatory Pub.—Canada Dominion Observatory Publications. Ottawa.


Canadian Alpine Jour.—Canadian Alpine Journal. Banff, Alberta.


Canadian Geographer. Manotick, Ontario.

Canadian Inst. Mining and Metallurgy Trans.—Canadian Institute of Mining and Metallurgy Transactions. Montreal, Quebec.


Canadian Mineralogist. Ottawa.

Canadian Oil and Gas Industries. Gardenvale, Quebec.

Ciencia. México, D.F.


Compass—The Compass. Provo, Utah.


Cushman Found. Foram. Research Contr.—Cushman Foundation for Foraminiferal Research Contributions. Ithaca, N.Y.


Desert Mag.—Desert Magazine. Palm Desert, Calif.


Earth Science. Chicago, Ill.

Earthquake Notes. Washington, D.C.

Ecology. Durham, N.C.

Econ. Geology—Economic Geology. Urbana, Ill.


Field & Lab.—Field & Laboratory. Dallas, Texas.

Fieldiana Geology. Chicago, Ill.


Gems and Gemology. Los Angeles, Calif.


Geophysics. Tulsa, Okla.

GeoTimes. Washington, D.C.

Grønland. Charlottenlund, Denmark.


Herpetologica. San Diego, Calif.


Ing. Civil—Ingeniería Civil. Havana.


Kans. State Geol. Survey Bull.; Oil and Gas Inv.; Rept.—Kansas State Geological Survey Bulletin; Oil and Gas Investigations; Reports. Lawrence, Kans.
Meddel. om Grønland—Meddelelser om Grønland. Copenhagen.
Mineralogist—The Mineralogist. Portland, Oreg.
Mines Mag.—Mines Magazine. Denver, Colo.
SERIALS


Ohio Jour. Sci.—Ohio Journal of Science. Columbus, Ohio.

Oil and Gas Compact Bull.—Oil and Gas Compact Bulletin. Oklahoma City, Okla.

Oil and Gas Jour.—Oil and Gas Journal. Tulsa, Okla.

Oil in Canada.—Winnipeg, Manitoba.


Ore.—Bin. Portland, Oreg.


Pacific Science.—Honolulu.

Panhandle Geonews.—The Panhandle Geonews. Amarillo, Texas.

Petróleo Interamericano.—Tulsa, Okla.

Petroleum Engineer.—Dallas, Texas.


Photogrammetric Eng.—Photogrammetric Engineering. Washington, D.C.


Plateau.—Flagstaff, Ariz.

Precambrian.—The Precambrian. Winnipeg, Manitoba.


Pubs. Cerámicas.—Publicaciones CeráMICAS. México, D.F.


Rocks and Minerals. Peekskill, N.Y.


Shale Shaker. Oklahoma City, Okla.


Smithsonian Misc. Coll.—Smithsonian Miscellaneous Collections. Washington, D.C.


Soil Science. Baltimore, Md.


Texas Board of Water Engineers Bull.—Texas Board of Water Engineers Bulletin. Austin, Texas.


SERIALS

Circ. Circular
Coal Inv. Map Coal Investigations Map
Geol. Quadrangle Map Geological Quadrangle Map
Geophys. Inv. Map Geophysical Investigations Map
Hydrol. Inv. Atlas Hydrologic Investigations Atlas
Index Geol. Mapping U. S. Index to Geologic Mapping in the United States
Mineral Inv. Field Studies Map Mineral Investigations Field Studies Map
Misc. Geol. Inv. Map Miscellaneous Geologic Investigations Map
Oil and Gas Inv. Chart Oil and Gas Investigations Chart
Oil and Gas Inv. Map Oil and Gas Investigations Map
Prof. Paper Professional Paper
Water-Supply Paper Water-Supply Paper
Washington, D.C.

Washington, D.C.
Vanderbilt Univ. Abs. Theses; Bull.—Vanderbilt University Abstracts of Theses; Bulletin. Nashville, Tenn.
Western Miner. Vancouver, British Columbia.
World Oil. Houston, Texas.
Abbott, Agatin Townsend.  

Abbott, Maxine Langford.  

Abilene Geological Society, Stratigraphic and Study Group.  
1. The time rock units of west central Texas in block diagrams, south-north section, 1958.  
2. The time rock units of west central Texas in block diagrams, west-east section, 1958.

Abrahams, S. C.  

Abrassart, Chester P.  

Acheson, C. Harold.  

Acker, Clement J.  

Ackerman, Walter C.  See DeMunck, V. C. E. A.

Adams, George Finiel.  

Adams, John Allan Stewart.  See also Davidson, C. F.; Murray, E. G.; Osmond, J. K.; Rogers, J. J. W., 6; Whitfield, J. M.  


Adams, William Mansfield. See also Hodgson, J. H., 4.

Adamson, Patrick.
Diamonds, in Minn. Univ. Center for Continuation Study, 7th annual drilling symposium, Oct. 1957, p. 87-94(#) [1957].

Addicott, Warren Oliver. See Emerson, W. K., 2.

Addington, James William.

Adler, Hans H.

Adler, Isidore.

Agarwal, R. G.

Aggarwala, B. D.

Agnew, Allen Francis.


Agocs, William Bailey.

Aguilera, José Guadalupe, 1857-1941.
Aguilera Herrera, Nicolás.  

Ahlmann, Hans Wilhelmsson.  

Ahnert, Frank O.  

Aho, Aaro E.  

Akers, J. P.  

Alabama Geological Survey.  
Guide book to field trips of the Southeastern Section, Geological Society of America—Birmingham area and celebrated Coastal Plain fossil localities, May 1-3, 1958: Ala. Geol. Survey Inf. Ser. 13, 76 p., illus. incl. geol. map, with the cooperation of the Edmonton Geol. Soc., 1958. Includes papers by numerous authors which are cited individually.

Albee, Arden Leroy.  See Sheridan, D. M.

Alberding, Herbert.  See also Moody, J. D.  

Albers, John P.  
Geology and ore deposits of the East Shasta copper-zinc district, Shasta County, California [abs.]: Dissert. Abs., v. 18, no. 5, p. 1765, May 1958.

Alberta Society of Petroleum Geologists.  
Guide book, 8th annual field conference, Nordegg, August 1958. xv, 203 p., illus. incl. geol. map, with the cooperation of the Edmonton Geol. Soc., 1958. Includes papers by numerous authors which are cited individually.

Albertson, Maurice L.  See Laursen, E. M.; Liu, H.-K.

Albright, Martyn B., Jr.  

Albritton, Claude Carrol, Jr.  
Alcock, Frederick James.

Aldrich, Lyman Thomas.

Alexander, Corrinne. See Rubin, M., 2.

Alexandrov, Eugene A. See Goodwin, A. M., 1.

Algermissen, Sylvester Theodore.

Allen, Billy Dean. See Upshaw, C. F.

Allen, Clarence Roderic. See also Richter, C. F., 3; Stehli, F. G., 2.

Allen, Dennis R. See also Hazenbush, G. C.

Allen, Fred Melville, Jr.

Allen, John Elliot.

Allen, Robert D.

Allingham, John Wing. See also Bates, R. G.


Alpha, Andrew Gray.

BIBLIOGRAPHY

Altschuler, Zalman Samuel. *See also* Clarke, R. S., Jr.; Young, E. J., 2.

Alvarez, Manuel, Jr.

American Association of Petroleum Geologists.

American Association of Petroleum Geologists, Rocky Mountain Section.
Geological record, 1958 [proceedings, 8th annual meeting], Casper, Wyoming, April 27–30, 1958. 127 p., illus. incl. geol. sketch maps, Denver, Colo., Petroleum Inf. [1958]. Includes papers by numerous authors which are cited individually.

American Commission on Stratigraphic Nomenclature. *See also* Frye, J. C., 2; Richmond, G. M.

American Geological Institute.

Ames, H. Tate. *See* Kremp, G. O. W.

Ames, Lloyd Leroy, Jr. *See also* Sand, L. B.

Amos, Dewey Harold.

Amsbury, David Leonard.
Amsden, Thomas William. See also Boucot, A. J., 2; Branson, C. C., 6; Kesling, R. V., 1, 2.

Amstutz, Gerhardt Christian. See also Carl, J. D.
5. The genesis of the Lake Superior copper deposits [abs.], in Institute on Lake Superior geology, April 21–22, 1958. p. 25(1), Minneapolis, Univ. Minn. Center for Continuation Study [1958].

Andel, Tjeerd Hendrik van. See also Carroll, D., 1.

Anderson, Alfred Leonard.
Anderson, Arthur E.

Anderson, Carl Claude.

Anderson, Charles Alfred.

Anderson, David Hugh.

Anderson, Don Lynn. See Weeks, W. F.

Anderson, Frank Marion, 1863-1945.

Anderson, Lennart A.

Anderson, Roger Yates. See also N. Mex. Geol. Soc.

Anderson, Roy Arnold. See Graebner, R. J.

Anderson, Sidney Bakken. See also Folsom, C. B., Jr.

Andreasen, Gordon Ellsworth. See also Zietz, I., 1, 2.

Andrews, George W.
Windrow formation of upper Mississippi Valley region—a sedimentary and stratigraphic study: Jour. Geology, v. 66, no. 6, p. 597-624, illus., Nov. 1958.

Andrews, Henry Nathaniel, Jr.

Andrichuk, John Michael.

Angel, Juvenal L.

Angino, Ernest E.


Anthony, Leo Mark. See Mukherjee, N. R., 2.

Appalachian Geological Society. See also Geol. Soc. Ky., 1.

Appling, Richard N., Jr.

Aramaki, Shigeto.

Archbold, Norbert Lee. See Shawe, D. R.

Arellano, Alberto R. V.

Arizona Bureau of Mines.
Geologic map of Yavapai County, Arizona. Scale 1:375,000 (about 1 in. to 6 mi.), Tucson, 1958.

Arizona Department of Mineral Resources.
BIBLIOGRAPHY


Arkle, Thomas, Jr.

Armitage, Kenneth B.

Armstrong, Augustus Keathly.

Armstrong, Clarence Allen. See also Criner, J. H., Jr.


Armstrong, Herbert Stoker.

Arnold, Chester Arthur.

Arnold, Dwight E. See Stokes, W. L., 2.

Arnold, James Richard. See also Merrill, J. R.

Arnold, Zach M.

Arntson, R. H.

Arrhenius, Gustaf Olof Svante. See also Goldberg, E. D., 1.

Artusy, J. C. See Artusy, R. L.
Artusy, Raymond Longino.  

Ashby, George E.  

Asquith, Donald Owen.  

Asselstine, Erwin Sumner. See Weld, B. A.


Atchley, Frank W.  


Atlas, Leon M.  

Atoji, Masao.  

Atomnaia Energha.  
The geology of uranium. vi, 128 p., illus., translated from Russian, New York, Consultants Bur., 1958.

Atwater, Gordon Ingham.  

Auffenberg, Walter. See also Goin, C. J.  

Auger, Paul Émile. See also Béland, R.  
BIBLIOGRAPHY

Aune, Quintin A. See Gay, T. E., Jr., 1.

Austin, Carl Fulton.

Austin, Grey Howick Merivale.

[Austin, Muriel B.].

Avery, Ruth Butler.

Aves, Charles Arnim.

Awald, Clifford J.

Axelrod, Daniel Isaac.

Axelrod, Joseph Meyer. See Heinrich, E. W., 3; Milton, C., 3, 4.

Aye, Tin. See also Hagner, A. F., 1.

Azároff, Leonid V.


Baars, Donald Lee.

Báth, Markus.
Bachman, George Odell. *See also* Dane, C. H.


**Back, William.**


Bader, Henri.


Bader, Richard George.


Bagley, Peter Coles.


Bado, John Tama.

East Pond Creek field, Grant County, Oklahoma: Shale Shaker, v. 8, no. 10, p. 13–14, illus., June 1958.

Badollet, Marion Smith.


Bailey, B. V. *See* Chubb, L. J., 5.


Bailey, Leslie F. *See* Carder, D. S.

Bailey, Sturges Williams.


Baird, Donald. *See also* Colbert, E. H., 4.


Baird, J. K.


Baird, Patrick D.


B[aker], H[orace] B[urrington].


Baker, Jack.  

Baker, P. E.  

Baker, Robert F.  See Chieruzzi, R.

Baker, W. M.  See Greene, L. C.

Baldwin, Brewster.  See Muehlberger, W. R.; Sun, M.-S., 1.

Balk, Christina.  See Lochman-Balk, C.

Ball, Douglas.  

Balsley, James Robinson, Jr.  

Baltosser, Robert Willcox.  

Baltz, Elmer Harold, Jr.  

Bandy, Orville Lee.  

Banerjee, Anil K.  

Banks, Ephraim.  See Tauber, A.

Banks, Joseph Edwin.  

Banno, Shohei.  See Miyashiro, A., 1.

Baptist, Oren Cecil.  

Baragar, William R. A.  

Barb, Clark Fred.  
Barbat, William Franklin.  

Barber, Edward Sewell. *See* Bawa, K. S.

Barber, G. A. *See* Thomssen, R. W., 1.

Barbour, George Brown.  

Bardsley, William A.  

Barghoorn, Elso Sterrenberg. *See also* Scott, R. A.  

Barkell, Clifford Abbott.  

Barker, Franklin B. *See also* Scott, R. C.  

Barker, Fred.  


Barkley, C. J.  

Barksdale, Henry Compton.  

Barksdale, Julian Devreau.  

Barnes, David Fitz.  

Barnes, Farrell Francis. *See* Williams, Howel.

Barnes, Hubert Lloyd.  
Barnes, Leverne Ellsworth, Jr.

Barnes, Robert Howell.

Barnes, Virgil Everett. See also Texas Univ. Bur. Econ. Geology.

Barnes, William Howard. See Trotter, J.

Barnett, Paul Redmond. See Pierce, A. P.; Powers, Howard A.

Barnett, Ray Hosmer. See Vaughn, W. W., 1, 2.

Barnett, Samuel Anthony. See Clark, W. E. L.; Romer, A. S., 1; Yonge, C. M.

Barr, Kenneth William. See also Chubb, L. J., 2.

Barrabé, Louis.

Barringer, Daniel Moreau, Jr.

Barron, E. M.
The gem minerals of Mexico: Lapidary Jour., v. 12, no. 1, p. 4–16 incl. ads., Apr. 1958.

Barth, Thomas Fredrik Weiby.

Bartholomé, Paul M.

Bartlett, Virgil C. See Wolfe, John A.

Bartley, Melville William.
2. The Animikie sea [Canadian Shield][abs.], in Institute on Lake Superior geology, April 21–22, 1958, p. 21(†), Minneapolis, Univ. Minn. Center for Continuation Study [1958].
BARTON, Paul Booth, Jr. See also Bethke, P. M., 2; Skinner, B. J.

BASHAM, William Lassiter.

BASS, Nathan Wood.

BASSETT, William A.

BASTIANSSEN, Otto. See Vogt, T.

BASTRON, Harry. See Robinson, W. O.

BASURTO GARCÍA, Jesús.

BATE, George Lee.

BATeman, Paul Charles.

BATeman, Sammie J. See Poollen, H. K. van.

BATES, Charles Carpenter.

BATES, Robert Glenn. See also Guillou, R. B., 2; Houston, J. R.

BATES, Thomas Fulcher.
BIBLIOGRAPHY

Bath, Gordon D.
Geophysical studies in northern Minnesota [abs.], in Institute on Lake Superior geology, April 21–22, 1958. p. 5(†), Minneapolis, Univ. Minn. Center for Continuation Study [1958].

Batten, Roger Lyman.

Bauer, William H.

Baulig, Henri. See also King, L. C.

Baum, Robert B. See Breck, H. R., 1.

Bawa, K. S.

Bayley, Richard William.

Bayne, Charles K.

Bayrock, Luboslaw Antin.

Beales, Francis William.

Beall, G. H. See Bergeron, R., 1.

Beals, Carlyle Smith.

Beals, H. O.
BIBLIOGRAPHY OF NORTH AMERICAN GEOLOGY, 1958

Beamer, Norman Howard. See Rasmussen, W. C., 2.

Beanish, F. E. See Westland, A. D.

Bean, Robert Jay.

Bean, Robert Taylor. See McClure, C. R., Jr.

Beavan, A. P.

Beavers, Alvin H.

Beck, Alan E.

Beck, Carl Wellington. See Brunton, G. D.

Beck, Julia M. See Beck, A. E.

Becker, Herman Frederick.

Beckman, C. A.
Petrography of the Western Mesabi Range, Minnesota [abs.], in Institute on Lake Superior geology, April 21–22, 1958. p. 18(), Minneapolis, Univ. Minn. Center for Continuation Study [1958].

Beckmann, Walter Charles.

Becraft, George Earle.

Beebe, Byron Warren.


Beetle, A. A.

Behr, Simon H.
Behre, Charles Henry, Jr. See also Kelly, W. C., 2.

Beikman, Helen Marie.
1. (and Drakoulis, Sophie). Map of Mississippi showing oil and gas fields, unsuccessful test wells, salt domes, and pipelines: U. S. Geol. Survey Oil and Gas Inv. Map OM 200, scale 1:500,000 (about 1 in. to 8 mi.), with sections, tables, and text, 1958.

Bélond, Jacques Robert.

Bélond, René.

Belcher, Donald Jenks. See Liang, T.

Bell, Alfred Hannam. See Swann, D. H.

Bell, Kenneth Grenville. See Vine, J. D.

Bell, R. A. See Bailey, S. W.

Bellemín, George J.

Belyea, Helen Reynolds. See also Taylor, P. W.

Benioff, Victor Hugo.

Bennett, Arthur David. See Werner, H. J.
Bennett, Paul J.  

Bennington, Kenneth O.  

Benoit, F.-W.  

Benson, Carl A.  

Benson, Richard Hall. See also Foster, G. L.  

Benson, William Noel, 1885–1957. See Woolnough, W. G.

Bentley, Craig B. See also Robison, R. A., 2.  
Upper Cambrian stratigraphy of western Utah: Brigham Young Univ. Research Studies Geology Ser., v. 5, no. 6, vi, 70 p., illus., June 1958.

Bentley, Robert D. See Poldervaart, A., 1.

Benzley, James C.  

Bérard, Jean.  

Berg, Eduard. See Sutton, G. H.

Berg, Henry Clay. See Lathram, E. H., 1, 2.

Berg, Joseph W., Jr. See also Cook, K. L.  

Berg, Robert Raymond.  

Bergeron, Robert.  


Bergey, W. R.

Bergmann, Federico A. J.

Bergquist, Harlan Richard. See Collins, F. R., 1–3; Robinson, F. M., 1, 2.

Bergstrom, John Randolph.

Bergstrom, Robert Edward.

Bernes, Boris John.
2. Interim report on geology and ground-water resources of Indian River County, Florida: Fla. Geol. Survey Inf. Circ., no. 18, v, 74 p., illus., 1958.

Bernard, Hugh Allen. See LeBlanc, R. J.

Berner, Robert A.

Berreman, Dwight W.

Berry, Leonard Gascoigne. See Hawley, J. E., 1.

Berry, William Benjamin Newell. See also Floyd, D. N.

Berryhill, Henry Lee, Jr.

Berthelsen, Asger.

Best, Edward Willson.
Best, Raymond Victor.

Bethke, Philip Martin. See also Barton, P. B., Jr., 2.

Beu, Robert Dean.

Beus, Stanley S. See also Gelnett, R. H.

Beutner, Edward Louis.
Characteristics of some iron bearing formations in northern Wisconsin [abs.], in Institute on Lake Superior geology, April 21–22, 1958, p. 29†, Minneapolis, Univ. Minn. Center for Continuation Study [1958].

Beveridge, Thomas Robinson. See Geol. Soc. America.

Bhattacharji, Somdev.

Bickel, Robert Samuel. See Patton, W. W., Jr.


Bieber, Charles Leonhard.

Bieber, Paul Peter. See Nace, R. L., 1.

Biederman, Edwin Williams, Jr.

Biehler, Shawn.

Bien, George Sung-Nien.

Bieri, Robert. See Wasserburg, G. J., 2.

Biggs, Donald Lee.

Biggs, W. P.

Billings, Marland Pratt.

Billings Geological Society.
(Ziegler, Donald Lowell, editor). Guidebook, 9th annual field conference, Beartooth uplift and Sunlight Basin [Mont.-Wyo.], August 14-16, 1958. 108 p. incl. ads., illus. incl. geol. maps, in conjunction with Yellowstone-Bighorn Research Assoc., 1958. Includes papers by several authors which are cited individually.

Billings Geological Society, Symposium Committee.
Montana oil and gas fields—a symposium. 238 p., looseleaf, illus., 1958. Includes papers by A. G. Alpha, P. J. Lewis, and C. P. Abrassart, which are cited individually.

Bills, Charles Wayne. See Illsley, C. T.

Binkley, B. E. See Graebner, R. J.

Binon, L. C.
Iron ores of the Pacific Northwest [abs.], in Institute on Lake Superior geology, April 21-22, 1958. p. 28(2), Minneapolis, Univ. Minn. Center for Continuation Study [1958].

Birch, Albert Francis. See also Clark, S. P., Jr.

Birdseye, Henry Stinson.

Biren, Helen Antine.

Birman, Joseph Leon.
Bisque, Ramon Edward. See also Lemish, J., 2.


Bissell, Harold Joseph.


Bissett, David H.


Bitterli, Peter.


Bjorklund, Louis Jay.

(and Brown, Richmond Flint). Geology and ground-water resources of the lower South Platte River valley between Hardin, Colorado, and Paxton, Nebraska: U. S. Geol. Survey Water-Supply Paper 1378, v. 481 p., illus. incl. geol. map, 1957 [1958]; with a section on chemical quality of the ground water by H. A. Swenson.

Black, Craig C.

A new sciastine rodent from the Miocene of Wyoming: Breviora, no. 86, 7 p., illus., May 29, 1958.

Black, Robert Foster. See also Wahrhaftig, C. A.; Williams, Howel.


Black, Rudolph Allan.


Blackadar, Robert G.


Blackmon, Paul David.


Blackstone, Donald LeRoy, Jr.


Blade, Lawrence Vernon. See Milton, C., 1; Rose, H. J., Jr.

BlaiK, Maurice.

Blair, William Franklin.

Blake, Francis Gilman.

Blake, Oliver Duncan.
The geology of Gallia County, Ohio [abs.]: Dissert. Abs., v. 18, no. 5, p. 1766-1767, May 1958.

Blake, Rolland Laws.
A study of the iron silicate minerals with special emphasis on the iron-formation in the Cuyuna district, Minnesota [abs.], in Institute on Lake Superior geology, April 21-22, 1958. p. 17(‡), Minneapolis, Univ. Minn. Center for Continuation Study [1958].

Blakslee, George Warren. See Milner, R. L.

Blanchard, J. Ewart.
The possibilities and limitations of geophysical exploration from diamond drill holes, in Minn. Univ. Center for Continuation Study, 7th annual drilling symposium, Oct. 1957, p. 3-7(‡) [1957].

Blank, Horace Richard.

Bleakey, Sherman.

Block, Stanley. See Clark, J. R.

Bloom, Barbara H.

Bloom, Harold. See also Hawkes, H. E., Jr., 1, 2.

Bloss, Fred Donald.

Blumentals, A. See Swain, F. M., Jr., 1.

Blumenthal, Warren Barnett.

Blundun, George John.

Boardman, Leona, 1894–1957.


Boardman, Robert Leland.


Bode, Hans.


Bogardi, John L. See Laursen, E. M.

Bogart, Lowell Eldon. See Nichoison, J. H.

Boggy, David B. See Rogers, J. J. W., 2.

Bohart, Philip Harris, Jr.

Subsurface geology of the Purdy oil field, Garvin County, Oklahoma: Shale Shaker, v. 9, no. 1, p. 2–8, 10–14, 16–17, illus., Sept. 1958.

Bohman, Robert A.


Bold, Willem Aaldert van den.


Boldizsar, T.


Bollin, E. M.


Boltovskoy, Esteban.


Bondam, Jan.


Bondurant, Donald Connally. See Laursen, E. M.

Bonham, Harold F., Jr.

Bonilla, Manuel G. See Schlocker, J., 1.


Boniwell, John Bewers. See Seigel, H. O., 2.

Bookout, John Frank, Jr. See Kozak, F. D.

Books, Kenneth G.

Boone, William Jefferson, Jr. See Anderson, C. C.

Boos, Edward J., deceased.

Boos, Margaret Fuller.
Bopp Oeste, Monika G.  

Borchardt, R. See Siegel, S. M.

Borg, W. Martin. See Glidden, C. H.

Bornhauser, Max.  

Borschel, Ken.  

Borst, Lyle Benjamin. See Edwards, W. F.

Borup, R. A. See Heinrich, E. W., 5.

Bose, Mihir Kumar.  

Bostock, J. M. See Canada G. S., 23.

Bostwick, David Arthur.  

Botsford, James I. See Lytle, F. W.

Boucot, Arthur James.  


Bourbeau, Gerard A. See Richmond, G. M.


BIBLIOGRAPHY

Bowen, Oliver Earl, Jr. See also Chesterman, C. W.

Bowen, Robert Julian. See Weeks, A. D., 1.

Bowers, Howard Edward. See Boardman, R. L.

Bowles, Oliver. 1877–1958.

Bowley, R. E.

Bowman, Robert I. See Miller, L. H.

Bowyer, Ben.

Boyd, Donald Wilkin.

Boyd, Francis R.

Boyer, Robert Ernst.

Boyer, William H. See Gabelman, J. W., 1.

Boyle, Robert William.

Boyle, Thomas L.
Boyum, Burton Hill.
Schlumberger electrologging of small diameter drill holes on the Marquette Range, Michigan, in Minn. Univ. Center for Continuation Study, 7th annual drilling symposium, Oct. 1957, p. 49–54(†), illus. incl. geol. map [1957].

Brace, William F. See also Boucot, A. J., 6.

Brackenridge, Arnold Henry. See Best, R. V.

Bradfield, Herbert Henry.

Bradford, Harold Rawsel.

Bradley, Whitney Allen.

Bradley, William Crane.

Bradley, William Frank. See Serratosa, J. M., 1, 2.

Brady, Frank Howard.

Brady, J. G.

Brady, Lionel Francis.

Brady, William Blake.

Bramlette, Milton Nunn.

Branco, J. J. See Chodos, A. A.
Brand, Donald Dilworth.

Brand, Herschel C.

Brand, John Paul. See also Soc. Econ. Paleontologists and Mineralogists Permian Basin Sec.

Branson, Carl Colton.

Brattstrom, Bayard H.

Braunstein, Jules.

Bray, Ellis Edwin. See Stevens, N. P.

Brazee, Rutlage J.
BIBLIOGRAPHY OF NORTH AMERICAN GEOLOGY, 1958

Brechtel, Frederick Charles.

Breck, Howard Rolland.

Breger, Irving Arthur. See also Phillips, H. F.; Pommer, A. M.

Brennan, Daniel Joseph.

Brenneman, Lionel.

Brenneman, Maxine Crane.

Bretz, J Harlen.
Onondaga Cave [Mo.], in Geol. Soc. America, Field trip guidebook, Field Trip no. 4, p. 53-64, illus., 1958.

Brew, David A. See Davidson, E. S., 1, 2.

Brewer, Max Clifton. See also Collins, F. R., 1.

Brice, James Coble.

Bricha, Louis Chambon.

Bricker, Owen P.

Bridwell, Harold C. See Hildebrandt, A. B.
Briggs, Louis Isaac, Jr. See also Berner, R. A.; Lusk, L. D.; McCulloch, D. S.

Briggs, Reginald Peter. See Berryhill, H. L., Jr.

Brighton, A.

Brill, Kenneth Gray, Jr.

Brindley, George William. See also Stemple, I. S.

British Columbia Department of Mines.

Britton, Max Edwin.

Broadhurst, F. M. See Howie, R. A.

Brobst, Donald Albert.

Brochu, Michel.

Broderick, Thomas Monteith. See Sullivan, C. J.
Brodermann y Vignier, Jorge.

Broding, Robert Andrew.
Radioactive surveying of drill holes, in Minn. Univ. Center for Continuation Study, 7th annual drilling symposium, Oct. 1957, p. 44-48(†), illus. [1957].

Brodkorb, Pierce.

Broecker, Wallace S. See also Olson, E. A., 1; Thurber, D. L.; Walton, A.

Broin, Thayne Leo.

Bromery, Randolph Wilson.

Bronnimann, Paul.

Bronson, Edwin H.
Brookhart, Joseph Warren. *See also* Robinove, C. J.


Brooks, Clyde S.


Brooks, Fred A., Jr.


Brooks, Harold K.


Brooks, Norman Herrick. *See* Liu, H.-K.


Brophy, John Allen.

Mineralogy of Sangamon weathering profiles [Ill.][abs.]: Dissert. Abs., v. 19, no. 5, p. 1054, Nov. 1958.

Broscoe, Andy Joe. *See* Fuenning, P.


Brossard, Léo. *See* Koulomzine, T.

Brotzen, Otto. *See* Davidson, C. F.

Brown, Andrew.


Brown, Annabel. *See* Boardman, L., 2, 3.

Brown, B. E.


Brown, Bahngrell Walter.


Brown, Barbara M. *See* Brown, S. B.

Brown, Charles Quentin.


Brown, Charles William.

Brown, Delbert Wayne.

Brown, Donald Jerould. See also Brown, R. E., 2.


Brown, Harrison Scott.

Brown, Henry Seawell.

Brown, Howard Elmer.


Brown, John Stafford.

Brown, Leonard Franklin, Jr.

Brown, Noel King, Jr. See Bronnimann, P., 1.

Brown, P. D.

Brown, Philip Monroe.

Brown, Randall Emory. See also Brown, D. J.

Brown, Richard Shaw. See Howard, E. L.

Brown, Richmond Flint. See Bjorklund, L. J.
Brown, Robert David, Jr. See also Snavely, P. D., Jr.

Brown, Roland Wilbur.

Brown, Sidney O. See Enlow, D. H.

Brown, Silas Christian. See also Kuhn, P. J.; Neff, A. W.

Brown, Stanley Barber.
(and Brown, Barbara M.). The story of dinosaurs—a guidebook for young scientists. 125 p., illus., Irvington-on-Hudson, N. Y., Harvey House, 1958.

Brown, Walter F. See Kline, H. D.

Brown, William Randall.

Browne, Jonathan F.


Brownell, George McLeod.

Browning, James S.

Brubaker, David Gordon.

Bruce, George A.
Brummer, Johannes J.

Brundall, Laurence.

Brune, Gunnar Magnus.

Brunette, Charles E. See Risi, J.

Brunt, Gordon Murray. See also Magas, I. O., 2.

Brunton, George Delbert.

Brush, Lucien M., Jr. See also Wolman, M. G., 2.

Bruun, Per.

Bryan, Kirk, Jr. See Livingstone, D. A., 1.

Bryant, Bruce Hazelton. See Reed, J. C., Jr.

Bryce, John Douglas.

Brydon, J. E.

Bryner, Leonid.
Geology of the South Comobabi Mountains and Ko Vaya Hills, Pima County, Arizona [abs.]: Dissert. Abs., v. 19, no. 6, p. 1341, Dec. 1958.

Bryson, Reid Allen. See Lathbury, A.
BIBLIOGRAPHY

Bucher, Walter Hermann.

Buchwald, Vagn. See Sørensen, H., 2.

Buckle, E. R.

Buckley, Stuart Edward.

Buckner, Dean Alan.

Buckwalter, Tracy Vere, Jr.

Buddhue, John Davis.


Budinger, Thomas F.

Bohle, Merlyn Boyd.

Bue, Bennett Frank.
Bull, C. B. B.

Bullard, Fred Mason.

Bullen, Keith Edward.

Buller, John V.

Bullock, Reuben L.
The geology of Lehi quadrangle [Utah]: Brigham Young Univ. Research Studies Geology Ser., v. 5, no. 3, vi, 59 p., illus. incl. geol. map, Apr. 1958.

Bullwinkel, H. J.

Bundy, Wayne Miley. See also Conley, R. F.; Greenberg, S. S., 1.

Bunker, Carl M. See MacKallor, J. A., 2; Roberts, A. E., 1.

Bunting, Elmer Newman.

Burckle, Lloyd H. See Artusy, R. L.; Rigby, J. K., 3.

Bureau, René.


Burke, J. J.

Burke, Ray Albert.

Burkholder, Robert E. See Rezak, R.

Burleson, John Allen. See West Texas Geol. Soc., 1.

Burley, Gordon. See Clark, J. R.

Burnette, Charles R.
Burnham, Clifford Wayne. See also Jahns, R. H., 5.

Burns, George W.

Burst, John Frederick, Jr.

Burt, William Henry.

Burtner, Roger.

Burwash, Ronald Allan McLean.


Bush, James.

Busing, William Richard.

Buskala, Marvin A.

Buss, Walter Richard.

Butkovich, T. R.

Butler, Arthur Pierce, Jr.
Butler, Bert Sylvenus.

Butler, Elizabeth Ann McGee.

Butler, Jacques A.

Butler, Curtis Lee.

Byerly, Perry. See also Stauder, W. V.

Byerly, Perry Edward. See Joesting, H. R., 2.

Byrne, Frank Edward. See Privrasky, N. C.

Byrne, Patrick J. S. See Govett, G. J. S., 1.

Cable, Emmett James.

Cadigan, Robert Allen. See Craig, L. C.; Miller, G. A.
Cady, Gilbert Haven. See also Schopf, J. M.

Cady, John Gilbert. See Ruhe, R. V., 2.


Caldwell, David K.

Caldwell, Richard Louis.

Caley, John Fletcher. See Canada G. S., 8.

California Department of Natural Resources, Division of Mines.

California Department of Water Resources, Division of Resources Planning.

California University. See Byerly, P., 2; Revelle, R. R. D.; Stirton, R. A.

Callaghan, Eugene. See also Faust, G. T.

Callahan, Joseph Thomas.
Callender, Dean Lynn.

Calver, James Lewis. See Vernon, R. O.

Camacho Castro, Mario. See Porraz Zanabria, R.

Camp, Charles Lewis.


Campbell, Graham Singleton.


Campbell, Ian.


Campbell, James Donald.


Campbell, James H. See Hapgood, C. H.

Campbell, John Duncan.


Campbell, John Leslie Putnam.


Campbell, Russell B. See Dorheim, F. H.

Campbell, Russell Harper. See Lewis, R. Q., Sr., 1-6.

Canada Department of Mines and Technical Surveys.

1. Physiographic regions: Atlas of Canada [Map] 13, 3 maps, scales 1:20,000,000 (about 1 in. to 316 mi.), and 1:5,000,000 (about 1 in. to 79 mi.) [1958?].
2. Physiography of southern Ontario: Atlas of Canada [Map] 14, scale 1:1,000,000 (about 1 in. to 16 mi.) [1958?].
5. Principal minerals: Atlas of Canada [Map] 17, 20 maps, scale 1:50,000,000 (about 1 in. to 789 mi.) [1958?].
6. Non-ferrous metals—eastern Canada: Atlas of Canada [Map] 73, scale 1:5,000,000 (about 1 in. to 79 mi.) [1958?].
8. Industrial minerals: Atlas of Canada [Map] 75, scale 1:5,000,000 (about 1 in. to 79 mi.) [1958?].

Canada Department of Mines and Technical Surveys, Geographical Branch.

Canada Department of Mines and Technical Surveys, Mines Branch.


10. Aeromagnetic map series, scale 1:63,360 (1 in. to 1 mi.), Geophysics Papers published in 1958 as follows:

No. 620. Croft Lake, Northwest Territories.
621. Scheelar Lake, Northwest Territories.
623. Shoemake Lake, Northwest Territories.
625. High Island, Northwest Territories.
627. Beaverhill Lake, Northwest Territories.
646. Skromeda Creek, Manitoba.
647. Diekema Lake, Manitoba.
649. Bylot, Manitoba.
650. Warkworth Creek, Manitoba.
651. Salmon Creek, Manitoba.
652. Paragon Lake, Manitoba.
653. Archer Creek, Manitoba.
654. Nares Lake, Manitoba.
655. Stanley River, Manitoba.
656. Daves Lake, Manitoba.
657. Cromarty, Manitoba.
658. Red Head Rapids, Manitoba.
659. Wise Lake, Manitoba.
660. Knight Lake, Manitoba.
661. Onidie Lake, Manitoba.
662. Allan Lake, Manitoba.
663. Broad River, Manitoba.
664. Kelsey Creek, Manitoba.
665. Fletcher Lake, Manitoba.
666. Stony Lake, Manitoba.
667. Overly Lake, Manitoba.
668. Blyth Lake, Manitoba.
669. Ryan Lake, Manitoba.
670. Wilkie Lake, Manitoba.
671. Tadoule Lake, Manitoba.
672. Biblowitz Lake, Northwest Territories.
673. Nieznany Lake, Northwest Territories.
674. Breithaupt Lake, Northwest Territories.
675. Olson Lake, Northwest Territories.
676. Logie Lake, Northwest Territories.
677. Snelgrove Lake, Northwest Territories.
678. Noyes Lake, Northwest Territories.
680. Tite Lake, Northwest Territories.
681. Geeves Lake, Northwest Territories.
682. Dunvegan Lake, Northwest Territories.
683. Abitau Lake, Northwest Territories.
684. Mansfield Lake, Northwest Territories.
685. Cronyn Lake, Northwest Territories.
687. Lamarre Lake, Northwest Territories.
688. Sled Creek, Northwest Territories.
690. Lake of Woe, Northwest Territories.
691. Knobovitch Lake, Northwest Territories.
692. Burpee Lake, Northwest Territories.
693. McArthur Lake, Northwest Territories.
695. Sled Lake, Northwest Territories.
696. Timberhill Lake, Northwest Territories.
697. La Roque Bay, Northwest Territories.
700. Carleton Lake, Northwest Territories.
701. Insula Lake, Northwest Territories.
702. Sylvan Lake, Northwest Territories.
703. Donnelly Lake, Northwest Territories.
704. Stony Lake, Northwest Territories.
705. Penylan Lake, Northwest Territories.
706. Coventry Lake, Northwest Territories.
707. Dymond Lake, Northet Territories.
709. Moss Lake, Northwest Territories.
710. Blake Lake, Northwest Territories.
711. Lynx Lake, Northwest Territories.
712. McFarlane Lake, Northwest Territories.
713. Garde Lake, Northwest Territories.
714. Odin Lake, Northwest Territories.
715. Hostile Lake, Northwest Territories.
717. Cornwall Lake, Alberta.
718. Charles Lake, Alberta.
719. Andrew Lake, Alberta.
720. Legary Lake, Manitoba.
721. Cheyne Lakes, Manitoba.
723. Porcupine Rapids, Manitoba.
724. Ashley Lake, Manitoba.
725. Fox Lake, Manitoba.


Canadian Exploration Geophysicists.


Canadian Institute of Mining and Metallurgy, Committee of Geophysicists.
Methods and case histories in mining geophysics. viii, 359 p., ilus. incl. geol. maps, Montreal, Quebec, Commonwealth Min. and Metall. Cong., 6th [1957]. Includes papers by numerous authors which are cited individually.

Canney, Frank C.


Cannon, Ralph Smyser, Jr.


Cannon, Robert L.

A suggested new pick for the base of the Permian [Texas], in San Angelo Geol. Soc., Guidebook, the base of the Permian, Apr. 1958, p. 33-37, illus., 1958.

Canright, James Edward.

BIBLIOGRAPHY OF NORTH AMERICAN GEOLOGY, 1958

Cantwell, Thomas.

Caplan, William M.

Carder, Dean Samuel.

Cardwell, George Thomas.

Carey, Mary.

Carey, Samuel Warren. See also Lovering, J. K.; Wilson, D. W. R.
Continental drift—a symposium. vii, 375 p., illus., Hobart, Australia, Geology Dept., Univ. Tasmania, 1958. Includes a paper by C. R. Longwell, which is cited individually.

Carl, James D.

Carliisle, Donald.

Carlson, Clarence Gustav. See also Anderson, S. B., 1.

Carlson, E. Y.

Carlson, Hugh D.

Carlson, Paul R.

Carlson, Stanley A. See Hill, M. L., 1; Schwade, I. T.

Carlston, Charles William. See also Rhodehamel, E. C.
Carlton, Paul Edwin.

Carman, Max F., Jr.

Carmen, John H. See Kuellmer, F. J., 2, 3.

Carmichael, C. M.

Carnahan, Veyle May.

Carozzi, Albert V.

Carpenter, Albert Cotting.

Carpenter, Everett.

Carr, G. F.

Carr, John Lawrence. See Hamilton, J. H.

Carr, Raymond M.

Carr, Warren Eugene.

Carroll, Dorothy.

Carron, Maxwell Kenneth. See also Glass, J. J., 2; Milton, C., 4.

Carsola, Alfred James. See Fisher, R. L.

Carswell, Louis Duncan. See also Davidson, E. S., 1, 2.


Carter, George Francis.


Carter, Kenneth Earl.


Carter, William Douglas.


Cartier, W. O. See Ward, S. H., 5.

Casanova, Richard L.


Case, James E. See Shoemaker, E. M.

Casey, Robert D.


Cassidy, William A.


Castle, Robert O.

Catanzaro, E. J.

Cattermole, John Marcus.

Causey, Lawson V. See Miller, J. D., Jr., 2.

Chadwick, Robert Aull.

Chaigneau, Marcel. See Fabre, R.

Chalmers, Robert A. See Murdoch, J.

Chaloner, William G.

Chamberlain, J. A. See Knight, C. L.

Chamney, Thomas Potter.

Chandler, Alfred B. See Doyle, D. M.

Chandler, John Charles. See Pommer, A. M.

Chandra, D.

Chaney, Ralph Works.

Chao, Edward Ching-Te. See Milton, C., 5.

Chapman, Carleton Abramson.

Chapman, Edward Pritchard, Jr.

Chapman, Robert Mills. See also Williams, Howel.
Charles, William Wathen, Jr. See White, R. J.

Charlesworth, Lloyd James, Jr. See Schnabel, R. W., 1–3, 5.

Chatenever, Alfred.

Chaves Figueredo, Antonio Fernando.

Chayes, Felix. See also Zies, E. G.

Cheesman, Ralph Leslie.

Cheetham, Alan Herbert. See Butler, E. A. M., 1, 2.

Cheney, Theodore Albert.

Chenoweth, Philip Andrew.

Cheriton, C. G.

Chesterman, Charles Wesley.

Chevallier, Raymond.

Chiang, Yao. See Smothers, W. J.

Chieruzzi, Robert.

Childs, Orlo Eckersley. See Bissell, H. J., 1.

Chilingar, George V. See also Bissell, H. J., 2.

Chisholm, Edward O.


Chodos, Arthur A. See also Engel, A. E. J., 2; Goldsmith, J. R., 1; Nichiporuk, W., 2.


Choquette, Philip W.


Chorley, Richard J.


Chow, Tsaihwa James. See also Goldberg, E. D., 2.


Christ, Charles L. See also Clark, J. R.; Karle, J.; Ross, M.

(and Clark, Joan Robinson, and Evans, Howard Tasker, Jr.). The crystal structure of colemanite, CaB3O4(OH)3 • H2O, [Pt.] 3 of Studies of borate minerals: Acta Crystallographica, v. 11, pt. 11, p. 761-770, illus., Nov. 10, 1958.

Chronic, Byron John, Jr.


Chronic, Halka. See Chronic, B. J., Jr., 1.

Chubb, Lawrence John. See also Taylor, S. A. G., 2.


Clabaugh, Stephen Edmund.


Clair, Joseph Robinson.

Subsurface stratigraphy of the Pennsylvanian of the Paradox basin [Colorado Plateau], in Rocky Mtn. Assoc. Geologists, Symposium on Pennsylvanian rocks of Colorado and adjacent areas, p. 31–46, illus., 1958.

Clark, Arthur Roy. See Bergey, W. R.


Clark, David Leigh.

Clark, G. Conrad.

Clark, George Lindenberg.

Clark, Joan Robinson. See also Christ, C. L.

Clark, Lloyd Allen.

Clark, Lorin Delbert.

Clark, Sydney Procter, Jr.

Clark, Wilfrid Edward Le Gros.

Clarke, James Wood. See also Heron, S. D., Jr., 2.

Clarke, Roy Slayton, Jr. See also Altschuler, Z. S.

Clavan, Walter S. See Norton, D. A.

Clay, Clarence Samuel. See Blaik, M.

Clayton, Robert Norman. See also Engel, A. E. J., 1.

Cleave, Arthur Bailey. See Philbrick, S. S.; Scharon, H. L.

Clebsch, Alfred, Jr.

Cleveland, George B. See also Carlisle, D.
Clifford, Oliver Charles, Jr.

Cloke, Paul L.  See Garrels, R. M., 1.

Cloos, Ernst.


Cloud, Preston Ercelle, Jr.

Cloutier, R.  See Risi, J.

Coachman, L. K.

Coates, Donald Robert.

Cobban, William Aubrey.


Cofer, Harland Elbert, Jr.
Structural relations of the granites and the associated rocks of south Fulton County, Georgia [abs.]: Dissert. Abs., v. 18, no. 5, p. 1768-1769, May 1958.

Coffey, George N.

Cogbill, Alfred Martin.

Cohee, George Vincent.
Cohen, Alvin Jerome. *See also* Rice, R. V.

Cohenour, Robert Eugene.

Colbert, Edwin Harris.

Colby, Robert E.

Cole, William Storrs.

Coleman, George L., 2d.

Coleman, Robert Griffin.

Collier, E. P.

Collins, Florence Rucker.


Collins, Horace R.

Collins, Samuel G.


Collins, Stephen E.

Collinson, Charles William. See also Benson, R. H.


Colquhoun, D. J.

Colton, George Willis.

Colton, Roger Burnham. See also Horberg, C. L.; Lemke, R. W., 1.
Colvin, John McRae, Jr.
Geology of the Centerville quadrangle, Hickman County, Tennessee [abs.]:

Comer, Joseph J. See Brindley, G. W., 2.

Compton, Robert Ross.
1. Significance of amphibole paragenesis in the Bidwell Bar region, California:
2. Mineral-assemblage variance in contact-metamorphosed pelites from

Conant, Georgianna D. See King, R. R.

Conant, Mary Louise. See Avery, R. B.

Condon, William Henry. See also Lathram, E. H., 1, 2.
(and Cass, John T.). Map of a part of the Prince William Sound area, Alaska,
showing linear geologic features as shown on aerial photographs:
U. S. Geol. Survey Misc. Geol. Inv. Map I-273, scale
1:125,000 (about 1 in. to 2 mi.), with text, 1958.

Conel, James E. See Campbell, I., 2; Meier, M. F., 1.


Conkin, James Elvin. See also Geol. Soc. Ky., 2.
(and Conkin, Barbara M.). Revision of the genus Nummoloculina and
emendation of Nummoloculina heimi Bonet: Micropaleontology,

Conkling, Harold. See Kazmann, R. G.

Conley, James F.

Conley, Robert F.
(and Bundy, Wayne Miley). Mechanism of gypsification: Geochimica et


Conn, Herbert Murray Keith.
Magnetic prospecting for asbestos deposits [Ontario], in Canadian Inst.
Mining and Metallurgy, Comm. Geophysicists, Methods and case
histories in mining geophysics, p. 135–140, illus. [1957].

Connell, James Frederick Louis.
The Jackson Group of Georgia—a preliminary report: Southwestern La.

Conner, Donald Charles.
(and Wright, Edward M., Jr.). Bluff field [Utah], in Intermountain

Conover, John T. See Kornicker, L. S., 3.


Conrey, Bert Louis.
Depositional and sedimentary patterns of lower Pliocene—Repetto rocks
in the Los Angeles Basin [Calif.], in Am. Assoc. Petroleum Geologists,
A guide to the geology and oil fields of the Los Angeles and
Conrotto, Eugene L.
1. Apache Tears in the Chuckawallas [Calif.]: Desert Mag., v. 21, no. 5, p. 11-14, illus., May 1958.
2. The desert was white with chalcedony roses [Calif.]: Desert Mag., v. 21, no. 6, p. 19-22, illus., June 1958.

Conselman, Frank Buckley. See also Rall, R. W.

Content, Charles S.

Contois, D. E. See Bien, G. S.–N.

Contreras Velazquez, Hugo.

Conwell, Fred R. See Cuppels, N. P.

Coogan, Alan H.

Cook, Douglas R. See also Jerome, S. E.
The Bonanza project, Bear Creek Mining Co. [Colo.][abs.]: Min. Eng., v. 10, no. 12, p. 1246-1247, Dec. 1958.

Cook, Earl Ferguson.

Cook, Frank A.

Cook, Kenneth Lorimer.

Cook, Theodore Davis.

Cooke, Charles Wythe. See also Hack, J. T.

Cooley, Elmo Franklin. See Oda, U.

Cooley, Maurice E. See also Akers, J. P., 1.


Cooper, Byron Nelson.


Cooper, Gustav Arthur.

Cooper, Hilton Hammond, Jr.

Cooper, Margaret.

Cooper, William Skinner.


Copeland, Murray John.

Corbel, Jean.


Corey, Alice S. See Gross, E. B.


Corey, William Henry.

Corliss, Lester Myron. See Donnay, G., 2.

Cormier, Randall F. See Herzog, L. F., 2d; Pinson, W. H., Jr., 1, 2.

Cornwall, Henry Rowland. See Pratt, E. M.

Corpus Christi Geological Society. See Gulf Coast Assoc. Geol. Soc.s.


Cosner, Oliver J. See Rosenshein, J. S.

Cotter, Ralph Dale. See also Rosenfeld, J. L., 1.


Courtemanche, Albert. See Laverdière, C.


Cowie, Dean Bruce. See Lederberg, J.


Cowser, Kenneth Emery. See de Laguna, W.


Craft, Jesse L., Jr. See Huang, W. W. T., 5.

Craig, Bruce Gordon. See Terasmae, J., 2.


Craig, Lawrence Carey.

Crain, Clark N. See Parizek, E. J.

Cramer, Howard Ross.

Crandell, Dwight Raymond.

Crandell, Herbert C., Jr. See King, R. R.

Crane, Horace Richard.

Cranswick, J. Stuart, d. 1954.

Crary, Albert Paddock.
Arctic ice island and ice shelf studies, Pt. 1: Arctic, v. 11, no. 1, p. 2–42, illus., 1958.

Crawford, C. B. See Eden, W. J.

Crawford, James Gilmore.

Crawford, John P.

Creager, Barbara Miller. See Creager, N. G.

Creager, Joe Scott.

Creager, Nance G.

Creasey, Saville Cyrus. See Anderson, C. A.

Crickmay, Colin Hayter. See Bates, C. C.

Criner, James H., Jr.
Crockett, J. H.

Crockford, Michael Bertram Bray. See Thompson, R. L.

Crook, Keith A. W. See Tanner, W. F., Jr., 1.

Crook, Wilson W., Jr.

Crosby, James W., 3d.

Cross, Aurelio Theophilus.

Cross, Christine H. See Warren, H. V., 1.

Crowder, Robert E.

Crowell, John Chambers. See also Kuenen, P. H., 1; Susuki, T.

Crowley, Michael Summers.

Cruz Castelán, Salvador. See Cortés-Obregón, S.

Cserna, Zoltán de.

Culver, Harold Eugene.

Cumming, A. D.

Cumming, L. M.

Cummings, Robert H.
Cunningham, Barney [Bernard] J. See Kozak, F. D.

Cuppels, Norman Paul.

Curl, Rane L.

Curtis, Bruce Franklin.

Curtis, Diane.

Curtis, Garniss Hearfield. See also Evernden, J. F., 1–3.

Curtis, Neville Mackay, Jr. See also Ham, W. E., 2, 3.

Custers, J. F. H.

Cutler, Ivan Burton. See Holt, J. B., 1, 2.

Cuttilta, Frank. See also Walker, E. C.

Cvancara, Alan M. See Holland, F. D., Jr.
Czyzak, Stanley Joachim. See Greene, L. C.

Dachille, Frank.

Dake, Henry Carl. *See also* Rinehart, J. S., 1.

Dallmus, Karl F.

Dally, Jesse LeRoy.

Dalton, Jane A.

Damon, Paul Edward. *See also* Smiley, T. L., 4.

Dana, Stephen Winchester.

Dane, Carle Hamilton.

Daniels, Raymond Bryant. *See* Ruhe, R. V., 1.

Danner, Wilbert Roosevelt.

Dansereau, Pierre.

Dapples, Edward Charles.

Darling, Gordon Bruce.
Davidson, Charles Findlay.

Davidson, Donald Thomas. See Carlson, P. R.; Hansen, J. A., Jr.; O'Sullivan, J. B.

Davidson, Edward Sheldon. See also Carswell, L. D., 1, 2.

Davies, J. C.

Davies, J. L.

Davies, James Frederick.

Davies, William Edward.

Davis, Dudley Laurence. See Hall, Wayne E.

Davis, Fenelon F.

Davis, George Hamilton. See also Poland, J. F., 3.

Davis, Gordon Leslie. See also Aldrich, L. T., 2; Tilton, G. R., 2, 4.

Davis, James Howell.
Davis, John.

Davis, Leon Virgil.

Davis, Margaret Bryan.

Davis, Richard S. See Zielbauer, E. J.

Davis, Robert Ellis.

Davis, Robert Irving.

Davis, Stanley N.

Davis, T. Neil.

Dawson, K. R. See also Howell, J. E.

Dawson, Mary R.

Dawson, Ross Elmo, Jr. See Rogers, J. J. W., 5.

Day, G. See Sabine, P. A.

Dean, Basil Gary. See Osterwald, F. W., 1-3.

Dearden, E. O.
Lac Tio ilmenite deposit [Quebec][abs.]: Min. Eng., v. 10, no. 1, p. 54, Jan. 1958.

DeFord, Ronald Kinnison. See also Brand, J. P.; Soc. Econ. Paleontologists and Mineralogists Permian Basin Sec.
1. (compiler). Graduate degrees in geology conferred by The University of Texas from 1897 to 1956. 23 p., Austin, Dept. Geology, Univ. Texas [1956].

De Geer, Ebba Hult.

Degens, Egon T.

de Laguna, Wallace.


Delevoryas, Theodore.

Dellwig, Louis Field. See also Lamerson, P. R.

Del Mar, Robert. See Kelley, V. C., 3.

[Del Mauro, Gene Louis].

Delwiche, C. C.
DeMar, Robert E. *See* Boucot, A. J., 6.

demille, George.


DeMunbrum, L. E.


DeMund, John.


Denison, Robert Howland.

Arthrdira, Pt. 3 of Early Devonian fishes from Utah: Fieldiana Geology, v. 11, no. 9, p. 461-551, illus., June 18, 1958.

Dennen, William Henry.


Dennis, John G. *See also* Eric, J. H.


Denny, Charles Storrow. *See also* Flint, R. F., 1.


DeNoyer, John M. *See also* Byerly, P., 3.


Dent, L. S.


Derbyshire, W. D.


D[erry], D[uncan] R[amsay].


deSaussure, Raymond Edward.

BIBLIOGRAPHY


Desborough, George A.

Desjardins, Louis Hosea.

Deul, Maurice.

Deutsch, Ernst R.

Deutsch, Morris. See Vanlier, K. E., 1, 2.

DeVore, George Warren.

DeVries, R. C.

Dewey, Robert B.

de Witt, Wallace, Jr. See Colton, G. W.

de Wys, E. Christiaan.

Diaz Marta, Manuel.

Dibele, Thomas Wilson, Jr. See also Hill, M. L., 1.

Dibeler, Vernon H. See Cloud, P. E., Jr., 2.
Dibner, Bern.  
Agricola on metals. 128 p., illus., Norwalk, Conn., Burndy Libr., 1958.

Dickey, Dayton Delbert. See Wright, J. C., 1, 2.

Dickey, Parke Atherton.  

Dickinson, William Richard.  

Dickson, Frank Wilson. See also Arntson, R. H.  
1. (and Tunell, George). Equilibria of red HgS (cinnabar) and black HgS (metacinnabar) and their saturated solutions in the systems HgS-Na2S-H2O and HgS-Na2S-Na2O-H2O from 25°C at 1 atmosphere pressure: Am. Jour. Sci., v. 256, no. 9, p. 654-679, illus., Nov. 1958.  

Dietrich, John W.  

Dietrich, Richard Vincent.  

Dill, Robert Floyd.  

Dinnean, Robert F.  

Diorio, Alfred F. See Posner, A. S.

Dischaw, H. E. See Mollard, J. D., 1.

Dix, Charles Hewitt.  
BIBLIOGRAPHY

Dixon, Cyril George.
1. Geology of southern British Honduras, with notes on adjacent areas. 85 p., illus. incl. geol. maps, Belize, Govt. Printer [1956].

Dobbs, Phillip Hale.
Effects of wave action on the shape of beach gravel [Calif.]: Compass, v. 35, no. 4, p. 269-275, illus., May 1958.

Dobervich, George.

Dodd, Philip Horace. See Drouillard, R. F.; Keys, W. S.

Dodge, Charles Fremont.

Dodge, Harry Whitfield, Jr. See Thompson, M. L.

Dodson, Chester L. See Weir, G. W., 2-6.

Doehler, Robert William. See Droste, J. B., 2.

Doell, Richard R.

Doering, John A.

Dolezal, Erich.

Dolgoft, A.

Domenico, S. Norman.

Donath, Fred Arthur.

Donn, William L. See also Ewing, W. M., 2.
Donnay, Gabrielle. *See also* Kullerud, G., 1.


Donnay, Joseph Désiré Hubert. *See* Donnay, G., 1, 2.

Donnell, John Roswell.


Donohoe, John C. *See* Konizeski, R. L., 1.

Dooley, John Raymond, Jr.


Dorf, Erling.


Dorheim, Fred H.


Dorr, John Adam, Jr.


Dort, Wakefield, Jr.


Dosch, Murray W.


Dott, Robert Henry, Jr.


Doty, Maxwell S.


Doucette, E. I. *See* Kinney, C. R.


Douglas, L. A. See Tedrow, J. C. F.


Douglass, Earl, 1862–1931.

Douglass, Raymond Charles.

Douglass, Robert M.
The crystal structure of sanbornite, BaSb05: Am. Mineralogist, v. 43, nos. 5–6, p. 517–536, illus., May–June 1958.

Dowling, Herndon G.

Downs, Theodore. See also Reed, C. A.
1. From the bottom of the lake [Mexico]: Los Angeles County Mus. Quart., v. 14, no. 4, p. 8–10, illus., Autumn 1958.

Doyle, Dorris M.

Doyle, Frank Larry.

Drake, Charles L. See Nafe, J. E.

Drakoulis, Sophie. See Beikman, H. M., 1, 2.

Dreeszen, Vincent Harold. See Reed, E. C., 3.

Dreimanis, Aleksis.


Drever, Harald Irving.

Drew, J. V. See Tedrow, J. C. F.

Drewes, Harald Dietrich.

Drooger, Cornelis Willem.

Droste, John Brown. See also Leininger, R. K.

Drouet, Francis Elliott. See Gerdel, R. W.

Drouillard, Robert F.

Drugg, Warren S.

Dryden, Abraham Lincoln, Jr.

Du Bar, Jules Ramon.
Du Bois, Philip Mason.

Du Bois, Robert Lee.

Dudley, Paul H., Jr.

Duellman, William E.

Dufford, Alvin E.

Dugas, Jean. See Behr, S. H.

Duke, C. Martin.

Dunbar, Carl Owen.

Dunbar, Moira.

Duncan, Donald Cave.

Dunford, H. B. See Thode, H. G.

Dunkle, David Hosbrook.

Dunlap, C. M.
Dupree, A. Hunter.

Durand, David.

Durek, Joseph J. See Kelly, W. C., 2.

Durham, Clarence Orson, Jr.

Durham, David Leon. See Winterer, E. L., 1.

Durham, Forrest.

Durham, John Wyatt.

Dutcher, Russell Richardson. See Mansfield, S. P.

Dutro, John Thomas, Jr. See Tailleur, I. L.; Yochelson, E. L., 3.


Dyck, Willy J.

Eade, Kenneth Edgar. See also Canada G. S., 14.

Eakin, John L., Jr. See Riggs, C. H.

Ealy, Gene K. See Young, R. G., 1.

Eardley, Armand John.

Eargle, Dolan Hoye. See also South Texas Geol. Soc.

Earley, James William. See also Milne, I. H., 2.
Eastlick, John T.

Easton, William Heyden.

Eaton, Eugene Clifton.

Eaton, Gordon P.

Eby, James Brian.

Echegoyen S., José. See Porraz Zanabria, R.

Echeverría Castellot, Antonio.

Echols, Dorothy Anne Jung. See Werner, C.

Eckart, Carl Henry.

Eckel, Edwin Butt.

Eckelberg, D. J.

Eckelmann, F. Donald.

Eckelmann, Walter R.

Eckhardt, Engelhardt August.

Eckles, Wesley W., Jr.

Edie, Ralph William.

Edington, William Edmund.


Edmundson, Raymond Smith.

Facies changes in Pennsylvanian rocks along the north flank of the Wichita Mountains [Okla.]: Panhandle Geonews, v. 6, no. 2, p. 5–18, illus. incl. geol. sketch map, June 1958.

Edwards, Austin B. See Stanton, R. L., 1.


Eguía Huerta, Armando. See Islas Leal, J.

Ehlers, Ernest G. See also Everhart, J. O.

Ehlers, George Marion. See also Galloway, J. J., 2; Kesling, R. V., 8.
Ehlmann, Arthur J.

Ehlmann, W. D.

Eicher, Don L.

Eiler, Jack P. See Wolman, M. G., 1.

Ellertsen, Nils A.

Eiseley, Loren Corey.

Eitel, Wilhelm H. J. See also Trömel, G.

Ekren, Einar Bartlett.


Elias, Maxim Konrad.

Elliott, Douglas Howard.

Elliott, Norman. See Donnay, G., 2.
BIBLIOGRAPHY OF NORTH AMERICAN GEOLOGY, 1958

Elliott, Robert Howard Jackson.

Ellis, Brooks Fleming.

Ellis, Howard.

Ellis, Miller Ward. See Gordon, M., Jr., 1.

Ellison, Samuel Porter, Jr. See Texas Univ. Geology Dept. Teaching Staff.

Ells, Garland Delos.

Ellsworth, Elmer William.

Elphinstone, Norman Peter.
Geology of the Fosterton field [Saskatchewan], in N. Dak. Geol. Soc., Williston Basin Symposium, 2d Internat., Regina, Saskatchewan, Apr. 1958, p. 79–84, illus. [1958].

Elsasser, Walter M.


Elson, John Albert.

Elston, Donald Parker. See Shoemaker, E. M.

Elston, Wolfgang Eugene.

Elvir Z., Reniery. See Porraz Zanabria, R.

El Wardani, Sayed A.


Emo, Wallace B. See Behr, S. H.

Enbysk, Betty Joyce. See Budinger, T. F.


Englert, Charles Bennett.


England, Joseph Loveday. See Boyd, F. R.

English, George Letchworth, 1864–1944.


Englund, Kenneth John.


Enlow, Donald H.


Enns, Theodore. See Coachman, L. K.

Enzmann, Robert Duncan.


Epis, Rudy Charles.


Eppley, Robert Ashton. See Heck, N. H.

Epstein, Jack B.


Epstein, Samuel. See Clayton, R. N., 2; Engel, A. E. J., 1; Silverman, S. R.

Erben, Heinrich Karl.


Ergun, Sabri. See also McCartney, J. T.

Eric, John Howard.

Erickson, Edwin S., Jr.

Ericson, David Barnard. See Ewing, W. M., 3.

Ernst, Wallace Gary.

Eschman, Donald Frazier.

Espenshade, Gilbert Howry.

Etheridge, Richard.

Ethington, Raymond Lindsay.

Eugster, Hans Peter.

Evans, Ernest D. See Stevens, N. P.

Evans, Howard Tasker, Jr. See also Christ, C. L.; Glass, J. J., 2.

Evans, LaMar G.

Evans, Oren Frank.

Evensen, Charles Gerhard.
Everhart, Donald Lough.

Everhart, John Otis.

Evernden, Jack Foord. See also Curtis, G. H., 2, 3.

Ewing, Gifford Cochran. See also Phleger, F. B., Jr.

Ewing, William Maurice. See also Benioff, V. H., 2; Oliver, J. E., 2-5; Press, F., 2.


Eyde, Theodore H.

Eyles, Victor Ambrose.

Eyster, Clyde.

Fabre, René.

Faessler, C. Walter. See Smellie, D. W.


Fahrig, Walter Frederick. See Canada G. S., 18
Faick, John Nicholas.

Fairbairn, Harold Williams. See Bullwinkel, H. J.; Hurley, P. M.; Pinson, W. H., Jr., 1, 2.

Fairbridge, Rhodes Whitmore.

Farnham, Lloyd L. 

Farquhar, Ronald McCunn. See Russell, R. Doncaster, 1, 2.

Farvolden, R. N. See Foster, J. W.

Fatt, Irving.

Faust, George Tobias.

Faustman, Walter. See Frankel, L., 2.

Fay, Robert O.

Fears, Fulton Keller.

Felber, B. E., Jr. See Kelly, W. C., 2.

Felton, Ernest. See Stafford, R.

Fenton, Carroll Lane.

Fenton, Mildred Adams. See Fenton, C. L.

Fentress, George Howard.

Ferguson, Henry Gardiner. See Roberts, R. J.

Ferguson, Robert Bury.

Ferm, John C. See Potter, P. E., 1.

Ferrians, Oscar John, Jr. See also Williams, J. Ropes.

Feruglio, Egidio.

Fetter, Hans.

Fields, Robert W. See Kay, J. L.; Soc. Vertebrate Paleontology.

Figueroa Abarca, Jesús.

Fillman, Louise A.
(chairman, Lexicon Committee). Lexicon of pre-Pennsylvanian stratigraphic names of West Texas and Southeastern New Mexico. ix, 153 p., illus., Midland, West Texas Geol. Soc., 1958.


Finklea, Ernest E.

Finnell, Tommy Lee.

Fireman, E. L.

Fischer, B.
Fischer, William August.

Fisher, Daniel Jerome. See also Woolnough, W. G.

Fisher, Donald William.


Fisher, Richard Virgil.

Fisher, Robert Lloyd. See also Menard, H. W., Jr., 1.

Fisk, Harold Norman.

Fix, Carolyn Elizabeth.

Fix, Philip Forsyth.

Flaccus, Edward.

Flagg, Arthur Leonard.

Flawn, Peter Tyrrell. See also Goldstein, A., Jr.; Hall, W. Ellis.
Fleener, Frank Leslie.

Fleischer, Michael.

Fleming, H. W. W.

Flinn, Derek.

Flint, George M., Jr. See Williams, Howel.

Flint, Richard Foster.

Flower, Rousseau Hayner.

Floyd, David Neville.

Floyd, Robert Joseph.

Fobes, Charles B.

Foley, Frank Clingan.

Folinsbee, Robert Edward.
Folk, Robert Louis. See Callender, D. L.; Mason, C. C.; Sneed, E. D.

Folsom, Clarence Burton, Jr.

Folwell, William T.

Foose, Richard Martin.

Forgotson, James Morris.

Forgotson, James Morris, Jr.

Forman, McLain Jay. See Atwater, G. I.

Forrester, James Donald. See Ross, C. P., 2.

Forsman, James P.

Forsyth, Jane L.

Fortier, Yves Oscar.

Foster, Donald Immer.
Foster, Glen Lloyd.

Foster, John Webster.

Foster, Robert John.

Foster, Roy W.

Foster, Wilfrid Raymond. See de Wys, E. C.

Fothergill, Harold Lawrence.

Fox, Jeannette. See Reed, E. C., 1.

Francis, G. H.
En engelsk rejse i Sydgrønland: Grønland, nr. 6, p. 230-240, illus., June 1958.

Frank, Albert Joseph.

Franke, Herbert W. See Moore, G. W., 1.

Frankel, Larry.

Franks, Curtis Charles.

Frantz, J. C. See Bergey, W. R.

Franché, Dean Frederic.

Fraser, Donald B. See Neelands, R. E.

Fraser, George DeWitt. See Snyder, G. L.

Fraser, J. A. See Canada G. S., 20, 24.

Fraser, J. Keith.
Frebold, Hans Wilhelm Ludwig.

Fredriksson, Kurt. See Pettersson, H., 1.

Freeman, Peter Verner.

Freeman, R. R., Jr. See Schultz, C. G.

Freeman, Val LeRoy.

Frenzel, Hugh N.

Friedel, Robert Augustine.

Friedman, Gerald Mandred. See also Davidson, C. F.

Friedman, Irving I. See also Cloud, P. E., Jr., 2; Smith, R. L., 2.

Friedman, Jules Daniel.

Friedman, Samuel A.
Friends of the Pleistocene, Midwestern.


Fries, Carl, Jr.

Friis, Herman R.

Frischknecht, Frank Conrad. See Black, R. A.; Keller, G. V.

Fritz, Madeleine Alberta. See also Cranswick, J. S.
Story of ancient life. 33 p., illus., Toronto, Royal Ontario Mus., 1956.

Frizzell, Donald Leslie.

Frondel, Clifford.

Frost, Noel. See Breck, H. R., 2.

Frueh, Alfred Joseph, Jr. See also Ross, V. F.

Fry, Wayne Lyle.
Lower Jurassic (Toarcian) flora from the west coast of Vancouver Island [British Columbia][abs.]: Science, v. 128, no. 3332, p. 1144, Nov. 7, 1958.

Frye, John Chapman. See also Leonard, A. B., 1; Richmond, G. M.; Swinford, A., 2; Willman, H. B., 1, 2.

Fuchs, Louis Henry.

Fuennling, Paul.
(and Broscoe, Andy Joe). Photogeology cuts time in mapping and exploration in Canada: Oil and Gas Jour., v. 56, no. 33, p. 179–189 incl. ads., illus., Aug. 18, 1958.


Fuller, Gerald Wayne. See Tschanz, C. M.

Fuller, John George Charles Martin. See Porter, J. W., 2.

Fuller, Myron Leslie.

Furcron, Aurelius Sydney. See also Henderson, Edward P., 2.

Furnish, William Madison, Jr. See Ethington, R. L., 1; Miller, A. K., 1–4.


Fyfe, William S. See also Carr, R. M.

Gabelman, John Warren.

Gabrielse, Hubert.

Gadd, Nelson Raymond. See Hurtubise, J. E.
Gaede, Verne F.

Gahring, Ross Roger.

Gajda, Roman T.

Galbreath, Edwin Carter.


Galley, John E.

Galloway, Jesse James.

Gamboa Avitia, Arturo. See Cortés-Obregón, S.

Gamow, George A.

Garbarini, George Stephen.

Gard, Christopher.
Ground-water conditions in Carson County, Texas: Texas Board of Water Engineers Bull. 5802, 115 p., illus., Aug. 1958.

Gard, J. A.

Garde, Ramachandra Janardan. See Laursen, E. M.

Gardett, Peter H.

Gardner, G. H. F. See Wyllie, M. R. J.

Gardner, Robert Charles.
BIBLIOGRAPHY

Garey, C. L.

Garland, George David. See also Thompson, L. G. D., 1.

Garrels, Robert Minard. See also Evans, H. T., Jr., 2.

Gast, Paul W. See also Catanzaro, E. J.

Gastil, Russell Gordon.


Gates, Robert Maynard.

Gay, Thomas E., Jr.

Gazdik, William B. See Finnell, T. L., 2.
Gazin, Charles Lewis.

Gebert, Elizabeth. See Fuchs, L. H., 1.

Gehman, Harry Merrill, Jr.

Gehrig, John Leonard.

Gélinas, Léopold.

Geller, Seymour. See Abrahams, S. C.; Gilleo, M. A.

Gelnett, Ronald H. See also Beus, Stanley S.

Gemmill, Paul. See Park, C. F., Jr.

Gentieu, Norman P.

Geological Association of Canada.
Glacial map of Canada. Scale 1:3,801,600 (1 in. to 60 mi.), 1958.

Geological Society of America.
(Beveridge, Thomas Robinson, chairman, and others). Field trip guidebook, St. Louis Meeting, 1958—Field Trip no. 1, Southeast Missouri Lead Belt; no. 2, Problems of Pleistocene geology in the greater St. Louis area [Mo.-Ill.]; no. 3, Mississippian rocks of western Illinois; no. 4, Onondaga Cave [Mo.]; no. 5, Pennsylvanian (Desmoinesian) of Missouri. 110 p., illus. incl. geol. sketch maps. 1958. Contains papers by J. S. Brown, H. E. Willman, C. W. Collinson, J. H. Bretz, and W. V. Scarlright, which are cited individually.

Geological Society of America, Bibliographic Staff.

Geological Society of America, Southeastern Section. See Ala. G. S.; Vernon, R. O.

Geological Society of Kentucky.
BIBLIOGRAPHY 113


Geological Society of Sacramento.
East side Sacramento Valley—Mother Lode area, California, annual field trip, April 19-20, 1958. 18 p., illus. incl. geol. maps, 1958.

Georgi, Johannes.

GeoTimes.

Gerdet, Robert Wallace.

Gere, Willard Calvin. See Hite, R. J.


Gerritsen, F. See Bruun, P.

Geyer, Alan R. See also Gray C.

Geyer, Richard Adam.

Giannini, William F. See also Mitchell, R. S., 2.

Giardini, Armando Alfonzo.

Gibson, Juan B.
Proceso mecánico de la acumulación de sal gema y su relación con las sales potásicas y los criaderos de azufre: Asoc. Mexicana Geólogos Petroleros Bol., v. 10, nos. 5-6, p. 329-375, illus., May-June 1958.

Gibson, William Murel.

Gierloff-Emden, Hans-Günter.
Giese, Ross F., Jr. See Norton, M. F., 1.
Gilbert, Charles Merwin. See Epis, R. C.
Gilbert, Francis Paul. See Andreasen, G. E., 1; Bromery, R. W., 1–3.
Gilbert, Freeman. See Knopoff, L., 2.
Gilbert, Joseph Evan Josaphat.
Gilbert, William, 1544–1603.
Gilchrist, Sybil Arlene. See Henderson, J. R., 12–14, 21, 28.
Gilleo, M. A.
(and Geller, Seymour). Magnetic and crystallographic properties of substituted yttrium-iron garnet, \(3Y_2O_3 \cdot xM_2O_3 \cdot (5-x)Fe_2O_3\): Phys. Rev., v. 110, no. 1, p. 73–78, illus., Apr. 1, 1958.
Gillerman, Elliot.
Gillson, Joseph Lincoln.
Gilluly, James. See Roberts, R. J.
Gimlett, James I.
Ginsburg, Robert Nathan.
Girard, Henri. See Risi, J.
Girault, Jean Paul.
Giroux, Mary J.
Giudice, Daniele del. See Zoppis Bracci, L., 1, 2.
Givens, David Barrett. See Willard, M. E., 1.
Gizienski, S. F. See Bawa, K. S.
BIBLIOGRAPHY

Glaister, Rowland Perry.

Glanville, Charles R.

Glass, Herbert David. See also Potter, P. E., 2; Pryor, W. A., 2; Quinn, A. W.

Glass, Jewell Jeannette.

Glasser, Frederick Paul.


Glidden, Charles Harrison.

Glover, Lynn, 3d. See Berryhill, H. L., Jr.

Glidden, Charles Harrison.

Glover, Lynn, 3d. See Berryhill, H. L., Jr.

Godfrey, John Derrick.


Goebel, Edwin DeWayne. See Kulstad, R. O.

Goetz, Joseph F.
Goin, Coleman J.

Gold, Irwin B. See Decker, C. E., 1.

Gold, T.

Goldberg, Edward D. See also Rex, R. W.; Sackett, W. M., 1.

Goldich, Samuel Stephen. See also Ames, L. L., Jr., 1.

Goldman, Harold B. See also Davis, F. F.; Klein, I. E.

Goldman, Marcus Isaac.

Goldring, Winifred.

Goldsmith, Julian Royce. See also Graf, D. L., 1.
BIBLIOGRAPHY

Goldsmith, Richard. See Lundgren, L. W., Jr.

Goldstein, August, Jr.

Goldstone, Frank.

Goldthwait, Lawrence.

Goldthwait, Richard Parker. See also Schmidt, J. J.; Washburn, A. L.

Gomez, R. S. See Ruhe, R. V., 2.

Gómez, Victor Manuel. See Fetter, H.

González-Pérez, Alfonso. See Brand, D. D.

Gooch, Edwin Octavius.

Good, John Maxwell.

Goodell, Horace Grant.

Goodman, Alfred John.
(editor). Jurassic and Carboniferous of western Canada—with related papers: Am. Assoc. Petroleum Geologists, John Andrew Allan Memorial Volume, x, 514 p., illus., with discussions, May 1958. A symposium containing papers by numerous authors which are cited individually.

Goodwin, J. Grant.

Goodwin, A. M.

Gordon, Ellis Davis. See Whitcomb, H. A.

Gordon, Mackenzie, Jr. See also Flower, R. H., 3.
Gordon, Raymond W.

Gorrell, Harold Alvin.

Gorsline, Donn Sherrin.

Gosman, Robert F. See Barkley, C. J.

Gott, Garland Bayard. See Robinson, C. S.

Gottfried, David. See Larsen, E. S., Jr., 2, 4; Phair, G.


Goudie, Marion Averil.

Govett, G. J. S. See also Keller, W. D., 2.

Gower, Howard D. See Brown, R. D., Jr., 1, 2.

Gradwell, R.

Grady, John R. See Orr, W. L.

Graebner, Robert James.

Graf, Donald Lee. See also Goldsmith, J. R., 1, 2.

Graham, George Donald.

Graham, Robert Bruce.
Granch, Joseph A.
Coal resources of the Pottsville formation: Ohio Div. Geol. Survey Rept. Inv., no. 36, x, 53 p., illus., 1958.

Grant, Leland Fauntleroy.

Grant, Richard Evans.

Grant, Willard Huntington.

Grantz, Arthur. See Andreasen, G. E., 2, 3; Zietz, I., 1.

Grater, Russell K.

Gratton, Patrick J. F.

Gravenor, Conrad Percival. See also Keller, W. D., 2.

Gray, Bert F., Jr.

Gray, Carlyle. See also Geyer, A. R.

Gray, Clifton Herschel, Jr. See Bowen, O. E., Jr.

Gray, Gordon Lee.

Gray, Henry Hamilton.

Gray, Irving B. See Evensen, C. G., 2.
Gray, Marian Helen. See Musgrave, A. W.

Grayshon, John Edward.

Grayson, John Francis.
The postglacial history of vegetation and climate in the Labrador-Quebec region as determined by palynology [abs.]: Dissert. Abs., v. 18, no. 4, p. 1229, Apr. 1958.

Grebe, Hilde. See Kremp, G. O. W.

Green, Jack.

Green, Lewis Howard.

Green, Morton.

Green, Robert.

Greenberg, Seymour S.

Greenberg, Sidney Abraham.

Greene, L. C.

Greenfield, Roy Emmett, Jr.

Greenman, David Wolcott. See Barksdale, H. C.
Greensmith, John Trevor.

Greenwood, J. Arthur. See Durand, D.

Greer, William Leonard Craig.
Recent spodumene discoveries in northwestern Ontario [abs.], in Institute on Lake Superior geology, April 21–22, 1958. p. 27(†), Minneapolis, Univ. Minn. Center for Continuation Study [1958].

Greggs, Robert G. See also Okulitch, V. J.

Gregory, A. R. See Wyllie, M. R. J.

Gregory, Alan Frank.

Gregory, Joseph Nalle.

Gregory, Joseph Tracy.

Gregory, William King.

Greig, Paul Bennett, Jr.
Geology of Pawnee County, Oklahoma [abs.]: Dissert. Abs., v. 18, no. 4, p. 1397, Apr. 1958.

Grekulinski, Edmund F.

Gries, John Paul.

Grieshaber, Carl Edward. See Privrasky, N. C.

Griffin, James B. See Crane, H. R.

Griffin, John Joseph.

Griffith, Glenn Rodger Vickery.
122 BIBLIOGRAPHY OF NORTH AMERICAN GEOLOGY, 1958

Griffith, J. W.

Griffiths, John Cedric.

Griffiths, Thomas M.

Griffiths, Wallace Rush. See also Norton, J. J., 1.
Pegmatite geology of the Shelby district, North and South Carolina [abs.]: Dissert. Abs., v. 19, no. 6, p. 1342, Dec. 1958.

Griggs, David Tressel.

Grim, Ralph Early. See also Johns, W. D.

Grimaldi, Frank Saverio. See Levine, H.

Griswold, George B.

Griswold, William Tudor.
Colemanite as an important source of borates [Calif.][abs.]: Min. Eng., v. 10, no. 12, p. 1242, Dec. 1958.

Groff, Sidney Lavern.

Groot, Johan Jacob. See Rasmussen, W. C., 1, 2.

Gross, Eugene B.

Grundy, Wilbur David.

Grunenfelder, Marc H.
BIBLIOGRAPHY

Gruner, John Walter.


Gryc, George.  See also Williams, Howel.


Gualtieri, James Louis.  See Carter, W. D., 1, 2.

Guedes de Carvalho, Rodrigo A.


Guennel, Gottfried Kurt.  See also Neavel, R. C.


Guillén M., Jesús.  See Porraz Zanabria, R.

Guillou, Robert Barton.


Gulbrandsen, Robert Allen.


Gulf Coast Association of Geological Societies.

Field trip guidebook, annual meeting, sedimentology of South Texas, Corpus Christi, October 30–November 1, 1958. 114 p., illus., prepared by the Corpus Christi Geol. Soc., 1958. Includes papers by T. D. Cook, E. A. Lohse, G. A. Rusnak, and C. A. Aves, which are cited individually.

Gundersen, James Ronald Novotny.


Gupta, K. P.


Gussow, William Carruthers.


Gutstadt, Allan Morton.


Guyod, Hubert Charles.


Guzmán Jiménez, Eduardo José.


Guzmán-Rivas, Pablo. See Brand, D. D.

Gwinn, Billy Ward.


Gwynne, Charles Sumner.


Haaf, E. ten. See Kuenen, P. H., 1.

Haas, Otto.


Hack, John Tilton.


Hackel, Otto. See San Joaquin Geol. Soc.

Hackett, James Edward.


Hackman, Robert Joseph.


Hadd, George A. See Trites, A. F., Jr., 1.

Hadley, Jarvis Bardwell. See King, P. B., 2.
Hagar, DeWitte.  

Hager, Rex Virgil, Jr.  See Handin, J. W., 1.

Hagner, Arthur Feodor.  

Haigh, Berte Rolph.  See West Texas Geol. Soc., 2.


Hall, Bruce McCurdy.  

Hall, Clarence Albert, Jr.  

Hall, Francis Ramey.  See Davis, S. N., 3.

Hall, John Frederick.  

Hall, W. Ellis.  

Hall, Wayne Everett.  

Haller, John.  

Halliday, William R.  

Hallof, Philip G.  
Drill hole electromagnetic exploration for sulphide ores, in Minn. Univ. Center for Continuation Study, 7th annual drilling symposium, Oct. 1957, p. 8-14(†), illus. [1957].
Halstead, E. C.
1. Ground-water resources of townships 1 to 6, ranges 6 to 9, west of Principal meridian, Manitoba (Manitou area): Canada Geol. Survey Water Supply Paper, no. 324, 52 p., illus. incl. geol. map, 1954.
2. Ground-water resources of townships 1 to 6, ranges 10 to 13, west of Principal meridian, Manitoba (Pilot Mound area): Canada Geol. Survey Water Supply Paper, no. 325, 48 p., illus. incl. geol. map, 1954.
3. Ground-water resources of townships 7 to 10, ranges 18 to 21, west of Principal meridian, Manitoba (Brandon-Souris area): Canada Geol. Survey Water Supply Paper, no. 326, 42 p., illus. incl. geol. map, 1954.

Ham, William Eugene.

Hamaguchi, Hiroshi. See Reed, G. W., Jr.

Hamberger, Kimball L.
The relation between porosity, permeability, and porous geometry in reservoir rock: Shale Shaker, v. 9, no. 4, p. 3–21 incl. ads., illus., Dec. 1958.

Hambleton, Harvey J. See Swartz, F. M., 2.

Hamblin, William Kenneth.

Hamelin, Louis Edmond.
Les cours d’eau à berges festonnées: Canadian Geographer, no. 12, p. 20–24, illus., 1958.

[Hamilton, John Herbert].
[and Webster, Gordon William, and Carr, John Lawrence, compilers].
Newest major oil province, at Swan Hills, Alberta: Oil and Gas Jour., v. 56, no. 33, p. 169–176 incl. ads., illus., Aug. 18, 1958.

Hamilton, Peggy-Kay. See Kerr, P. F., 2.

Hamilton, Richard A.

Hamilton, Robert Gilbert.
Supplemental geologic tools: Shale Shaker, v. 8, no. 8, p. 7–8, Apr. 1958.

Hamilton, Walter Clyde, Jr. See also North Texas Geol. Soc.

Hamilton, Warren Bell. See also King, P. B., 2; Sherlock, D. G.

Hammond, Charles Richard. See Sandberg, C. A.

Hampton, John S. See also Elias, M. K., 1.

Hampton, O. Winston.

Han, Tsu-Ming.

Hanahan, John, Jr.


Handin, John Walter.

Handy, Richard L. See Carlson, P. R.; O'Sullivan, J. B.

Hanks, Keith. See Hintze, L. F., 3.

Hanna, G. Dallas.

Hanna, Marcus Albert.
Tectonics of Gulf Coast salt domes [abs.]: Gulf Coast Assoc. Geol. Socs. Trans., v. 8, p. 100, 1958.

Hannah, G. J. Raymond.

Hansen, Dan Erick.

Hansen, F. D.
Is there oil in Oregon?: Oil and Gas Jour., v. 56, no. 19, p. 183-184, illus., May 12, 1958.
Hansen, John Andrew, Jr.  

Hansen, Miller. See also Folsom, C. B., Jr.; Friends Pleistocene Midwestern.  

Hansen, Paul M.  

Hanson, Alfred Wallace.  

Hapgood, Charles H.  
(and Campbell, James H.). Earth's shifting crust—a key to some basic problems of earth science. 438 p., illus., New York, Pantheon Books, 1958.

Happ, Stafford Coleman.  

Harbour, Robert Lee. See also Johnson, Ross B., 2.  

Hardie, Charles H.  

Harding, Tod Powell.  

Hardison, Stanley Greely. See Kozak, F. D.

Hardin, J. L.  

Hardy, Clyde Thomas.  

Hares, Charles Joseph.  

Harker, Peter. See also Douglas, R. J. W., 3.  


Harker, R. Ian.

Harms, John Conrad.

Harradine, Frank. See Storie, R. E.

Harrington, John Wilbur.
Some criteria by which basin-forming mechanisms may be recognized, in Weeks, L. G., ed., Habitat of oil—a symposium, p. 932-947, illus., June 1958.

Harris, De Verle.
The geology of Dutch Peak area, Sheeprock Range, Tooele County, Utah: Brigham Young Univ. Research Studies Geology Ser., v. 5, no. 1, ix, 82 p., illus. incl. geol. map, Jan. 1958.

Harris, Harold Duane.

Harris, Leonard Dorreen.

Harris, R. K. See Crook, W. W., Jr.

Harris, Stanley Edwards, Jr. See also Kaeiser, M.

Harris, Steven H.

Harris, Stuart A.

Harrison, A. G.
Harrison, Jack Edward. See Moench, R. H., 2.

Harrison, Jack Lamar. See also Droste, J. B., 4.

Harrison, John Albert. See Marshall, C. Edward.

Harrison, Philip Wyman.
Marginal zones of vanished glaciers reconstructed from the preconsolidation-pressure values of overridden silts: Jour. Geology, v. 66, no. 1, p. 72-95, illus., Jan. 1958.


Harrison, Thomas Samuel. See Boos, E. J.

Harshbarger, John William. See also Akers, J. P., 2; N. Mex. Geol. Soc.

Hart, Lawrence Theodore.

Hart, O. M.


Hartshorn, Joseph Harold.

Harvey, Herbert A. See Ward, S. H., 5.

Hasbrouck, Wilfred P. See Hollister, J. C.

Haskell, Barry Steven.


Hassinger, Russell Neal. See Decker, C. E., 2.

Hattersley-Smith, G.


Hattin, Donald Edward. *See also* Perry, T. G., 3.


Haught, Oscar Lee.


Haun, John Daniel.


Hauptman, Herbert Aaron. *See* Karle, J.

Hauser, Robert Emanuel. *See also* Geol. Soc. Ky., 1; Jones, D. Jonathan.


Havenor, Kay Charles.


Hawkes, Herbert Edwin, Jr. *See also* Anderson, D. H.; Cantwell, T.; Richardson, P. W.


Hawkins, Daniel Ballon. *See* Canney, F. C., 1; Theobald, P. K., Jr.

Hawkins, Edward J. *See* Squires, D. F., 2.

Hawkins, Joseph H.


Hawley, Charles C. *See* McKeown, F. A.

Hawley, James Edwin.


Hay, Richard LeRoy.

Hayes, F. R.

Hayes, John Robert.


Hayes, William Clifton, Jr. See also Meidav, T.

Haynes, Vance.

Hay-Roe, Hugh. See also Soc. Econ. Paleontologists and Mineralogists Permian Basin Sec.
Geology of Wylie Mountains and vicinity, trans-Pecos Texas [abs.]: Dissert. Abs., v. 18, no. 6, p. 2108, June 1958.

Hays, William Henry.

Hazel, Katherine Valentine. See Waring, C. L.

Hazenbush, George C. See also Allen, D. R.

Hazzard, Roy Thorpe.


Headley, Joseph Burton, Jr.

Heald, Milton Tidd.
Healy, John H.

Heaney, Frank. See Kesling, R. V., 3.

Heard, Hugh C. See Griggs, D. T.

Heath, Larman J. See Riggs, C. H.

Heck, Nicholas Hunter, 1882–1953.

Hedberg, Hollis Dow.

Hedlund, David Carl.
Graphic granites from selected zoned pegmatites of the Bryson City district, North Carolina [abs.]: Dissert. Abs., v. 19, no. 4, p. 772, Oct. 1958.

Hees, Hendrik van.

Heezen, Bruce Charles. See Broecker, W. S., 1; Ewing, W. M., 3.

Heider, E. See Fischer, B.

Heim, George E., Jr. See Meidav, T.

Heindl, Leopold Alexander.


Heinrich, Eberhardt William.


Heising, Leonard F. See Lewis, W. E.
Heiskanen, Weikko Aleksanteri.  

Heller, Henry A. See Lytle, F. W.

Hellner, Erwin.  

Hemleby, John Julian.  

Hemmingsen, Erik. See Coachman, L. K.

Hemphill, William Ross.  

Henbest, Lloyd George.  

Henderson, Donald Munro. See Hagner, A. F., 2.

Henderson, Edward Porter.  

Henderson, Gerald V.  
Geology of the northeast quarter of the Soldier Summit quadrangle, Utah: Brigham Young Univ. Research Studies Geology Ser., v. 5, no. 5, vi, 40 p., illus. incl. geol. map, Aug. 1958.

Henderson, James Fenwick.  

Henderson, John Richard. See also Andreasen, G. E., 1.  
BIBLIOGRAPHY


Henderson, Roland George.


Henderson, William Ross Sutherland.

"Blountian" allochthone in Appalachians of Quebec: Alberta Soc. Petroleum Geologists Jour., v. 6, no. 5, p. 120-128, illus., May 1958.

Hendricks, Thomas Andrews. See Misch, P. H.

Hendrickson, Gerth Edison.


Hendrix, William Edwin.

Hendry, Charles W., Jr.  

Hendy, William James.  


Hennessy, Gerald Joseph.  

Hendricksen [Henriksen], Donald Anton.  

Heppe, Charles W. See Bradley, W. A.

Herald, Paul George.  

Heron, Stephen Duncan, Jr.  

Herrin, Eugene Thornton, Jr.  

Hersey, John Brackett.  

Herz, Norman.  

Herzog, Leonard Frederick, 2d. See also Pinson, W. H., Jr., 2.  
Hess, David Clarence. *See* Marshall, R. R.

Heubusch, Carol A.

Heuer, Edward.

Heusser, Calvin J.

Hewett, Donnel Foster.

Hewitt, Charles Hayden.
1. Geology and mineral deposits of the northern Big Burro Mountains-Redrock area, Grant County, New Mexico [abs.]: *Dissert. Abs.*, v. 18, no. 4, p. 1452-1458, Apr. 1958.

Hewitt, Donald F. *See also* Robinson, S. C., 2.

Heylum, Edgar Baldwin, Jr. *See also* Stokes, W. L., 3.

Heyman, Arthur Mark.


Hibbard, Claude William.

Hibbard, Edmund A.

Hickok, Eugene A. *See* Bonini, W. E.

Hicks, Harold Sterling. *See* Herrin, E. T., Jr.
BIBLIOGRAPHY

Hicks, W. D.

Hiers, Miles Terry, Jr.

Higbee, Howard William. See Millette, J. F. G.

Higgins, Charles Graham, Jr.
1. Geology teaching at the university level: Jour. Geol. Education, v. 6, no. 1, p. 5–6, Spring 1958.


Hildebrand, Fred Adelbert. See Carron, M. K., 1; Faick, J. N., 2; Glass, J. J., 2.

Hildebrandt, A. B.

Hill, D. E. See Tedrow, J. C. F.

Hill, Hamilton Stanton. See Muchlberger, W. R., 3.

Hill, Mason Lowell.

Hill, Melvin James. See Moody, J. D.

Hill, Patrick Arthur.

Hill, Vincent George.

Hilpert, Lowell Sinclair.

Hilpman, Paul Lorenz.
Producing zones of Kansas oil and gas fields: Kans. State Geol. Survey Oil and Gas Inv., no. 16, 10 p., illus., 1958.

Hilton, George Stockbridge. See Barksdale, H. C.

Hiltrop, Carl L. See also Lemish, J., 2.

Hindman, Jo.

Hinson, Howard Houston. See Anderson, C. C.

Hintze, Lehi Ferdinand.

Hirst, D. M.

Hitchon, Brian.

Hite, Robert James.

Hluza, A. G., See Albright, M. B., Jr.

Hoare, Joseph McCormick. See Williams, Howel.

Hobbs, Charles Roderick Bruce, Jr. See Dietrich, R. V., 5.

Hobson, John Peter, Jr.

Hocott, Claude Richard. See Buckley, S. E.

 Hodder, R. W.
Hodge, Paul W.

Hodgson, Ernest Atkinson.

Hodgson, John Humphrey.

Hodson, Warren Gayler. See Stramel, G. J.

Hoehne, K. See Hoffmann, H.

Höltling, Bernward.

Hoering, Thomas Carl.

Hoerni, Jean Amedee. See Meier, M. F., 1.


Hoffman, John H. See also Goldich, S. S., 2.

Hoffman, John Nathan.

Hoffmann, H.

Hoffmeister, William Simon. See also Wilson, L. R., 2.
Hofker, Jan.

Hofmann, Walter.

Hoggan, Dean. *See* Emery, K. O., 3.

Hol, Jacoba Brigitta Louise. *See* Russell, R. J., 1.

Holdredge, Claire Parker.

Holland, Frank Delno, Jr.

Holland, Heinrich Dieter.

Holland, Michael F. W., 1928 ?–1957.

Hollis, Edward P.

Hollister, John Chamberlain.

Holman, J. Alan.

Holmes, Charles Robert.

Holmes, Chauncey DePew.
Holmes, Stanley Winchester.

Holser, William Thomas. See also Kennedy, G. C.

Holt, Charles Lee Roy, Jr.

Holt, J. Birch.

Holtedahl, Hans.

Home Oil Company Limited, Geological Department.

Homme, Frank C.

Honda, Masatake. See Merrill, J. R.

Honkala, Frederick Sauli.

Hook, Joseph Stanley.

Hooker, Dolph Earl.
Those astounding ice ages—an exploration of our planet’s most challenging mysteries. 148 p., illus., New York, Exposition Press, 1958.

Hoover, C. Dale. See DeMumbrum, L. E.

Hopkins, Albert.

Hopkins, David Moody. See Williams, Howel.

Hopkins, Joan Prewitt, 1927–1955. See Williams, Howel.
Hopkins, M. E.

Hoppin, Richard Arthur.

Hopson, Clifford Andrae. See also Davis, G. L.; Tilton, G. R., 2.


Horn, Paul Herbert.

Hornady, Albert C. See Meholin, G. L., 1; Totten, R. B., 1.

Horscroft, F. D. M.

Horton, J. H., Jr. See Brown, R. E., 1.

Hoskins, Cortez William.

Hoskins, Donald Martin. See also Willard, B., 1.

Hotz, Preston Enslow. See Roberts, R. J.

Houck, L. H.

Hough, Jack Luin.

Hough, Margaret Jean.
BIBLIOGRAPHY

Hough, VanNess D.  See Nickelsen, R. P., 2.

Houser, Frederick Northrop.  See Ekren, E. B.

Housner, George William.  See also Hudson, D. E.


Houston Geological Society.  See Soc. Econ. Paleontologists and Mineralogists Gulf Coast Sec.

Houston, Joseph Rollins.


Howard, Arthur David.


Howard, Eugene Lester.


Howard, Hildegarde.


Howe, Henry Van Wagenen.


Howe, Robert Hsi Lin.


Howell, Benjamin Franklin.


Howell, Benjamin Franklin, Jr. See Benioff, V. H., 2.

Howell, Clifford Louis.

Howell, Jesse V.


Howell, Lynn Gorman.

Howie, R. A.

Hoy, Nevin Douglas. See Schroeder, M. C.

Hoyle, J. W.

Hoylman, Homer Wayne.

Hsu, Kenneth Jinghwa.

Huang, Walter Wei Ta.

Hubaux, Andre. See Gillson, J. L., 1.

Hubbert, Marion King.
Hubbs, Carl Leavitt.

Huber, Norman King.

Hubert, John Frederick.

Huckabay, William B. See McClure, C. D.

Hudson, Belva D.

Hudson, Donald Ellis. See also Housner, G. W., 2.

Huey, Wallace Frank.

Huff, Lyman Coleman. See also Lesure, F. G., 1, 2.

Huffman, George Garrett. See also Amsden, T. W., 4.

Hughes, Darrell Stephen.
Hughes, Richard David.

Hughes, Richard John, Jr.
Kemper County geology: Miss. State Geol. Survey Bull. 84, 274 p., illus. incl. geol. map, 1958.

Huizenga, John Robert. See Bate, G. L.

Hume, George Sherwood.
Fault structures in the foothills and eastern Rocky Mountains of southern Alberta: Reprinted, Canadian Oil and Gas Industries, v. 11, no. 9, p. 47-58, illus. incl. geol. sketch map, Sept. 1958; originally published 1957.

Hume, James David.

Hummel, Charles L.

Humphrey, Fred LaSalle.

Humphrey, William Elliott.

Hunt, Albin Digby. See also Reasoner, M. A.

Hunt, Allen S. See Stumm, E. C., 2; Whittington, H. B.

Hunt, C. Warren. See also Law, James.
2. Hecate basin and Queen Charlotte Islands [British Columbia]: Oil and Gas Jour., v. 56, no. 33, p. 136-140, illus., Aug. 18, 1958.

Hunt, Charles Butler.
Hunt, James L.  See Monroe, W. H.

Hunt, John Meacham.  See also Forsman, J. P.

Hunt, Raymond.  See Clark, G. L.

Hunter, Hugh Edwards.

Hunter, Kenneth E.  See Gimlett, J. I.

Hunter, William J.  See Dosch, M. W.

Hurlbut, Cornelius Searle, Jr.

Hurley, Patrick Mason.  See also Bullwinkel, H. J.

Hurst, Vernon James.

Hurtubise, J. E.

Hussey, Arthur M., 2d.  See also Austin, M. B.

Hussey, Keith Morgan.  See Carlson, P. R.; O’Sullivan, J. B.; Rosenfeld, G. A.

Hussey, Russell Claudius.

Hutch, Gordon Francis.

Hutchinson, George Evelyn.  See Wangersky, P. J.

Hutchinson, Richard W.
Hutchinson, Robert David.  *See* Canada G. S., 6.

Hutchinson, Robert Maskiell.  *See also* Howell, B. F., 4.


Hutchison, Harold C.


Hutchison, Ralph D.


Hutt, Gordon McLean.

1. Prospector's guide to industrial minerals in Canada. 42 p. incl. ads., privately printed, Montreal, Quebec [1958].


Hutta, J. J.  *See* Wright, H. D., 1.

Hytönen, Kai.  *See* Sahama, T. G.

Ignatius, Heikki.


Iida, Chûzô.  *See* Kuno, H.


Ilcewicz, Frank H.  *See* Lucas, H. F., Jr.


Illesley, Charles T.


Inlay, Ralph Willard.


Inger, Robert F.


Ingerson, Earl.

BIBLIOGRAPHY

151

Ingle, Don.

Ingle, James C., Jr.

Ingram, Blanche. See Milton, C., 3.

Ingram, Roy Lee.

Inter-Agency Committee on Land Subsidence in the San Joaquin Valley.
Progress report on land-subsidence investigations in the San Joaquin Valley, California, through 1957. 160 p., illus., Sacramento, 1958.

Intermountain Association of Petroleum Geologists.
2. (Sanborn, Albert Francis, editor). Guidebook to the geology of the Paradox basin [Colorado Plateau], 9th annual field conference, 1958. 308 p., illus. incl. geol. maps, Salt Lake City, Utah, 1958.
Includes papers by numerous authors which are cited individually.

International Geological Congress, Mexico.
Includes a paper by W. E. Humphrey, which is cited individually.

Ireland, Hubert Andrew.
Insoluble residues, Chap. 5 in Haun and LeRoy, eds., Subsurface geology in petroleum exploration—a symposium, p. 75-94, illus., slightly revised 1958; originally published 1949.


Irvin, G. W.
How special paper and rubber stamps will make your mine drafting easier: Min. World, v. 20, no. 7, p. 57, table, June 1958.

Irving, H. See Wager, L. R., 1.

Irwin, James Haskell. See Harshbarger, J. W., 1; Repenning, C. A.

Isaacs, Kalman N. See also Hartman, R. R.
Cut exploration costs with photogeology: Min. Eng., v. 10, no. 4, p. 466-469, illus., Apr. 1958.


Ito, Teiichi. See Morimoto, N.

Iverson, Cedric Lawrence. The properties of silica gel and its possible relationship to the development of Lake Superior type iron ores [abs.], in Institute on Lake Superior geology, April 21–22, 1958. p. 22(1), Minneapolis, Univ. Minn. Center for Continuation Study [1958].

Ives, J. D.


Izett, Glen Arthur. See Davis, Robert E.

Jackson, Marion LeRoy. See also Brown, B. E.; Sawhney, B. L., 1.

Jackson, Vernon N. See Brundall, L.


Jaffe, Howard William. See Larsen, E. S., Jr., 2; Matzko, J. J.

Jahns, Richard Henry. See also Burnham, C. W.

Jahren, Charles E.

Jakway, George E.

James, Ellen L. See Trumbull, E. J.

James, Harold Lloyd.

Jamieson, George W. See Hunt, J. M.

Jamieson, John Calhoun. See Lawson, A. W.

Janes, Thomas H.

Jarrett, Henry. See Nolan, T. B., 1.

Jasberg, Paul. See Tolonen, F. J.

Jasmund, Karl. See Mosebach, R.

Jeffries, Norman William. See also Searight, W. V., 2.

Jeletzky, Jurjiz Alexander.

Jenkens, Millard Alford, Jr.

Jenkins, Hubert O.

Jenkins, Ralph E.

Jenness, Stuart Edward.


Jochens, E. R.  See Moulder, E. A.

Joensuu, Oiva I.  See Goldsmith, J. R., 1.

Joesting, Henry Rochambeau.

Johns, William Davis.  See also Griffin, J. J.; Stuart, J. W.

Johnsen, John Herbert.

Johnson, Arthur.  See also Weld, B. A.

Johnson, Carlton Robert.

Johnson, Frederick.  See Carter, G. F., 1.

Johnson, George W.

Johnson, Henry Stanley, Jr.  See also Heron, S. D., Jr., 1.

Johnson, J. E.  See Everhart, J. O.

Johnson, Jesse Harlan.

Johnson, Joe William.
Johnson, Meredith Esrey. *See also* Markewicz, F. J.

Johnson, Mike Sam.

Johnson, Ollie Henry, Jr.

Johnson, Ray Bardell.

Johnson, Robert Kern.

Johnson, Robert William, Jr.

Johnson, Ross Byron.

Johnston, Kenneth Howard. *See* Riggs, C. H.

Jolivet, J. *See* Barrabé, L.

Jonas, Edward Charles. *See* Anderson, A. E.

Jones, Daniel John.

Jones, Daniel Jonathan.
Jones, Harriet Nell.

Jones, J. Knox, Jr.

Jones, John Brett.
Dispersion in trioctahedral micas [abs.]: Dissert. Abs., v. 18, no. 6, p. 2160, June 1958.

Jones, R. E. See Morey, G. W.

Jones, Richard D.

Jones, Robert William.

Jooste, René François.

Jordan, James N. See Brazee, R. J.

Jordan, Louise.

Jost, T. P.

Judson, S. Sheldon, Jr. See also Leet, L. D.

Jumikis, Alfreds R.

Jussen, Virginia M. See King, R. R.

Just, Theodor Karl.

Kaalstad, T. See Miller, C. L.

Kaasschieter, J. P. H. See Drooger, C. W.
Kaeiser, Margaret.

Kahn, James Steven.

Kaiser, Albert D., Jr. See Taggart, M. S., Jr.

Kalousek, George Lawrence.

Kamb, Walter Barclay.

Kane, Martin Francis. See Pakiser, L. C., Jr., 2.

Kansas Geological Society.
Guidebook, 22d field conference, south-central Colorado, September 1958. 173 p., illus. incl. geol. maps, 1958. Includes papers by several authors which are cited individually.

Kapnicky, George.

Karle, Jerome.

Karlstrom, Thor Nels Vincent.

Katich, Philip Joseph, Jr.

Kauffman, Erle G. See Kesling, R. V., 3; Stumm, E. C., 3.

Kaufman, Alvin.


Kay, James LeRoy.
Kaye, Clifford Alan. See also Lemke, R. W., 3.
Antonio Lucchetti Dam, Puerto Rico: Geol. Soc. America Eng. Geology
Case Histories, no. 2, p. 9-11, illus. incl. geol. sketch map, Mar.
1958.

Kazmann, Raphael Gabriel.
Problems encountered in the utilization of ground-water reservoirs: Am.
Geophys. Union Trans., v. 39, no. 1, p. 94-99, illus., Feb. 1958; discussion

Kedesdy, Horst H. See Tauber, A.

Keefer, William Richard.
Cenozoic landslides versus klippen [Wyo.][abs.]: Geol. Soc. America Bull.,

Keevil, Norman Bell. See Bergey, W. R.


Kellagher, Richard C. See Ashby, G. E.

Keller, George V. See also Anderson, L. A.; Zablocki, C. J.
(and Zablocki, Charles Joseph, and Frischknecht, Frank Conrad). Electrical
methods of geophysical prospecting in the Lake Superior
district [Minn.][abs.], in Institute on Lake Superior geology, April
21-22, 1958, p. 3(1), Minneapolis, Univ. Minn. Center for Contin­
uation Study [1958].

Keller, Walter David. See also Slaughter, M.
1. Glauconitic mica in the Morrison formation in Colorado, in Swineford,
A., ed., Clays and clay minerals: Natl. Research Council Pub. 566,
p. 120-128, illus., 1958.
2. Argillation and direct bauxitization in terms of concentrations of hy­
drogen and metal cations at surface of hydrolyzing aluminum sili­
minerals, by C. P. Gravenor and G. J. S. Govett, and reply by

Kellett, Charles Richard.
Subsurface geology of the Purcell area, Cleveland and McClain Counties,

Kelley, Dana R.
(and Kerr, Paul Francis). Urano-organic ore at Temple Mountain, Utah:

Kelley, Danford Greenfield. See also Canada G. S., 11.
Mississippian stratigraphy and petroleum possibilities of central Cape
Breton Island, Nova Scotia: Canadian Min. Metall. Bull., no. 554,
p. 341-351, illus. incl. geol. map, June 1958; Canadian Inst. Mining
and Metallurgy Trans., v. 61, p. 175-185, illus. incl. geol. map, 1958.

Kelley, Vincent Cooper.
1. Tectonics of the region of the Paradox basin [Colorado Plateau], in
Field Conf. 1958, p. 31-38, illus., 1958.
2. Tectonics of the Black Mesa basin region of Arizona, in N. Mex. Geol.
Petroleum Geologists Bull., v. 42, no. 5, p. 1094-1099, illus., May
1958.

Kellner, J. M. See Hildebrandt, A. B.
Kellum, Lewis Burnett.  

[Kelly, Lem].
Geology [Bicroft uranium mines, Ontario]: Western Miner, v. 31, no. 4, p. 81–84, illus., Apr. 1958.

Kelly, Sherwin Finch.  

Kelly, William Crowley.  

Kempton, John Paul.  See Selkregg, L. F.

Kenan, Wilfred M.  

Kendall, David L.  

Kennedy, George Clayton.  See also Buerger, M. J., 1; Holser, W. T., 1.

Kennedy, Vance Clifford.  See Weir, G. W., 1.

Kenny, J. S.  See King-Webster, W. A.

[Kent, G. R.].  

Kent, Harry Christison.  
Kerns, John R.


Kerr, Bobby Gene.


Kerr, Paul Francis. See also Bollin, E. M.; Kelley, D. R.; Kopp, O. C., 1, 2.

Kesler, Leland W. See Norton, G. H.

Kesling, Robert Vernon. See also Ehlers, G. M., 1, 2; Kier, P. M., 3.

Keys, W. Scott.


Khitrov, V. G. See Rusanov, A. K.

Kidwai, Zamir U.

Kier, Porter M.

Kierans, Martin Devalera. See Knight, C. L.

Kiersch, George Alfred.


Kimmell, Charles Ebert.

Kindle, Cecil Haldane.


King, G. T. See Hoyle, J. W.

King, Haddon F.

King, Lester C.

King, Philip Burke. See also Hall, W. Ellis.
King, Ruth Reece.

King-Webster, W. A.

Kinney, Corliss Robert.

Kinnison, John E.


Kirchner, G. See Fischer, B.

Kirchner, Zbigniew M.

Kirkland, Douglas.

Kirkland, S. J. T.

Kistler, R. See Evernden, J. F., 1.

Kitts, David B.

Kjellesvig-Waering, Erik N.

Klapper, Gilbert.

Klein, Howard. See Schroeder, M. C.
Klein, Ira E.

Klein, John Richard.

Kleinhampl, Frank J. See Pierson, C. T.

Klepper, Montis Ruhl. See Freeman, V. L.

Kline, Harry D.

Klingsberg, Cyrus.

Klingspor, Arthur Muller von.

Klugman, Michael Anthony. See also Hayes, J. R., 2.

Knebel, Robert Mollison.

Knight, C. L.

Knight, James Brookes. See Easton, W. H.

Knight, Wilbur Lawrence. See Kennedy, G. C.

Knížek, Ilján Otto.

Knopoff, Leon. See also MacDonald, G. J. F.

Knowles, Doyle Blewer.
Knowles, Ruth Sheldon.  

Knutson, Ray Manvel.  
Structural sections and the third dimension: Econ. Geology, v. 53, no. 8,  

Koczy, Friedrich Franz.  
Natural radium as a tracer in the ocean, in United Nations, Waste treat­  
ment and environmental aspects of atomic energy: Internat. Conf.  
Peaceful Uses Atomic Energy, 2d, Geneva, Sept. 1958, Proc., v. 18,  
p. 351-357, illus., 1958.

Koehler, George F.  See Boyle, R. W., 1.

Koenig, James B.  See Strand, R. G.

Koenig, John Waldo.
1. Bibliography of the geology of Missouri, 1957. 35 p.(†), Rolla, Mo.  
2. Fenestrate Bryozoa in the Chouteau group of central Missouri: Jour.  

Koester, Edward Albert.
Exploration program results in Kansas [abs.]: Geophysics, v. 23, no. 3,  

Kohman, Truman Paul.  See also Ehmann, W. D., 1, 2.  
Are tektites extra-solar-system meteorites?: Nature, v. 182, no. 4630,  
p. 252-253, London, July 26, 1958; discussion by H. G. Urey,  

Kohout, Francis Anthony.  See Moulder, E. A.

Koide, Minoru.  See Goldberg, E. D., 3.

Koizumi, Mitsue.  
(and Roy, Rustum). The synthesis and equilibrium stability of the cal­  
cium zeolites, [Pt.] 7 of [Phase equilibria in the] System CaO–  
Al₂O₃–SiO₂–H₂O [abs.]: Geol. Soc. America Bull., v. 69, no. 12,  

Kolb, Charles Rudolph.  See also Van Lopik, J. R.  
1. Geologic aspects of control of Mississippi-Atchafalaya diversion, Louisiana:  
Geol. Soc. America Eng. Geology Case Histories, no. 2,  
2. [and Van Lopik, Jack Richard]. Geology of the Mississippi River  
deltaic plain, southeastern Louisiana—V. 1: U. S. Army, Corps of  
Engineers, Waterways Expt. Sta. Tech. Rept., no. 3-483, viii, 120 p.,  
illus.; V. 2, maps, July 1958.

Koldewijn, Bernard Willem.  
Sediments of the Paria-Trinidad shelf, V. 3 of Reports of the Orinoco  

Kollaja, Alvin August.  
Application of Fuller’s carbon-ratio theory in North Texas, in North  

Konishi, Kenji.  See also Johnson, J. Harlan, 3.  
Devonian calcareous algae from Alberta, Canada, Pt. 2 of Studies of  
Devonian algae: Colo. School Mines Quart., v. 53, no. 2, p. 86-109,  
illus., Apr. 1958.
Konizeski, Richard L.

Konta, Jiří.

Koogle, Richard L. See Hayes, P. T.

Koopman, Karl F.
A fossil vampire bat from Cuba: Breviora, no. 90, 4 p., illus., July 30, 1958.

Kopp, Otto C. See also Kerr, P. F., 3.

Koppe, Edwin F.

Kornfeld, Joseph Alton.

Kornicker, Louis Sampson. See also Oppenheimer, C. H., 1; Purdy, E. G.

Korzhinskii, D. S.
Kosanke, Robert Max.  

Koschmann, Albert Herbert. See also Glass, J. J., 1.


Koulomzine, Theodore.  

Kovar, A. J. See Kremp, G. O. W.

Kozak, Frank Dan. See also Nicholson, J. H.  

Kracek, Frank Charles.  

Kramer, James Richard.  


Kratchman, Jack.  

Krebs, Robert Dixon.  
Kremp, Gerhard O. W.

Kretz, Ralph A.


Kruit, C. See Andel, T. H. van, 1.

Krumbein, William Christian.

Krynine, Paul Dimitri.

Ksanda, Charles Jaroslav. See Kracek, F. C.

Kucera, Richard E.

Kuegelgen, Harold von.

Kuellmer, Frederick John.

Kuennen, Philip Henry.

Kuhn, Paul J.
(compiler and editor). Oil and gas in the Four Corners. iv, 298 p., illus., Amarillo, Texas, Natl. Petroleum Bibliography, 1958; supp. map and correlation chart, Apr. 1958. Includes a paper by S. C. Brown, which is not cited individually.

Kuiper, Gerard Peter.
Kulbicki, Georges.

Kullerud, Gunnar. See also Donnay, G., 1; Roseboom, E. H., Jr.

Kulp, John Laurence. See also Damon, P. E., 1, 2; Gast, P. W., 1; Long, L. E.; Miller, D. S.

Kulstad, Robert Otto.

Kundert, Charles Jay.

Kunkel, Robert Paul.

Kuno, Hisashi.

Kupfer, Donald Harry.

Kupsch, Walter Oscar.

Kurtz, P., Jr. See Herold, P. G.

Labrecque, John Ernest. See Peterson, G. W.

Lachenbruch, Arthur Herold.
Lackie, J. H.

Laird, Raymond Tiras. See Oesterling, W. A.


Lakhanpal, Rajendra Nath.

Lakin, Hubert William. See Theobald, P. K., Jr.

La Londe, Ronald Edward. See Wells, R. G.

Lamerson, Paul R.

Laming, Deryck James Colson.

Lamon, Robert Scott. See Scott, James C., 2.

LaMoreaux, Philip Elmer.

Lance, John Franklin. See also Repenning, C. A.

Landauer, Joseph K.

Landen, David.

Landes, Kenneth Knight. See also Cohee, G. V.

Landisman, Mark G.
BIBLIOGRAPHY

Landsberg, Helmut Erich.

Lane, Charles Wallace. See Stramel, G. J.

Lane, N. Gary.

Lang, Arthur Hamilton. See also Griffith, J. W.

Lang, Solomon Max. See Barksdale, H. C.

Lange, Arthur L.

Lange, Erwin F.

Langford, George.

Langford, George Burwash.

Langford, Russell H. See Robinove, C. J.

Langston, Robert B.

Langston, Wann, Jr.

Langway, Chester C., Jr.

LaPaz, Lincoln.
The effects of meteorites upon the earth (including its inhabitants, atmosphere, and satellites), in V. 4 of Landsberg and Van Mieghem, eds., Advances in geophysics, p. 217–350, illus., 1958.

Lapham, Davis Mortimer.
Lapinsky, William J.

Laporte, William Dale.
The subsurface geology of the Pauls Valley area, Townships 3 and 4 North, Ranges 1 East and 1 West, Garvin County, Oklahoma: Shale Shaker, v. 8, no. 9, p. 7-19, 23-25, illus., May 1958.

Larguier, Leonard J.

Larochelle, Andre. See MacLaren, A. S.

LaRocque, Joseph Alfred Aurele.

Larsen, Esper Signius, Jr.

Larsen, Esper Signius, 3d.


Lasserre, G.

Lathbury, Alison.

Lathram, Ernest Hartwell.

Lattman, Laurence Harold.

Laub, Donald Carl. See Tschanz, C. M.

Laudon, Richard Baker.


Lauerma, Raimo.


Lauff, George H.


Laurencich, Laura. See Howe, H. V.

Laurin, André Frédéric Joseph.


Laursen, Emmett Morton.


Lautenschlager, Herman Kenneth.

The geology of the central part of the Pavant Range, Utah [abs.]: Dissert. Abs., v. 18, no. 6, p. 1769–1770, May 1958.

Lauth, Robert Edward. See also Brown, Silas C.


Laval, William Norris.


Laverdière, Camille.


Laverdière, Joseph Willie.


Lavoie, Douglas Harold.

Law, James.

Lawrence, Donald Buermann.

Lawrence, Elizabeth G. See Lawrence, D. B., 2, 3.

Lawrence, Eugene D.

Lawson, Andrew Werner.

Lawson, D. C. See Sahinen, U. M.

Lawton, John Edward.

Layer, Douglas Bruce.

Layton, Donald Walter.

Lea, Edgar R.

Leach, Guy Wayne. See Nicholson, J. H.

Leahy, Richard G. See Livingstone, D. A., 1.

Leake, Bernard E. See Greensmith, J. T.

LeBlanc, Rufus Joseph.

LeComte, Paul. See Birch, A. F., 5.

Ledebur, K. H.

Lederberg, Joshua.

Lee, Donald Edward.

Lee, Hulbert Austin. See Canada G. S., 14.

Lee, Jean Louis. See Smith, G. W.

Lee, Kwang-Yuan.

Leech, Geoffrey Bosdin. See also Wanless, R. K.

Leeds, David Jacob. See Duke, C. M., 2.

Lees, Alan.

Leet, Lewis Don.

LeFevre, B., Jr. See Siegel, S. M.

LeFèvre, Marguerite A.

Legate, Carl Eugene.

LeGrand, Harry Elwood.

Lehner, Francis E. See Press, F., 2.

Lehner, Robert Eugene. See also Anderson, C. A.


Leighton, Morris Morgan.


Leighty, Robert D.


Leininger, Richard K.


Lekas, Mitchell Achilles. See Wood, H. B.

Lemish, John. See also Bisque, R. E.; Hiltrop, C. L.


Lemke, Richard Walter. See also Friends Pleistocene Midwestern.


Lemmon, Dwight Moulton. See Hall, Wayne E.
Lensen, G. J.

Leo, Gerhard William.

Leonard, Arthur Byron. See also Swineford, A., 2.

Leopold, Estella B.

LeRoy, Leslie Walter. See also Haun, J. D., 2.

Lesser-Jones, Heinz.

Lesure, Frank Gardner. See also Huff, L. C., 1-3.

Leutze, Willard P.

Levandowski, Donald William.

Leve, Gilbert Warren.

Leventhal, Stanley Marvin.

Levin, Franklyn Kussel.


Levine, Harry.


Levorsen, Arville Irving.


Levy, Henri Arthur. *See* Busing, W. R.


Lewis, George Edward.


Lewis, James Otis, Jr.

Texas’ Lower Frio potential now can be recognized: *World Oil*, v. 146, no. 7, p. 109-114, illus., June 1958.

Lewis, Paul Joseph.


Lewis, Richard Quintin, Sr.


Lewis, Walter E.

Lewis, William Dabney.

Li, Kuo-Ch’in.

Liang, Ta.


Ligasacchi, Attilio. See Amstutz, G. C., 7.

Lindberg, Marie Louise Lange.
The beryllium content of roscherite from the Sapucaia pegmatite mine, Minas Gerais, Brazil, and from other localities: Am. Mineralogist, v. 43, nos. 9–10, p. 824–838, illus., Sept.–Oct. 1958.

Linehan, Daniel.

Link, Cord H., Jr.

Link, Theodore August. See Reasoner, M. A.

Linscott, Robert Orrin.

Linsley, Earle Gorton.

Lintz, Joseph, Jr.

Lipson, Joseph I.  
See also Curtis, G. H., 2; Evernden, J. F., 2, 3.  

Lister, H.  

Litsey, Linus Reid.  
See also Boardman, R. L.  

Littleton, Robert Thomas.  

Littmann, Edwin R.  

Liu, Hsin-Kuan.  

Livingston, Vaughn E., Jr.  

Livingstone, B. G. R.  
See Livingstone, D. A., 2.

Livingstone, Daniel Archibald.  


Ljunggren, Pontus.  


Loback, Armin Kohl, 1886-1958.  
Block diagrams and other graphic methods used in geology and geography. 2d ed., xi, 212 p., illus., Amherst, Mass., Emerson-Trussell Book Co., 1958; originally published 1924.
Lochman-Balk, Christina. See also Jicha, H. L., Jr., 2.

Loeblich, Alfred Richard, Jr.

Lofgren, Benjamin Elder.

Lohr, Lewis S. See Lintz, J., Jr., 2.

Lohse, Edgar Alan.

Loney, Robert Ahlberg. See Lathram, E. H., 1, 2.

Long, A. T.
Ground-water geology of Real County, Texas: Texas Board of Water Engineers Bull. 5803, 47 p., illus. incl. geol. map, Oct. 1958.

Long, Abijah, d. 1934.
(and Long, Joe N.). The Big Cave—early history and authentic facts concerning the history and discovery of the world famous Carlsbad Caverns of New Mexico. 2d ed., 126 p., illus., Long Beach, Calif., Cushman Pubs., 1958.

Long, Harriet K.

Long, Joe N. See Long, A.

Long, Leon Eugene. See also Eckelmann, F. D., 2; Gast, P. W., 1; Kulp, J. L., 1.


Longley, William Warren.
Longwell, Chester Ray. See also Bowyer, B., 1.
2. My estimate of the continental drift concept, in Carey, S. W., Continen­

Lonsdale, John Tipton. See Dietrich, J. W.; Hazzard, R. T.

Loranger, Diane M.

Lorenzo, José Luis. See also White, S. E.

Lorshbough, A. L.

Lotze, Franz. See Bucher, W. H., 1; Gutenberg, B., 1.

Loud, Elisabeth S. See King, R. R.

Lougee, Richard Jewett.

Lounsbery, D. E.

Lounsbury, Richard William.

Love, John David. See also Murphy, J. F.

Lovejoy, Donald Walker.
Lovering, J. Kerry.

Differentiation problems in basic complexes in relation to an area in the Sierra Nevada, California [abs.], in Dolerite—a symposium, by Carey, S. W. p. 61, Hobart, Geology Dept., Univ. Tasmania, 1958.

Lovering, John F.


Lovering, Thomas Seward.


Lovering, Tom Gray.


Lovitt, E. H.


Low, John H.


Low, Julian William.


Lowe, Kurt Emil. See also N. Y. State Geol. Assoc.


Lowenstam, Heinz Adolf. See Ginsburg, R. N.

Lowman, Shepard Wetmore.


Lowry, Wallace Dean. See Dietrich, R. V., 5.
Lowther, John Stewart.

Lubbock Geological Society.
Cross section, Chaves County, New Mexico, to Cottle County, Texas. Lubbock, Texas, Sept. 19, 1958.

Lucas, Elmer Lawrence.

Lucas, Henry F., Jr.

Ludlum, John Charles.

Ludwick, Jimmy Donald.

Lueder, Donald R. See Mollard, J. D., 1.

Lumb, Wallace E. See Melchin, G. L., 1.

Lund, Ernest Howard.

Lundberg, Hans T. F.

Lundgren, Lawrence W., Jr.

Lusk, L. Douglas.

Luskin, Bernard. See Beckmann, W. C.
Luther, Edward Turner.

Lutton, Richard J.

Lutzen, Edwin E.

Lyall, H. Bruce.
Geology of Hainaut-Champagne area, Pontiac County, Quebec [abs.]: Canadian Min. Jour., v. 79, no. 7, p. 97, July 1958.

Lyman, John.

Lynn, Ralph Dupps. See Levin, F. K.

Lyon, R. J. P.

Lyons, John Bartholomew.

Lyons, Paul Lightner.

Lyons, Thomas Robert.
Pennsylvanian oil and gas fields of the Paradox basin [Colorado Plateau], in Rocky Mt. Assoc. Geologists, Symposium on Pennsylvanian rocks of Colorado and adjacent areas, p. 117–121, illus., 1958.

Lytle, Farrell W.

Mabey, Don Russell.

McAllister, James Franklin.

McAllister, Raymond Francis, Jr.

McAndrew, John. See Stanton, R. L., 1.
McAtee, James Lee, Jr.  

Macaú Vilar, Federico.  

Macauley, George.  

McBirney, Alexander R.  

McCallum, Kenneth James. See Dyck, W. J.

McCarter, Ronald S. See Whitehouse, U. G.

MacCarthy, Gerald Raleigh.  

McCartney, James Thomas. See also Ergun, S.  

McCartney, W. D.  

McCary, Charles Edgar Little.  
Pre-Cathay's geology of the Aspen Hill quadrangle, Giles County, Tennessee [abs.]: Vanderbilt Univ. Abs. Theses 1956–57, p. 31 [Sept. 1957].


McCauley, John F. See also Brummer, J. J., 1.  

Mac Chesney, John Burnette.  

McClellan, Hugh Wallace.  
McClelland, Bramlette.  

MacClintock, Paul.  

McClure, C. D.  

McClure, Cole R., Jr. See also Holdredge, C. P.  

McClymonds, Neal Erskine.  

McCollum, Elmer Verner.  

McConnell, Duncan. See also Lund, E. H., 1.  

McConnell, William Hall. See Meholin, G. L., 1.

McCoy, Melville Riley. See also Jenkens, M. A., Jr.  

McCrossan, Robert George.  

McCulloch, David Sears.  

Macdonald, Gordon Andrew.  
MacDonald, Gordon J. F. *See also* Boucot, A. J., 3; Knopoff, L., 1.

Macdonald, James Reid.

McDonald, Robert Eugene.

McDowell, Samuel Booker, Jr.

MacFall, Russell P.

McFarlan, Arthur Crane.
Behind the scenery in Kentucky: Ky. Geol. Survey, ser. 9, Special Pub., no. 10, 144 p., illus. incl. geol. sketch map, 1958.

McGill, George Emmert.

McGill, John Thomas.

MacGinitie, Harry Dunlap.

McGinnis, Charles James.

McGinty, Daniel A.

McGourty, J. P. *See* Badollet, M. S.


McGrain, Preston.

McGregor, Duncan Junior. *See also* Greenberg, S. S., 1.

McGugan, Alan. *See also* Hughes, R. D.
Machado, Frederico.

McHugh, Olivia.
Geology highlights between Salt Lake City and Camp Cloud Rim, in Mineralog. Soc. Utah, Field trip to Park City via Brighton, Aug. 1958, p. 17-22 [1958].

McIntosh, Willard Lynn.

McIntyre, Donald David. See Thornton, C. P., 2.

Mack, Seymour.
2. Geology and ground water resources of Scott and Shasta Valleys, Siskiyou County, California [abs.]: Dissert. Abs., v. 18, no. 1, p. 197, Jan. 1958.

MacKallor, Jules A.

Mackay, John Ross.

McKee, Edith M.
Are all these dry holes necessary?: Oil and Gas Jour., v. 56, no. 46, p. 298-306 incl. ads., illus., Nov. 17, 1958.

McKee, Edwin Dinwiddie.

McKee, Elliott Bates, Jr.

McKenzie, R. M.


McKeown, Francis Alexander.
BIBLIOGRAPHY OF NORTH AMERICAN GEOLOGY, 1958

Mackereth, F. J. H.

MacKevett, Edward Malcolm, Jr. See also Hall, Wayne E.

McKinney, Charles R. See Brown, Harrison S.; Chow, T. J.

McKinstry, Hugh Exton.

MacKnight, Franklin Collester.

MacLaren, Alexander Stewart.

McLaren, Digby Johns. See also Harker, P., 2; Taylor, P. W.

McLaughlin, Dean Benjamin. See also Geyer, A. R.; Gray, C.


McLaughlin, R. J. W.

McLehaney, James D., Jr.

MacLeod, D. MacG. See Goudge, M. G.

McMaster, Robert Luscher.

McMillion, L. G.
Ground-water geology in the vicinity of Dove and Croton Creeks, Stonewall, Kent, Dickens and King Counties, Texas, with special reference to salt-water seepage: Texas Board of Water Engineers Bull. 5801, 53 p., illus., July 1958.

McMurry, Howard Vernon.
Exploration of a forty-square-mile tract near Cameron Lake, Quebec, in Canadian Inst. Mining and Metallurgy, Comm. Geophysicists, Methods and case histories in mining geophysics, p. 226–236, illus. incl. geol. sketch maps [1957].
BIBLIOGRAPHY

McMurry, John H.

MacNeal, Donald L.


MacNeill, R. H.

McPhee, Duncan S.

MacPherson, H. G.

McQueen, Kathleen.

McQueen, Robert G. See Hughes, D. S.

McTaggart, Kenneth Cunningham. See Green, L. H., 2.

McVicker, L. D. See Goldsmith, J. R., 1.

Maddock, Thomas, Jr. See Liu, H.-K.

Madison, Kenneth M.

Magas, Istvan Osscar.

Magill, Arthur Clay.

Magnusson, Donald Harry. See Austin, G. H. M.

Maher, John Charles. See also Roberts, A. E., 1.

Maher, Stuart Wilder. See Swingle, G. D.

Maine Geological Survey.

Malde, Harold Edwin.

Maldonado-Koerdell, Manuel.

Malin, William John.


Mallory, William Wyman.

Maloney, Raymond P.

Mandarino, Joseph Anthony.
Manderfield, Nicholas Hubert. See Tolonen, F. J.

Manger, George Edward.

Mangold, George B.

Mankin, Charles John.

Mann, Christian John.

Mann, John Francis, Jr.

Mann, Robert J. See Miller, H. W., Jr., 1.

Mann, Wallace.

Mansfield, Silas P.

Mapel, William Jameson.

Mapes Vázquez, Eduardo. See Porraz Zanabria, R.


Marcin, Edward J.
BIBLIOGRAPHY OF NORTH AMERICAN GEOLOGY, 1958

Marianos, Andrew W.

Markewicz, Frank J. See also Ethington, R. L., 1; Johnson, M. E., 1, 2.

Marks, Lawrence Y.

Marleau, Raymond-Alban.

Marliave, Elmer Chester.

Marmo, Vladi.

Marranzino, Albert P.

Marsell, Ray E.

Marshack, Alexander.
The world in space—the story of the International Geophysical Year. 176 p., illus., New York, Thomas Nelson & Sons, 1958.

Marshall, Charles Edmund. See Brydon, J. E.

Marshall, Charles Edward.
(and others). Petrographic and coking characteristics of coal—laboratory study of Illinois coal seams nos. 5 and 6: Ill. State Geol. Survey Bull. 84, 120 p., illus., 1958.

Marshall, John.

Marshall, Royal R.

Martin, Helen Mary Mandeville.

Martin, Leonard John.

Martin, Paul Schultz.

Martin, R. Torrence.

Martinez, Joseph Didier. See also Howell, L. G.

Martinez Bermúdez, Juan José. See Cortés-Obregón, S.

Martin-Kaye, Peter Hilary Alexander.

Mason, Brian Harold.

Mason, Curtis Calvin.

Mason, Ralph S. See Peterson, N. V., 1.
Mason, Ronald J.

Massoni, Camillo J. See Virgin, W. W., Jr.

Masuda, Akimasa.

Matheny, Marvin L. See Wengerd, S. A., 3.

Mather, Katharine Kniskern.

Mather, Kirtley Fletcher.


Mathews, William Henry.

Mathieson, Alexander McLeod.

Mathieu, Suzanne. See Chevallier, R.

Mathy, Harold Edward. See Johnson, Ray B.

Matsumoto, Tatsuro.

Matthaei, Marjorie.

Matthews, Claude Willard. See Mudge, M. R.

Matthews, William Henry, 3d.

Matus, Irwin.

Matzko, John Joseph.
Mawdsley, James Buckland.

Maxey, George Burke.

Maxwell, Charles H. See Sheridan, D. M.


Maxwell, John Crawford. See Moody, J. D.

Maxwell, Ross Allan. See Flawn, P. T., 1; Hazzard, R. T.

May, Julian.
You and the earth beneath us. 63 p., illus., Chicago, Ill., Childrens Press, 1958.

Mayo, Evans Blakemore.
2. Lineament tectonics and some ore districts of the Southwest: Min. Eng., v. 10, no. 11, p. 1169-1175, illus., Nov. 1958.

Maywald, Richard H.

Mead, Edwin R.
Recent iron finds in northwestern Ontario [abs.], in Institute on Lake Superior geology, April 21-22, 1958. p. 30(†), Minneapolis, Univ. Minn. Center for Continuation Study [1958].

Meader, Robert Wooten. See Swain, F. M., Jr., 2.

Meadors, George S. See Parrott, W. T., 1, 2.

Meek, Kenneth St. Clair, Jr.

Meen, Victor Ben.

Meents, Wayne Franklin.

Meholin, Graydon L.
1. (chairman, and others). North-south cross section—Seward County, Kansas, to Floyd County, Texas: Panhandle Geol. Soc. [Cross Sec., no. 1], Feb. 21, 1952.
2. (chairman, and others). East-west cross section—Union County, New Mexico, to Ellis County, Oklahoma: Panhandle Geol. Soc. [Cross Sec., no. 2], July 1953.

Meidav, Tsvi.
Meier, Mark F. See also Allen, C. R., 1.

Melbourne, William G. See Meier, M. F., 1.

Melchior, Paul J.

Melhorn, Wilton Newton.

Mellen, Frederic Francis.

Mellersh, H. E. L.

Melton, Mark A.

Menard, Henry William, Jr.

Mendenhall, Harold L.

Meneley, W. A. See Gravenor, C. P.

Mentser, Morris. See Ergun, S.

Menzel, Donald Howard. See Gold, T., 2.

Merino y Coronado, José.
Merriam, Daniel Francis.

Merriam, Richard Holmes. See also Bellemin, G. J.

Merrill, John R.

Merrill, William Meredith. See also Richmond, G. M.

Merrin, Seymour.

Merritt, Clifford Addison.

Mertie, John Beaver, Jr.

Meschter, Daniel Y.

Messina, Angelina Rose. See Ellis, B. F., 1, 2.

Metsger, Robert W.

Metter, Raymond Earl.
Meurer, Marcus C.  See Jenkins, R. E.


Meyer, Gerald.


Meyer, Robert Paul.  See also Steinhart, J. S.; Woollard, G. P., 1.


Meyer-Abich, Helmut.


Meyrowitz, Robert.  See Thompson, M. E., 1, 2.

Michael, Robert D.


Michaels, Alan Sherman.


Middleton, Gerard V.


Miesch, Alfred Thomas.


Migliaccio, Ralph R.

Middle Cambrian trilobites from the Ophir shale of central Utah: Compass, v. 35, no. 4, p. 298–301, illus., May 1958.

Miles, Alfred Edgar.

Millard, Frank Stutzman.  

Miller, Andrew Howard.  See Thompson, L. G. D., 2.

Miller, Arthur K.  See also Easton, W. H.  

Miller, Buster Wallace.  

Miller, C. L.  

Miller, Charles Parker.  

Miller, Don John.  See also Plafker, G.; Williams, Howel.  

Miller, Donald S.  

Miller, Gerald M.  

Miller, Glen Allen.  See also Carswell, L. D., 2.  

Miller, Halsey Wilkinson, Jr.  See also Matsumoto, T.  
Miller, J. D., Jr.
1. Ground water in the vicinity of Bryce State Hospital, Tuscaloosa County, Alabama: Ala. Geol. Survey Inf. Ser. 12, 7 p., illus., 1958.

Miller, John Preston. See also Carter, G. F., 1.

Miller, Leo J.

Miller, Loye Holmes.

Miller, Maynard M.

Miller, Ralph LeRoy. See Harris, L. D., 1.

Miller, Robert J. M.
Geology and ore deposits of the Cedar Bay mine area, Chibougamau district, Quebec [abs.]: Canadian Min. Jour., v. 79, no. 3, p. 86, Mar. 1958.

Miller, Robert Lee. See also Olson, E. C., 1.

Miller, Robert Rush.

Miller, T. H. See Floyd, D. N.

Millette, J. F. Gerard.

Milligan, G. C.
Milne, Ivan Herbert.

Milne, William George.

Milner, Robert Leopold.

Milton, Charles. See also Boucot, A. J., 3; Eugster, H. P.; Heinrich, E. W., 3; Johnson, R. W., Jr., 2.


Mineralogical Society of Utah.
1. (Wilson, Stephen Ray). Gold Hill, Utah, Clifton district, Tooele County, field trip, April 19–20, 1958. 13 p., illus., privately printed [1958].
2. Field trip to Park City via Brighton, August 17, 1958. 34 p., geol. sketch map, privately printed [1958]. Includes papers by M. B. Kildale and O. McHugh, which are cited individually.

Minnesota University, Center for Continuation Study.
7th annual drilling symposium—exploration drilling, October 3–5, 1957. xii, 153 p. (†), illus., Minneapolis [1957]. Includes papers by several authors which are cited individually.

Misch, Peter H.

Missouri Geological Survey and Water Resources.
Water possibilities from the glacial drift [ground-water reports by counties]. (†), 1956–57.

Mitchell, David Ray. See Spokes, E. M.
Mitchell, Porter Hayward.

Mitchell, Raoul C.

Mitchell, Richard Scott. See also Gross, E. B.

Mitchum, Robert Mitchell, Jr. See also Metter, R. E.

Miyashiro, Akiho.

Moberly, Ralph Moon, Jr.

Møller, Jens Tyge.

Moench, Robert Hadley. See also Hilpert, L. S., 1; Sims, P. K., 2.

Moir, D. R.

Molina Berbeyer, Rafael.


Mollard, John Douglas.


Molloy, Marjorie. See Larsen, E. S., Jr., 4.

Monaghan, Ralph. See Werner, H. J.

Monnett, Victor Elvert. See Brown, H. E.

Monroe, Watson Hiner.

Monster, Jan. See Thode, H. G.

Moody, John Drummond.

Moorbath, S.

Moore, Bruce Halsey.

Moore, Carl Allphin.

Moore, David G.

Moore, Elwood S.
Moore, George Emerson, Jr.


Moore, George William.


Moore, H. E. See Hoering, T. C.

Moore, Patrick.

The Earth, our home. 143 p., illus., New York, Abelard-Schuman, 1957.

Moore, Peter Fitzgerald. See also Forgotson, J. L., Jr., 1.


Moore, Raymond Cecil. See also deLaubenfels, M. W.; San Angelo Geol. Soc.


Moore, Richard Thomas. See also Wilson, Eldred D.


Moore, Walter Lee.


Moore, Wayne Elden.


Moorhouse, Walter Wilson.


Mooser, Federico.


Moran, Douglas E. See Ingle, J. C., Jr.
Morehead, Marcus B.  

Morey, George Washington.  

Morgan, J. W.  See Webster, R. K.

Morgan, James Plummer.  

Morgan, W. H.  See Bruun, P.

Morgando, Frank P.  

Morimoto, Nobuo.  See also Schairer, J. F.  

Morisawa, Marie.  

Moritz, Carl Albert.  

Morkhoven, F. P. C. M. van.  

Morrill, Philip.  
(and others). Western Maine, V. 1 of Maine mines and minerals. 80 p., illus., Naples, Maine, Dillingham Nat. History Mus., 1958.

Morris, Donald Arthur.  See Whitcomb, H. A.

Morris, Robert Wynn.  

Morrissey, Norman Stewart.  
2. Green River basin [Wyo.] has what it takes to increase Rockies gas reserves and to become a major oil province: Oil and Gas Jour., v. 56, no. 31, p. 132, 134-135, illus., Aug. 4, 1958.

Morrison, Alastair.  

Morrow, William Earl.  
Mortland, M. M.

Mosebach, Rudolf.

Moseley, John Reed. See Geyer, A. R.

Moss, John Hall. See also Bricker, O. P.

Motts, Ward Sundt.

Moulder, Edward Arlo.

Mountjoy, Eric Walter.

Moxham, R. L. See Boyle, R. W., 1.

Moxham, Robert Morgan.

Moyd, Louis Stephen.
1. The negative magnetic anomalies of Rivière Portneuf and Lac Pauline, Chicoutimi County, Quebec, in Canadian Inst. Mining and Metallurgy, Comm. Geophysicists, Methods and case histories in mining geophysics, p. 163-168, illus. [1957].

Moyle, Richard W.
Paleoecology of the Manning Canyon Shale in central Utah: Brigham Young Univ. Research Studies Geology Ser., v. 5, no. 7, iv, 86 p., illus., July 1958.

Mrak, Vernon A.
BIBLIOGRAPHY

Mrose, Mary Emma. See also Carron, M. K., 2; Clark, J. R.; Evans, H. T., Jr., 1; Milton, C., 5.

Muan, Arnulf. See also Mac Chesney, J. B.

Mudge, Melville Rhodes.

Muehlberger, William Rudolf.

Müller, Klaus J.

Mueller, Paul M.

Mueller, Robert F.

Muench, Nils L.

Muessig, Siegfried Joseph.

Muilenburg, Garrett A.

Muilenburg, Grace.
Muire, Forrest Hopkins, Jr. See Creager, N. G.

Mukherjee, Nalini Ranjan.

Mulchay, Roland B. See Sales, R. H.

Mullens, Thomas Ellison.

Muller, Ernest Hathaway.

Muller, Jan Engelbert.

Muller, Siemon William.


Mumpton, Frederick Albert. See also Roy, R.

Munk, Walter Heinrich. See Elsasser, W. M.

Murata, Kiguma Jack. See also Carron, M. K., 2; Robinson, W. O.

Murdoch, Joseph. See also McConnell, D., 1.


Muriedas Pavon, Alfonso. See Basurto García, J.

Murphy, Edward Gilpin. See Fentress, G. H., 2.

Murphy, John Francis.

Murphy, Michael A. See Winterer, E. L., 2.
Murphy, Thomas Daniel.

Murray, Elaine Geisse.

Murray, Grover Elmer.

Murray, Harrison Frank.

Murray, Haydn Herbert. See also Wheeler, H. E., 2.

Murray, John Wolcott. See Dietrich, R. V., 4.

Mursky, G. A.

Murthy, M. V. N.

Murthy, Varanasi Rama.

Musgrave, Albert Wayne.

Mutch, Alexander D. See Butler, B. S.

Myers, Alfred Tennyson. See Oda, U.

Myers, Arthur John.

Myers, Donald Arthur.
Myers, William G.
Geology of the Six Mile Gap area, Carbon County, Wyoming [abs.]: Geol.

Myttton, James Wilson. See Pierce, A. P.

Nace, Raymond Lee.
1. (and Bieber, Paul Peter). Ground-water resources of Harrison County,
West Virginia: W. Va. Geol. Survey Bull., no. 14, v. 55 p., illus.,
June 1958.
2. Hydrology of the Snake River basalt [Idaho][abs.]: Washington Acad.

Nackowski, Matthew Peter. See also Austin, C. F.; Slawson, W. F.
Physical and chemical environment of Illinois–Kentucky fluorspar depos­
its [abs.]: Econ. Geology, v. 53, no. 7, p. 925–926, Nov. 1958; Geol.

Naeser, Charles Rudolph. See Carron, M. K., 1; Garrels, R. M., 2.

Nafe, John Elliott.
(and Drake, Charles L.). Physical properties of crustal materials as
related to compressional wave velocities [abs.]: Geophysics, v. 23,

Nagashima, Kōzō. See Kuno, H.

Nagy, Bartholomew Stephen.
1. Fundamentals of geochemistry—Pt. 1, The primitive earth; Pt. 2, Early
climates—clues to source rocks; Pt. 3, Waters of the earth; Pt. 4,
Microorganisms play big role in the origin of oil and coal; Pt. 5,
The origin of oil: Oil and Gas Jour., v. 56, no. 26, p. 126–128, illus.,
June 30, 1958; Pt. 2, no. 28, p. 155–156, 158, illus., with correction
to Pt. 1, July 14, 1958; Pt. 3, no. 30, p. 265–266, 269, illus., July 22,
1958; Pt. 4, no. 32, p. 146–148, 151, Aug. 11, 1958; Pt. 5, no. 34,
2. (and Wourms, John P., Jr.). Chromatographic separation and concen­
tration of organic compounds in sediments [abs.]: Geol. Soc. America

Nakagawa, Harry M. See Thompson, C. E.

Nakahira, M. See Brindley, G. W., 3, 4.

Naldrett, Stanley Norman.
Half life of rhenium and ages of minerals: N. Y. Acad. Sci. Annals,

Nanney, Cecil A.
1. Possible correlations between earthquakes and microseisms: Nature,
2. A proposed mechanism for the earthquake-microseisms correlations
[abs.]: Earthquake Notes, v. 29, no. 2, p. 15, June 1958; Am. Geo­

Narvarte, Peter Eugene.
Note on fault displacement [abs.]: Gulf Coast Assoc. Geol. Socs. Trans.,
v. 8, p. 40, 1958.

Nash, Paul E.
Memorial, Henry Cornelius Cortes [1892–1957]: Geophysics, v. 23, no. 2,

National Research Council, Committee on Clay Minerals.
Guidebook for a field excursion to northeastern Maryland and northern
Delaware. 43 p., illus. incl. geol. sketch map, Washington, D. C.,
BIBLIOGRAPHY

National Research Council, Committee on Nuclear Science.

Natural History.

Nayudu, Y. Rammohanroy.

Neavel, Richard C.


Neff, Arthur William.

Neiheisel, James.

Nelson, Bruce Warren.

Nelson, Henry Francis. See McClure, C. D.; Twenhofel, W. H.

Nelson, Lloyd Alveno. See West Texas Geol. Soc., 2.

Nelson, Robert Benjamin.

Nelson, Samuel James.

Nelson, Wilbur Armistead.  

Nesbitt, John.  

Neuerburg, George Joseph.  

Neuman, Robert Ballin.  See King, P. B., 2.

Neumann, Andrew Conrad.  

Neumann, Frank.  
Oscillator responses to earthquake motions—a new approach to the lateral force problem: Trend Eng., v. 10, no. 4, p. 4-10, 24-25, illus., Oct. 1958.

Neumann, Leo Murray.  

Neurath, Marie.  
The wonder world of land and water. 36 p., illus., New York, Lothrop, Lee & Shepard, 1958.

New Mexico Bureau of Mines and Mineral Resources.  
1. New Mexico energy resources map. Scale about 1 in. to 10 mi., with sections, Socorro, 1958.
2. New Mexico metal resources map. Scale about 1 in. to 10 mi., 1958.
3. New Mexico non-metal resources map. Scale about 1 in. to 10 ml, Socorro, 1958.

New Mexico Geological Society.  

New York State Geological Association.  

Newcomb, Reuben Clair.  
Newcome, Roy, Jr.

Newell, Norman Dennis.


Newton, Arthur Charles.

Newton, John G. See LaMoreaux, P. E.

Nicaragua Servicio Geológico Nacional.

Nichiporuk, Walter.

Nicholls, Geoffrey Dennis. See Hirst, D. M.

Nichols, Donald Raymond. See Ferrians, O. J., Jr.

Nichols, Julious LaFayette.

Nichols, Lewis Green. See Morgan, J. P.

Nichols, Rachel H.

Nichols, Robert Leslie.

Nicholson, John Hirston. See also Totten, R. B., 1.
Nickel, Ernest H.

Nickelsen, Richard P. See also Lattman, L. H., 1; Williams, E. G., 1.

Nicol, David.

Nielsen, H. M. See Berry, W. B. N., 1.

Nielsen, Lawrence Ernie.

Nienaber, James H.

Nier, Alfred Otto C. See Goldich, S. S., 1-3; Hoffman, J. H.

Nikiforoff, Constantin Constantinovich. See Horberg, C. L.

Nininger, Robert D.

Nishihara, Hironao.

Nogami, Henry Hiroshi.
Nolan, Thomas Brennan. See also Miesch, A. T., 1.


Nordquist, John Melville. See Richter, C. F., 3.

Norem, W. L.

Norling, Donald Leonard.

Norman, George William Hallel. See Anderson, C. A.

Norris, Donald Kring. See also Canada G. S., 21.


Norris, Kenneth Stafford.

Norris, Stanley Eugene.


North Dakota Geological Society.

North Dakota Geological Survey.

North Texas Geological Society.

Northrop, John. See Blaik, M.
Norton, Dorita Anne.

Norton, George H.

Norton, James Jennings.

Norton, Matthew Frank.

Norwood, Edward M., Jr.

Nosow, Edmund. See Potter, P. E., 3.

Nova Scotia Department of Mines.
Mineral map of Nova Scotia. Scale about 1 in. to 10 mi., 1956.

Nunes, Arthur de Figueiredo.

Nuttli, Otto William.
1. A method, using S wave data, of determining the direction of horizontal forces which produce an earthquake: Earthquake Notes, v. 29, no. 2, p. 12-14, illus., June 1958.

Nygreen, Paul Wallace.
The Oquirrh formation—stratigraphy of the lower portion in the type area and near Logan, Utah: Utah Geol. Mineralog. Survey Bull. 61, 67 p., illus., Feb. 1958.

Oakeshott, Gordon Blaisdell.

Oakley, Kenneth Page.

Obregón de la Parra, Jorge.
BIBLIOGRAPHY

Oda, Uteana.

Odell, James W. See Snyder, F. G.

oden, Arlo Leigh. See Kesling, R. V., 3.

oden, Thomas Ellsworth, 3d.

Oder, Charles Rollin Lorain.


Oehler, Paul Henry.

Opik, Ernst Julius.

Oertel, A. C. See McKenzie, R. M.

Oertell, E. W. See Grundy, W. D.

Orvig, Tor.

Oesterling, William A.

Officer, Charles Brand, Jr.

O’Flynn, James Baldwin. See Schwade, I. T.

Ogniben, Leo. See Goldman, M. I.

O’Halloran, Daniel J. See Wilson, James T.

Ohio Academy of Science, Geology Section.
Guide to 33d annual field conference, geology of the Akron–Cleveland area, April 12, 1958. 8 p., illus. incl. geol. maps, 1958.

Ohle, Ernest Linwood, Jr.

Oil and Gas Journal.
New Journal oil and gas maps: Oil and Gas Jour., v. 56, no. 11, p. 103–120, illus., Mar. 17, 1958.
O'Keefe, John Aloysius.

Oksa, Donald R.

Okulitch, Vladimir Joseph.

Okuno, Haruo.

Oles, Keith Floyd.  See Misch, P. H.

Oliver, Fred Lamar.

Oliver, Howard William.

Oliver, Jack Ertle.

Oliver, William Albert, Jr.

Olmsted, Franklin Howard.

Olsen, Stanley J.


Olson, Annabel Brown. *See* Brown, Annabel.

Olson, Edwin A. *See also* Eckelmann, F. D., 2.


Olson, Everett Claire.


Olson, Jerry S.


Ontario Department of Mines.


Ontario Fuel Board.


Oppenheimer, Carl H. *See also* Kornicker, L. S., 3.


Ore, H. Thomas.

Oregon Department of Geology and Mineral Industries.
State of Oregon, map showing principal mineral deposits. Scale about 1 in. to 16 mi., with notes on some of the deposits, 1958.

Orkild, Paul P.  See McKeown, F. A.

Oros, Margaret O.  See Whiting, L. L.

Orr, James B.  See also Kay, J. L.

Orr, Phil Cummings.  See Broecker, W. S., 2.

Orr, Wilson L.

Orville, Philip M.

Osborn, Elburt Franklin.  See also Glasser, F. P., 2.

Osborne, Freleigh Fitz.

Osborne, Merton M.  See Grayshon, J. E.

Osmond, John Chambers, Jr.

Osmond, John Kenneth.  See also Adams, J. A. S., 4.

Osoba, J. S.  See Muench, N. L.

Osterwald, Frank William.
1. (and Dean, Basil Gary, compilers).  Preliminary tectonic map of eastern Montana, showing the distribution of uranium deposits: U. S. Geol. Survey Mineral Inv. Field Studies Map MF 126, 2 sheets, scale 1:500,000 (about 1 in. to 8 mi.), 1958.
3. (and Dean, Basil Gary, compilers).  Preliminary tectonic map of western Nebraska and northwestern Kansas showing the distribution of uranium deposits: U. S. Geol. Survey Mineral Inv. Field Studies Map MF 129, 2 sheets, scale 1:500,000 (about 1 in. to 8 mi.), 1958.

Ostrom, Meredith Eggers.

O'Sullivan, J. B.

O'Sullivan, Robert Brett.

Otton, Edmond George.

Outlaw, Donald Elmer. See Barksdale, H. C.


Overstreet, Anne E.

Owen, Edgar Wesley.

Owen, Vaux, Jr.

Ower, John R.

Pablo-Galan, Liberto de.

Pabst, Adolf.

Pace, E. Minor. See Spindler, G. R.

Packham, G. H.
Padberg, Louis R., Jr.

Padden, Michael.

Page, Harry G.

Page, Lincoln Ridler.

Page, Norman J. See Bethke, P. M., 2.

Page, Trevor W. See Bartley, M. W., 1.

Paine, William Rhodes.

Pakiser, Louis Charles, Jr.

Palmer, Allison Ralph.

[Palmer, E. Laurence].


Palmer, H. C. See Boyle, R. W., 1.

Palmer, Katherine Evangeline Hilton Van Winkle.
3. Type specimens of marine mollusca described by P. P. Carpenter from the West Coast (San Diego to British Columbia): Geol. Soc. America Mem. 76, viii, 376 p., illus., Dec. 8, 1958.

Pampeyan, Earl Haig. See Bowyer, B., 1.
BIBLIOGRAPHY

Pangborn, Mark White, Jr.

Parizek, Eldon Joseph.

Parizek, Richard R.

Park, Charles Frederick, Jr.

Parker, Calvin Alfred.

Parker, Frank Leon. See de Laguna, W.

Parker, John Marchbank.

Parker, Margaret Ann. See Marshall, C. Edward.

Parker, Mary C.

Parker, Richard Lee. See Dobervich, G.

Parks, James Marshall, Jr. See also Pogue, J. B.

Parks, William Scott. See Mellen, F. F.

Parrillo, Daniel G. See Markewicz, F. J.

Parrish, Irwin S. See Finnell, T. L., 1.

Parrott, William T.
Parsons, Charles Jay.

Parsons, Garfield E. See Westrick, E. W., 2.

Parsons, Willard Hall.

Partridge, John Frederick, Jr.

Pask, Joseph Adam. See Langston, R. B.

Pate, James Durwood.

Paterson, M. S. See also Griggs, D. T.
2. The melting of calcite in the presence of water and carbon dioxide: Am. Mineralogist, v. 43, nos. 5-6, p. 603-606, illus., May-June 1958.

Paterson, Norman R.

Patterson, Bryan.
2. (and Simons, Elwyn LaVerne). A new barylambdid pantodont from the late Paleocene [Colo.]: Breviora, no. 93, 8 p., illus., Sept. 18, 1958.

Patterson, Claire Cameron. See Goldberg, E. D., 2.

Patterson, Cleo Maurice. See Brown, R. E., 1.

Patterson, John Robert. See Wheeler, H. E., 1.
Patton, William John Hudson.


Patton, William Wallace, Jr.


Paulson, Oscar Lawrence, Jr.


Pauly, Hans.


Pavlovic, Robert.


Payton, Charles E.


Peach, Peter A.


Peacock, J. D.


2. Some investigations into the geology and petrography of Dronning Louise Land, N.E. Greenland: Meddel. om Grønland, bind 157, nr. 4, 159 p., illus. incl. geol. sketch maps, 1958.

Pearce, Denis Wiffen. See Brown, R. E., 1.

Peare, Catherine Owens.


Pearl, Richard Maxwell.


Pearre, Nancy C.  

Pearson, G. Raymond  
Granitic gneisses around the Clare River syncline, Ontario [abs.]: Canadian Min. Jour., v. 79, no. 7, p. 95, July 1958.

Pearson, Robert Carl.  *See also* Tweto, O. L., 3.  

Pedersen, W. D.  *See* McClure, C. R., Jr.

Pederson, C. A.  

Peek, Harry Miles.  

Peeler, T. E.  

Pegau, Arthur August.  

Peirce, Frederick Lowell.  

Peirce, Howard Wesley.  

Pelletier, Bernard Roderick.  

Pemberton, Roger.  

Pemsler, Paul.  
Diffusion of heavy water into hydrated crystalline zeolites—the mobility of water in zeolites [abs.]: Dissert. Abs., v. 18, no. 6, p. 2005, June 1958.

Peng, Chi Jui.  *See* Bailey, S. W.

Penner, David George.  

Pennington, James W. *See* Lewis, W. E.

Pennsylvania Geologists. *See* Cloos, E., 1.

Peperakis, John.


Pepper, James Franklin.


Pérez Larios, José. *See* Cortés-Obregón, S.

Perhac, Ralph M.


Perloff, Alvin. *See* Clark, J. R.; Posner, A. S.

Perry, Eugene C., Jr. *See* Fucron, A. S., 2, 3.

Perry, Eugene Sheridan.


Perry, Thomas Gregory.


Pesci, R. C.


Peters, Jack Warren.


Peters, William Callier.


Peterson, George William.


Peterson, Harold V.

Peterson, James Algert.

Peterson, Keith.

Peterson, Norman V.

Peterson, Rex M. See Kesling, R. V., 5.

Peterson, Robert.

Petsch, Bruno Carl.
Magnetometer map of Harding and Perkins Counties, South Dakota: S. Dak. Geol. Survey Oil and Gas Inv. Map [2], scale about 1 in. to 5 mi., with structure contour map, sections, and text, 1958.

Petter, Charles Kenneth, Jr. See Mitchell, P. H.

Pettersson, Hans.


Pettijohn, Francis John.

Pettit, Lincoln.

Péwé, Troy Lewis.

Phair, George. See also Sims, P. K., 2.
BIBLIOGRAPHY

Phifer, Robert L.

Philbrick, Shailer Shaw.

Phillips, David P.

Phillips, Frank Coles. See Smith, G. F. H.

Phillips, Harry F. See also Pommer, A. M.

Phillips, Jonathan W.
Discontinuity—key word in oil finding: Oil and Gas Jour., v. 56, no. 11, p. 159-173 incl. ads., illus., Mar. 17, 1958.

Phillips, Kenneth A. See Knight, C. L.

Phillips, Laurence S.

Phleger, Fred B., Jr. See also Ewing, G. C.

Phoenix, David Allen.

Picard, Meredith Dane. See also Hunt, C. B., 1.

Pierce, Arthur Preble.
Pierce, Richard LeRoy.

Pierce, William Dwight.
1. A meditation on the genesis and development of a tremendous concept in geophysics [Calif., ground water]. 18 p., privately printed [1958].

Pierce, William Gamewell.

Pierson, Charles Thomas.

Pierson, Lloyd. See Wilson, B. E.

Pillsbury, Richard W. See Williams, M. Y.

Pings, Cornelius J., Jr. See Meier, M. F., 1.

Pinkley, George Roger.

Pinsak, Arthur Peter.

Pinson, William Hamet, Jr. See also Bullwinkel, H. J.; Herzog, L. F., 2d; Hurley, P. M.

Pirkle, Earl C., Jr.

Pirson, Sylvain Joseph.

Pistorius, Anna.

Pitkin, James Alfred.
The geology of the Palmer Quadrangle, Ellis County, Texas: Field & Lab., v. 26, nos. 3–4, p. 75–84, illus. incl. geol. map, July–Oct. 1958.
Plafker, George.  

Planje, Theodore John. See Herold, P. G.

Plass, Gilbert Norman.  

Platt, John Rader.  

Platt, Robert Swanton.  

Piler, Richard. See Davidson, C. F.

Plouff, Donald. See Joesting, H. R., 1.

Plummer, Norman Vincen. See Kulstad, R. O.

Plunkett, J. D. See Herold, P. G.

Podolsky, Terence. See Canada G. S., 17.

Pogue, Jesse B.  

Poland, Joseph Fairfield.  


Poldervaart, Arie. See also Green, J., 1; Wilcox, Ronald E.


Pollock, D. W. T.  
Pollock, James Percy.

Pollock, James W. See Illsley, C. T.

Pomeroy, John S. See also King, R. R.

Pommer, Alfred Michael.

Ponder, John Lewis.

Poole, David M.

Poole, Forrest Graham. See also Stewart, J. H.

Poole, William Hope. See Canada G. S., 13.

Poollen, H. K. van.

Porraz Zanabria, Rubén.

Porter, John Wesley.

Posner, Aaron Sidney.

Postma, Hendrik. See Andel, T. H. van, 1.

Potratz, Herbert August. See Bate, G. L.; Sackett, W. M., 1.
Potter, Paul Edwin.

Poulsen, Christian.

Poultier, Glenn Joseph.


Powell, William F. See Rogers, J. J. W., 3.

Powell, William Jenner.

Powers, Howard Adorno. See also Malde, H. E.; Williams, Howel; Young, E. J., 4.

Powers, Maurice C.


Prasky, Charles. See Lewis, W. E.

Prater, Lewis Seward.

Pratt, Ethel M.

Pratt, Wallace Everette.


Pray, Lloyd Charles.


Prebus, Albert F. See Kalousek, G. L.

Prescott, Glenn Carleton, Jr. See also Versey, H. R., 1.


Prescott, Max W.

Geology of the northwest quarter of the Soldier Summit quadrangle, Utah: Brigham Young Univ. Research Studies Geology Ser., v. 5, no. 2, vi, 44 p., illus. incl. geol. map, Feb. 1958.

Press, Frank. See also Benioff, V. H., 2; Healy, J. H.; Pakiser, L. C., Jr., 2.


Pressler, Edward Doerk.


Prian Caletti, Ricardo. See Echeverría Castellot, A.

Price, Derek J. de S. See Gilbert, W.

Price, Edward T.


Price, Franklin L. C. See Renshaw, R. E.

Price, George Washington.


Price, Paul Holland.

Price, William Armstrong.

Prichard, George E. See Reed, E. C., 1.

Primak, William Leo.

Privrasky, Norman Calvin.

Prokopovich, Nikola. See also Swain, F. M., Jr., 1; Thiel, G. A., 1.

Pruss, Donald E. See Oesterling, W. A.

Pryor, Wayne Arthur.

Ptasynski, Harry. See Meholin, G. L., 2; Totten, R. B., 1.

Puebla Peralta, Manuel. See Cortés-Obregón, S.

Puig de la Parra, Juan B.

Pundsack, Frederick Leigh.

Purdy, Edward G. See also Thurber, D. L.

Puri, Harbans Singh. See also Vernon, R. O.

Pustmueller, Paul S.

Pye, Willard Dickison. See also Havenor, K. C., 1.


Quaide, William L.

Quebec Department of Mines.

Queiser, J. A. See Friedel, R. A.

Querry, J. L.

Quigley, Walter Donald.

Quillian, R. G. See Sanford, B. V.

Quimby, George Irving.

Quinn, Alonzo Wallace.

Quinn, James Harrison.

Qureshy, M. N.

Raasch, Gilbert Oscar. See also Harker, P., 1.


Rabbitt, Mary Collins.

Rabe, Charles L.

Radbruch, Dorothy Hill. See also Schlocker, J., 1.

Radforth, Norman William.
2. Organic terrain organization from the air (altitudes 1,000 to 5,000 feet): Canada Defence Research Board Handb., no. 2, iii, 23 p., illus., Feb. 1958.

Rainwater, Frank Hays.

Raisz, Erwin Josephus.

Rall, Elizabeth Pretzer. See Rall, R. W.

Rall, Raymond Wallace.

Ramdohr, Paul.
Ramp, Lenin. See Wagner, N. S., 1.

Rampacek, Carl. See Evans, L. G.

Rancourt, C. See Lea, E. R.

Randall, Arthur Guy.

Rankin, Douglas W.

Ransone, William Robert.

Rapp, George R., Jr.

Rascoe, Bailey, Jr.

Rasmussen, N. C. See Cantwell, T.

Rasmussen, William Charles.

Ratcliffe, J. H.

Ratcliffe, James Douglas. See Hunt, A. D.

Rau, Weldon Willis. See also Snively, P. D., Jr.

Raup, David M.

Rausch, Donald O.
Ray, Clayton E.

Ray, James A.

Ray, Richard Godfrey. See also McQueen, K., 3.

Rea, Bayard B.

Read, Charles Brian.

Reade, Harold Leslie, Jr.

Reasoner, Melton A.

Reed, Charles A.

Reed, Eugene Clifton.
1. (and others). Map of Nebraska showing areal distribution of pre-Pennsylvanian rocks, anticlines and basins, oil and gas fields, pipelines, and unsuccessful test wells: U. S. Geol. Survey Oil and Gas Inv. Map OM 198, scale 1:500,000 (about 1 in. to 8 mi.), 1958.

Reed, George W., Jr.

Reed, John Calvin. See also Williams, Howel.
242 BIBLIOGRAPHY OF NORTH AMERICAN GEOLOGY, 1958

Reed, John Calvin, Jr.

Reeder, Harold Oliver.

Reeder, William Glase.

Reedy, Harold J.
How to make profit below 15,000 ft. [Carter-Knox field, Okla.]: Oil and Gas Jour., v. 56, no. 15, p. 166-171 incl. ads., illus., Apr. 14, 1958.

Reesor, John Elgin. See also Canada G. S., 4.
Dewar Creek map-area with special emphasis on the White Creek batholith, British Columbia: Canada Geol. Survey Mem. 292, vii, 78 p., illus. incl. geol. map, 1958.

Reeves, Corwin C., Jr.

Reger, David Bright, 1882-1958.

Regis, Andrew J. See also Ehmann, A. J.

Reichen, Laura Esther.

Reichert, Stanley Orville.

Reid, B. W. See Wenger, W. J.

Reid, Robert E. H. See deLaubenfels, M. W.

Reid, Rolland R.

Reiser, Hillard N. See Gryc, G., 2.

Reiss, Z.
Remick, Jerome Hosmer, 3d.

Renault, Jacques R. See Kuellmer, F. J., 2, 3.

Renshaw, R. E.

Repenning, Charles Albert. See also Akers, J. P., 1; Harshbarger, J. W., 1; Page, H. G.

Resig, Johanna Martha.

Resler, Ray C. See Berg, J. W., Jr.

Revell, Steve R. See Lapinsky, W. J.

Revelle, Roger Randall Dougan.

Rex, Robert W. See also Goldberg, E. D., 4.

Rexroad, Carl Buckner.

Reynolds, Donald Charles. See Greene, L. C.


Reynolds, Robert Ramon.

Rezak, Richard.

Rhodehamel, Edward Charles.

Rhoden, Vasco Columbus. See Vaughn, W. W., 1.
Rice, James Martin.

Rice, Nolan E.

Rice, Robert V.

Rich, Charles I.

Rich, Ernest I.

Richards, Adrian Frank.

Richards, Horace Gardiner.

Richards, T. C.

Richardson, Claire Alice. See Otton, E. G.

Richardson, Everett Vern. See Liu, H.-K.
BIBLIOGRAPHY

Richardson, James H. See also Everhart, J. O.

Richardson, Jasper E. See Adams, J. A. S., 1.

Richardson, Paul William.
(and Hawkes, Herbert Edwin, Jr.). Adsorption of copper on quartz: Geochimica et Cosmochimica Acta, v. 16, nos. 1–2, p. 6–9, illus., Nov. 1958.

Richey, W. Clyde.

Richmond, Gerald Martin. See also Frye, J. C., 2.

Richter, Charles Francis. See also Allen, C. R., 2; Bath, M., 2.

Richter, Raymond C.

Riddell, John Evans. See Hawkes, H. E., Jr., 2.

Ridge, John Drew.
Selected bibliographies of hydrothermal and magmatic mineral deposits: Geol. Soc. America Mem. 75, ix, 199 p., illus., Nov. 26, 1958.

Rigby, J. Keith. See also Newell, N. D., 1; Utah Geol. Soc.

Rigg, George B.

Riggs, Calvin Harold.

Riggs, Richard Morrison.

Rigsby, John Sargent.

Rinehart, John Sargent.

Rioux, Robert Lester. See also Chapman, C. A., 1.

Risi, Joseph.

Ritchie, Arthur M.
BIBLIOGRAPHY

Ritchie, W. D.

Rivas, Luis Rene.

Rixon, Arthur E. See Oakley, K. P.

Roach, Carl Houston. See Thompson, M. E., 1, 2.

Robeck, Raymond Clifton.

Roberts, Albert Eugene. See also Snavely, P. D., Jr.

Roberts, Archie Carl. See Beckmann, W. C.


Roberts, Ralph Jackson.

Robertshaw, J. See Brown, P. D.

Robertson, Eugene Corley. See also Clark, S. P., Jr.

Robertson, Herbert. See Herrin, E. T., Jr.

Robertson, Jacques Francis. See Yates, R. G.

Robinove, Charles Joseph. See also Whitcomb, H. A.

Robinson, Bobby Brick.

Robinson, Charles Sherwood.
Robinson, Edward. See also Versey, H. R., 3.

Robinson, Florence Marie.

Robinson, Gilbert Chase. See Buie, B. F.

Robinson, Maryanne. See Ingram, R. L.

Robinson, Stephen Clive. See also Griffith, J. W.

Robinson, Thomas William.

Robinson, W. A. See Ward, S. H., 5.

Robinson, William Orrin.

Robison, Richard A.

Robson, D. A.

Robson, Geoffrey Robert.
Rocky Mountain Association of Geologists.
Symposium on Pennsylvanian rocks of Colorado and adjacent areas. 168 p., illus. incl. geol. map, Denver, Colo., 1958. Includes papers by numerous authors which are cited individually.

Rod, Emile. See Alberding, H.

Rodda, John L. See Metsger, R. W.

Rodis, Harry George.

Rodríguez Torralbas, Víctor José.

Roedder, Edwin Woods.

Rogers, Allen Stuart.

Rogers, James Edwin. See Cotter, R. D.

Rogers, John James William. See also Campbell, I., 2; Whitfield, J. M.

Rogers, Kenneth Joseph. See Kesling, R. V., 1.


Rolfe, Bernard Nathan.

Roliff, William Albert.

Romberg, Frederick Ernst.
Romer, Alfred Sherwood.
3. An embolomere jaw from the mid-Carboniferous of Nova Scotia: Breviora, no. 87, 8 p., illus., June 20, 1958.

Romer, Henry S. de.

Roof, Jack Glyndon.

Roosma, Aino.

Root, Samuel I.

Roscoe, Stuart Murray. See also Griffith, J. W.

Rose, Arthur W.

Rose, Edward Roderick.

Rose, H. Glen.

Rose, Harry Joseph, Jr. See also Carron, M. K., 1; Glass, J. J., 3.

Rose, Robert Leon.
Rose, William Dake, Jr.

Roseboom, Eugene H., Jr. See also Kullerud, G., 3.

Rosenau, Jack C.

Rosenblum, Samuel. See also Weis, P. L., 1.

Rosenfeld, G. A.

Rosenfeld, John Lang.

Rosenshein, Joseph Samuel.
Ground-water resources of Tippecanoe County, Indiana: Ind. Div. Water Res. Bull., no. 8, iii, 38 p., illus. incl. geol. map, 1958; (and Cosner, Oliver J., compilers), Appendix, basic data, 67 p., illus., 1956.

Rosenzweig, Abraham. See Homme, F. C.

Rosholt, John N., Jr.

Ross, Clarence Samuel.

Ross, Clyde Polhemus.
Ross, Donald Clarence.

Ross, Herbert Holdsworth.

Ross, Malcolm. See also Rose, H. J., Jr.

Ross, Reuben James, Jr. See also Berg, R. R.

Ross, Virginia F.

Roswell Geological Society.
Guidebook, 11th field conference, the Hatchet Mountains and the Cooks Range-Florida Mountain areas, Grant, Hidalgo and Luna Counties, southwestern New Mexico, May 14-16, 1958. 140 p., illus. incl. geol. maps, 1958. Includes papers by C. Lochman-Balk, E. Callaghan, W. E. Elston, R. H. Flower, and F. E. Kottlowski, which are cited individually.

Roth, George Helm.

Roth, Robert Ingersol. See San Angelo Geol. Soc.

Roth, Zdeněk.
Kras Yucatán (The karst of Yucatan) [Mexico]: Československý Kras, ročník 10, číslo 4, p. 165-175, illus., with English summary, Prague, 1957.

Roux, Wilfred Francois, Jr.

Rowe, R. H. See Sabine, P. A.

Rowe, Robert B.
Niobium (columbium) deposits of Canada: Canada Geol. Survey Econ. Geology Ser., no. 18, 108 p., illus. incl. geol. sketch maps, 1958.


Roy, Chalmer John. See Carlson, P. R.; O'Sullivan, J. B.

Roy, Della Martin.


Rubey, William Walden.

Rubin, Meyer.

Rucker, Florence P. See Collins, F. R.

Ruhe, Robert Victory.

Runcorn, Stanley Keith.

Rundle, Robert Eugene. See Atoji, M.


Ruppel, Edward Thompson. See Freeman, V. L.

Rusanov, A. K.

Rusnak, Gene Alexander.
Russell, Dearl T.

Russell, Loris Shano.

Russell, Richard Doncaster.

Russell, Richard Joel.

Russell, Robert Thayer.

Rustom, Mahmoud. See Brindley, G. W., 5.

Rutgers, A. T. C.

Rutherford, William M. See Roof, J. G.

Rutstein, Milton Samuel. See Hersey, J. B.

Ryan, J. Patrick. See Brichta, L. C.

Ryan, John Donald.

Rynders, Gerald Francis. See Van Valkenburg, A., Jr.

Sabina, Ann P. See Dawson, K. R., 3.

Sabine, Peter Aubrey.

Sable, Edward G. See Tailleaur, I. L.
BIBLIOGRAPHY

Sackett, William Malcolm.

Sage, John F.

Saha, Ajit Kumar.

Sahama, Thure Georg.

Sahinen, Uno Mathias.

Saibel, Edward Aaron. See Aggarwala, B. D.

Sainsbury, Cleo Ladell. See Twenhofel, W. S.

St. Amand, Pierre. See also Allen, C. R., 2.

St. Clair, Charles Spencer.

St. Jean, Joseph, Jr.

Salas, Guillermo Pedro.

Sales, Reno Haber.

Salmon, Merlyn L.
San Angelo Geological Society.

San Joaquin Geological Society.


Sánchez Mejorada, Pedro.

Sand, Leonard B. See also Ames, L. L., Jr., 1, 2, 4; Buckner, D. A.; Ehlmann, A. J.; Regis, A. J.; Stephens, J. D.

Sandberg, Charles Albert.

Sandberg, Clarence Harold. See Thompson, G. A.

Sanders, John Essington. See Easton, W. H.

Sanderson, James Owen Gresham.

Sando, William Jasper.

Sanford, Bruce V. See also Canada G. S., 8.

Sanford, Thomas H., Jr.
Interim report on ground-water studies in the Huntsville area, Alabama, to February 1957: Ala. Geol. Survey Inf. Ser. 9, vi, 131 p., illus., 1957.

Saskatchewan Department of Mineral Resources.
2. [Map] Airborne electromagnetic survey, Cartier Lake (east half), Saskatchewan. Scale 1:31,680 (1 in. to ½ mi.) [1957].
3. [Map] Airborne electromagnetic survey, Cartier Lake (west half), Saskatchewan. Scale 1:31,680 (1 in. to ½ mi.) [1957].
5. [Map] Airborne electromagnetic survey, Oskikebuk Lake (west half), Saskatchewan. Scale 1:31,680 (1 in. to ½ mi.) [1957].
6. [Map] Airborne magnetometer survey, Cartier Lake (east half), Saskatchewan. Scale 1:31,680 (1 in. to ½ mi.) [1957].
BIBLIOGRAPHY

7. [Map] Airborne magnetometer survey, Cartier Lake (west half), Saskatchewan. Scale 1:31,680 (1 in. to \(\frac{1}{2}\) mi.) [1957].
8. [Map] Airborne magnetometer survey, Hunter Bay (east half), Saskatchewan. Scale 1:31,680 (1 in. to \(\frac{1}{2}\) mi.) [1957].
9. [Map] Airborne magnetometer survey, Oskikebuk Lake (west half), Saskatchewan. Scale 1:31,680 (1 in. to \(\frac{1}{2}\) mi.) [1957].
10. Forbes Lake, east half, electromagnetic map. Scale 1 in. to \(\frac{1}{2}\) mi. [1957].
11. Forbes Lake, east half, magnetometric map. Scale 1 in. to \(\frac{1}{2}\) mi. [1957].
12. Forbes Lake, west half, electromagnetic map. Scale 1 in. to \(\frac{1}{2}\) mi. [1957].
13. Forbes Lake, west half, magnetometric map. Scale 1 in. to \(\frac{1}{2}\) mi. [1957].
14. Guncoat Bay, east half, electromagnetic map. Scale 1 in. to \(\frac{1}{2}\) mi. [1957].
15. Guncoat Bay, east half, magnetometric map. Scale 1 in. to \(\frac{1}{2}\) mi. [1957].
16. Nistowiak Lake, east half, electromagnetic map. Scale 1 in. to \(\frac{1}{2}\) mi. [1957].
17. Nistowiak Lake, east half, magnetometric map. Scale 1 in. to \(\frac{1}{2}\) mi. [1957].
18. Settee Lake, west half, electromagnetic map. Scale 1 in. to \(\frac{1}{2}\) mi. [1957].
19. Settee Lake, west half, magnetometric map. Scale 1 in. to \(\frac{1}{2}\) mi. [1957].
20. [Map] Airborne electromagnetometer survey, Eulas Lake (east half), Saskatchewan. Scale 1:31,680 (1 in. to \(\frac{1}{2}\) mi.) [1958].
22. [Map] Airborne electromagnetometer survey, McTavish Lake (east half), Saskatchewan. Scale 1:31,680 (1 in. to \(\frac{1}{2}\) mi.) [1958].
23. [Map] Airborne electromagnetometer survey, McTavish Lake (west half), Saskatchewan. Scale 1:31,680 (1 in. to \(\frac{1}{2}\) mi.) [1958].
24. [Map] Airborne electromagnetometer survey, Trout Lake (east half), Saskatchewan. Scale 1:31,680 (1 in. to \(\frac{1}{2}\) mi.) [1958].
25. [Map] Airborne electromagnetometer survey, Trout Lake (west half), Saskatchewan. Scale 1:31,680 (1 in. to \(\frac{1}{2}\) mi.) [1958].
26. [Map] Airborne magnetometer survey, Eulas Lake (east half), Saskatchewan. Scale 1:31,680 (1 in. to \(\frac{1}{2}\) mi.) [1958].
27. [Map] Airborne magnetometer survey, Eulas Lake (west half), Saskatchewan. Scale 1:31,680 (1 in. to \(\frac{1}{2}\) mi.) [1958].
28. [Map] Airborne magnetometer survey, McTavish Lake (east half), Saskatchewan. Scale 1:31,680 (1 in. to \(\frac{1}{2}\) mi.) [1958].
29. [Map] Airborne magnetometer survey, McTavish Lake (west half), Saskatchewan. Scale 1:31,680 (1 in. to \(\frac{1}{2}\) mi.) [1958].
30. [Map] Airborne magnetometer survey, Trout Lake (east half), Saskatchewan. Scale 1:31,680 (1 in. to \(\frac{1}{2}\) mi.) [1958].
31. [Map] Airborne magnetometer survey, Trout Lake (west half), Saskatchewan. Scale 1:31,680 (1 in. to \(\frac{1}{2}\) mi.) [1958].
32. Oliver Lake, east half, electromagnetic map. Scale 1 in. to \(\frac{1}{2}\) mi. [1958].
33. Oliver Lake, east half, magnetometric map. Scale 1 in. to \(\frac{1}{2}\) mi. [1958].
34. Oliver Lake, west half, electromagnetic map. Scale 1 in. to \(\frac{1}{2}\) mi. [1958].
35. Oliver Lake, west half, magnetometric map. Scale 1 in. to \(\frac{1}{2}\) mi. [1958].
36. Perry Lake, west half, electromagnetic map. Scale 1 in. to \(\frac{1}{2}\) mi. [1958].
37. Perry Lake, west half, magnetometric map. Scale 1 in. to \(\frac{1}{2}\) mi. [1958].
38. Steelman field, structure contour map on the top of the Midale evaporite where present. Scale about 1 in. to \(\frac{1}{2}\) mi., Regina [1958].
39. Wathaman Lake, east half, electromagnetic map. Scale 1 in. to \(\frac{1}{2}\) mi. [1958].
258 BIBLIOGRAPHY OF NORTH AMERICAN GEOLOGY, 1958

40. Wathaman Lake, east half, magnetometric map. Scale 1 in. to ¼ mi. [1958].
41. Wathaman Lake, west half, electromagnetic map. Scale 1 in. to ¼ mi. [1958].
42. Wathaman Lake, west half, magnetometric map. Scale 1 in. to ¼ mi. [1958].


Saskatchewan Geological Society, Lower Palaeozoic Names and Correlations Committee.

Stratigraphic cross sections, lower Palaeozoic strata in the northern part of the Williston basin. 4 sheets with separate text, Regina, Dec. 1958.

Sater, G. S.


Saterdal, Alfred O.


Sato, Motoaki.


Satô, Yasuo. See Landisman, M. G.

Satterly, Jack. See also Ontario Dept. Mines, 3.


Saunders, J. B.


Sauvé, Pierre.

The geology of the eastern border of the “Labrador Trough” near Fort Chimo, northern Quebec: Canadian Min. Jour., v. 79, no. 4, p. 123-124, illus., Apr. 1958.

Savage, Carleton Norman.


Savage, Donald Elvin.


Savage, Jay Mathers. See Peabody, F. E., 1.

Savit, Carl H.

BIBLIOGRAPHY

Sawatzky, Henry B.

Sawhney, B. L.

Sawyer, Dwight Lewis, Jr. See Smith, G. I., 1.

Saxov, Svend.
3. Ringbolte, vandstand og tran i Umanak: Grønland, nr. 11, p. 419-422, illus., Nov. 1958.

Schaeffer, Oliver Adam.

Schaffel, Simon. See also Lowe, K. E., 1.

Schaerer, John Frank.

Schaller, Waldemar Theodore.

Schanz, John Jacob, Jr.

Scharon, Harry LeRoy.

Schatz, Albert.
Scheele, William E.
Ancient elephants. 64 p., illus., Cleveland, Ohio, World Pub. Co., 1958.

Scheerer, Paul E. See Gates, R. M., 1.

Scheffer, Victor Blanchard.

Scheidegger, Adrian Eugen.

Schell, Irving Israel.

Schermorhern, L. J. G. See Moorhouse, W. W.

Schelitz, Nicholas Cyril. See also LeRoy, L. W., 2.
X-ray analysis, Chap. 9 in Haun and LeRoy, eds., Subsurface geology in petroleum exploration—a symposium, p. 149–177, illus., revised 1958; originally published 1949.

Schindewolf, Otto H. See Arkell, W. J.

Schleicher, John Anthony. See also Ham, W. E., 2.

Schlocker, Julius. See also Radbruch, D. H.

Schmalz, Robert F.

Schmidt, Dwight Lyman.

Schmidt, James J.

Schmidt, Lewis A., Jr. See Grant, L. F.

Schmidt, Robert George. See also Larsen, E. S., Jr., 1.

Schmitt, Harrison Ashley.

Schmolz, Henry R. See Ferrians, O. J., Jr.

Schnabel, Robert Wayne.
1. (and Charlesworth, Lloyd James, Jr.). Preliminary geologic map of the west central part of the Burdock quadrangle, Fall River County, South Dakota: U. S. Geol. Survey Mineral Inv. Field Studies Map MF 71, scale 1:7200 (1 in. to 600 ft.), 1958.
2. (and Charlesworth, Lloyd James, Jr.). Preliminary geologic map of the northeast part of the Burdock quadrangle, Fall River and Custer Counties, South Dakota: U. S. Geol. Survey Mineral Inv. Field Studies Map MF 72, scale 1:7200 (1 in. to 600 ft.), 1958.
3. (and Charlesworth, Lloyd James, Jr.). Preliminary geologic map of the northwest part of the Burdock quadrangle, Fall River and Custer Counties, South Dakota: U. S. Geol. Survey Mineral Inv. Field Studies Map MF 73, scale 1:7200 (1 in. to 600 ft.), 1958.
5. (and Charlesworth, Lloyd James, Jr.). Preliminary geologic map of the southeast part of the Burdock quadrangle, Fall River and Custer Counties, South Dakota: U. S. Geol. Survey Mineral Inv. Field Studies Map MF 75, scale 1:7200 (1 in. to 600 ft.), 1958.

Schneer, Cecil Jack.

Schneider, Allan Frank.

Schneider, Robert.

Schoellhorn, Sidney William. See Breck, H. R., 1, 2.

Schoewe, Walter Henry. See Kulstad, R. O.

Scholander, P. E. See Coachman, L. K.

Scholl, D. W.

Schoon, Robert Allen.
Schopf, James Morton. See also Snively, P. D., Jr.; Teichert, C., 2.
   Petrologic methods for application to solid fuels of the future: Min. Eng.
   v. 8, no. 6, p. 629–639, illus., June 1956; A.I.M.E. Trans. 1956,
   v. 205, 1957; discussion by Gilbert H. Cady, Min. Eng., v. 10, no. 5,

Schreiber, Joseph Frederick, Jr.
   Sedimentary record in Great Salt Lake, Utah [abs.]: Dissert. Abs., v. 19,

Schroeder, Melvin Carroll.
   (and Klein, Howard, and Hoy, Nevin Douglas). Biscayne aquifer of
   Dade and Broward Counties, Florida: Fla. Geol. Survey Rept. Inv.,
   no. 17, v. 56 p., illus. incl. geol. map, 1958.

Schuiling, R. D. See Clark, S. P., Jr.

Schultz, C. G.
   (and Freeman, R. R., Jr., and Whitehead, A. B.). Analysis of yttrium
   in ores by X-ray fluorescence [abs.]: Spectrochimica Acta, v. 12,
   no. 4, p. 381, Oct. 1958.

Schultz, Clarence H.
   1957 [1958].

Schultz, Edward Herman.
   The Ordovician-Silurian contact in the Williston Basin, in Billings Geol
   1958.

Schultz, John Russell. See King, L. C.

Schultz, Leonard Gene.
   Petrology of underclays: Geol. Soc. America Bull., v. 69, no. 4, p. 363–402,
   illus., Apr. 1958.

Schumm, Stanley A.
   Effect of sediment type on the shape and stratification of some modern
   fluvial deposits [abs.]: Geol. Soc. America Bull., v. 69, no. 12, pt. 2,

Schuster, Robert L. See also Lounsbury, R. W., 1.
   (and Rigby, George Pierce). Preliminary report on crevasses: U. S.
   Army, Corps of Engineers, Snow, Ice and Permafrost Research
   Establishment Special Rept. 11, p. 1–3(†), illus., Apr. 1954.

Schwab, Robert Charles.
   Field salinity determinations and sulphide contamination: Alberta Soc.

Schwade, Irving T.
   (and Carlson, Stanley A., and O'Flynn, James Baldwin). Geologic en­
   vironment of Cuyama Valley oil fields, California, in Weeks, L. G.,

Schwalen, Harold Christy.
   (and Shaw, R. J.). Ground-water supplies of the Santa Cruz Valley of
   Southern Arizona between Rillito Station and the International

Schwartz, George Melvin. See also Books, K. G., 1–9.
   1. (and Thiel, George Alfred). Guide to the minerals and rocks of Min­
   nesota. 26 p., illus., Dept. Geology and Minn. Geol. Survey, Univ.
   Minn. [no date].


Orдовician pay zones attractive lure in southern Oklahoma: Oil and Gas Jour., v. 56, no. 11, p. 126-131, illus. incl. geol. map, Mar. 17, 1958.

Schwellnus, J. G.


Sclar, Charles Bertram.


Scott, Alan Johnson. See also Collinson, C. W., 1, 2, 4.

Late Devonian and Early Mississippian conodont faunas of the Upper Mississippi Valley [abs.]: Dissert. Abs., v. 19, no. 5, p. 1056-1057, Nov. 1958.

Scott, Harold William.


Scott, Harry Stuart.


Scott, James B.


Scott, James Campbell.


Scott, James H. See Casey, R. D.

Scott, James William. See Austin, G. H. M.

Scott, John C. See Reade, H. L., Jr.

Scott, M. B. C.


Scruton, Philip Challacombe. See Bates, C. C.


Segrè, Emilio Gino. See Aldrich, L. T., 1.


Seki, Yōtarō. See Miyashiro, A., 2.


Senftle, Frank Edward. See Walker, E. C.
Senstius, Maurice Wilhelm.  

Serratosa, José M.  

Sevon, William D. See also Schoon, R. A., 1.  

Sevrey, O. Irene.  

Shacklette, Hansford T.  

Sheaffer, James B.  

Shaffner, Marchant Nissley.  

Shapley, Harlow.  

Sharkey, Henry Howe Robbins.  

Sharp, Byron J.  

Sharp, Henry Staats. See also King, L. C.  

Sharp, John Van Alstyne. See Bonham, H. F., Jr.

Sharp, Robert Phillip. See also Allen, C. R., 1; Engel, C. G., 1.  

Shaub, Benjamin Martin. See also Pettijohn, F. J.  

Shaub, Mary S.

Shaver, Robert Harold. See Mellen, F. F.

Shaw, Alan Bosworth.

Shaw, Denis Martin.

Shay, Gene Leroy.

Shaw, R. J. See Schwalen, H. C.

Shaw, William Simon.
Maritime provinces offer a new challenge: Oil and Gas Jour., v. 56, no. 33, p. 252–260 incl. ads., illus., Aug. 18, 1958.

Shawe, Daniel Reeves.

Sheffer, Bernard Douglas.

Shelton, John Sewall.

Shelton, John Wayne.
Shepard, Francis Parker.

Shepps, Vincent Chester.

Sheridan, Douglas Maynard.

Sherlock, Donald G., 1931-1954.

Sherman, George Donald.

Sherwood, W. Cullen. See Giannini, W. F.; Mitchell, R. S., 1.

Shimer, John Asa. See Donn, W. L.

Shipak, Carl J.

Shirley, Galen N.
Are geologists earning their pay?: Oil and Gas Jour., v. 56, no. 24, p. 163-168 incl. ads., illus., June 16, 1958.

Shneiderov, Anatol James.

Shoemaker, Eugene Merle. See also Carter, W. D., 1; Misch, A. T., 2.

Shor, George G., Jr.

Short, Ben L.
Short, Nicholas M.

Shott, W. L. See Milne, I. H., 1.

Shotwell, J. Arnold.

Shreveport Geological Society.
Reference report on certain oil and gas fields [La.–Ark.–Miss.–Texas]. V. 4, x, 199 p. incl. ads., illus., Shreveport, La., 1958. Includes papers by J. L. Nichols, J. M. Forgetson, and J. M. Forgetson, Jr., which are cited individually.

Shride, Andrew Fletcher.

Shufflebarger, Thomas Edwin, Jr.

Shulhof, William P. See Wright, H. D., 1.

Shumway, George. See also Fisher, R. L.

Shutler, Dick, Jr. See Wise, E. N.

Shuttlesworth, Dorothy Edwards.
The age of reptiles—life in prehistoric times. 57 p., illus., Garden City, N. Y., Garden City Books, 1958.

Sidwell, K. O. J.

Siegel, Frederic R.

Siegel, Sanford Marvin.

Siever, Raymond. See Garrels, R. M., 3.

Sikabonyi, L. A.
Silver, Caswell.

Silver, Leon T. See Grunenfelder, M. H.; Stehli, F. G., 2.

Silverman, Sol Robert.

Simmons, D. J.

Simmons, George Clarke. See Shawe, D. R.


Simons, Daryl Baldwin. See Liu, H.-K.

Simons, Elwyn LaVerne. See also Patterson, B., 2.

Simons, Frank Stanton.

Simonson, Russell Ray.

Simpson, Bessie W.

Simpson, George Gaylord.

Simpson, John Francis. See Fentress, G. H., 2.

Sims, Paul Kibler. See also Moench, R. H., 2; Young, E. J., 5.

Sinclair, George Winston. See also deLaubenfels, M. W.

Sinclair, W. E.
BIBLIOGRAPHY OF NORTH AMERICAN GEOLOGY, 1958

Sinkankas, John.
Siple, George E.
Sisler, Frederick David. See Cloud, P. E., Jr., 2.
Sitler, Robert Francis.
Skancke, Per. See Vogt, T.
Skerl, A. C. See Lovitt, E. H.
Skibitzke, Herbert E.
Skidmore, W. Brian.
Skinner, Brian J.
Skinner, Hubert C.
Skinner, Ralph. See Smith, Charles H., 2.
Skipp, Betty Ann Lindberg.
Skolnick, Herbert.
Slattery, Donald W.
Slaughter, M.

Slaughter, Turbit H. See Overbeck, R. M.

Slawson, William Francis.

Slemmons, David Burton.

Sloan, Earle, 1858-1926.

Sloane, Bryan Jennings, Jr.

Slodowski, Thomas R.

Sloss, Laurence Louis. See also Dapples, E. C.; Krumbein, W. C., 2.

Slovinsky, Raymond Leroy.

Smales, Albert Arthur. See Wager, L. R., 2; Webster, R. K.

Small, Theodore A.

Smedes, Harry Wynn.

Smellie, D. W.

Smerchanski, Mark G. See Sclar, C. B., 2.
Smiley, Terah L.


Smit, J. van R. See Wager, L. R., 1.

Smith, Bennett Lawrence.

Smith, C. Lavett.

Smith, Charles H. See also Canada G. S., 12.


Smith, Chester Martin, Jr. See Wright, H. D., 1, 2.

Smith, Chester Roland. See also Durham, C. O., Jr.

Smith, Clay Taylor.


Smith, Darrell Eugene.

Smith, Deane Kingsley, Jr.

Smith, Frank A.
Smith, Frederick E. See Soc. Econ. Paleontologists and Mineralogists Gulf Coast Sec.

Smith, Frederick Gordon. See also Bergey, W. R.; Morey, G. W.

Smith, George Frederick Herbert, 1872–1953.

Smith, George L[I]rving.

Smith, George Wendell.

Smith, Harman F. See Rose, H. G.

Smith, James Robert.

Smith, John C.

Smith, John M. See Murray, H. H., 2.

Smith, Joseph B.

Smith, Joseph Victor. See also Dent, L. S.; Rapp, G. R., Jr.; Tuttle, O. F., 1.

Smith, Kenneth Grant.

Smith, Le Brun N.

Smith, Maurice Harold. See Lewis, P. J., 2.

Smith, Ned Myron. See Perry, T. G., 2; Potter, P. E., 3.
Smith, Ollie, Jr. *See* Newcome, R., Jr., 2.

Smith, Paul Vergon, Jr. *See* Brenneman, M. C.

Smith, Ralph Irvin. *See* Sahinen, U. M.

Smith, Riley Seymour, Jr.

Smith, Robert Leland. *See also* Friedman, I. I., 2-4.

Smith, Russell.

Smith, Ward Conwell.

Smith, William Edward Timperly.

Smith, William Henking. *See also* Kosanke, R. M.

Smith, William Ogden.

Smoot, Thomas William.

Smothers, William Joseph.

Snavely, Parke Detweiler, Jr. *See also* Brown, R. D., Jr., 2.

Sneed, Edmund David.

Sneider, Robert M. *See* Gates, R. M., 2.

Snider, Felix Eugene. *See* Magill, A. C.
Snodgrass, Robert Evans.

Snow, Arthur Leland.

Snyder, Dell L.

Snyder, Frank G.

Snyder, George Leonard. See also Lundgren, L. W., Jr.


Society of Economic Paleontologists and Mineralogists, Gulf Coast Section.

Society of Economic Paleontologists and Mineralogists, Permian Basin Section.
(and others). Guidebook, 1958 field trip, Cretaceous platform and geosyncline, Culberson and Hudspeth Counties, Trans-Pecos Texas, April 10-12, 1958. 90 p., illus. incl. geol. maps, Van Horn, Texas, 1958.

Society of Vertebrate Paleontology.
(Fields, Robert W., editor). Guidebook, 8th field conference, Western Montana, August 20-24, 1958. 50 p., illus., Missoula, Mont. State Univ. Press, 1958. Includes separately paged appendix and papers by several authors which are cited individually.

Socolow, Arthur Abraham.
Bread and butter courses may be fattening: Jour. Geol. Education, v. 6, no. 2, p. 1-2, Fall 1958.

Sørensen, Henning. See also Bondam, J.

Sohn, Israel Gregory. See also Kesling, R. V., 6.


Somerton, Wilbur H.

Soren, Julian. See Wood, G. H., Jr.

Soske, Joshua Lawrence, Sr.

Soukup, Edward James. See Parsons, C. J., 1, 2.

South Carolina Division of Geology, Mineral Industries Laboratory.

South Texas Geological Society.

Sovinsky, Viacheslav Nicholas.

Spackman, William, Jr.

Spanski, Robert F.

Spaulding, Albert C.

Speed, Bert Lewis.

Speer, William Robert.

Spencer, Edgar Winston.
BIBLIOGRAPHY

Spencer, George H., Jr.
The role of interstitial and combined waters in the development of Lake Superior iron ores [abs.], in Institute on Lake Superior geology, April 21–22, 1958. p. 23(1), Minneapolis, Univ. Minn. Center for Continuation Study [1958].

Spicer, Herbert Cecil. See Norris, S. E.

Spiegel, Zane E. See Reeder, H. O.

Spilhaus, Athelstan.

[Spindler, G. Ralph].

Spivey, Robert Charles. See Bean, R. J.

Spjeldnaes, Nils.

Spokes, Ernest Melvern.

Springer, Maxwell E.

Sproule, John Campbell.

Squires, Donald Fleming.

Stacey, F. D.

Stafford, Ray.

Stainforth, Robert Masterman. See Wheeler, H. E., 1.

Stalker, A. Mac S.
Stanley, Edward Alex.

Stanton, Michael Stuart.

Stanton, R. L. See also Russell, R. Doncaster, 2.

Staples, Lloyd William.

Statham, Edwin H. See Howell, L. G.

Statler, Anthony Trabue.

Stauder, William V. See also Byerly, P., 1, 4.

Steacy, H. R. See Griffith, J. W.; Roscoe, S. M.

Stead, Frank Walter.

Stearns, Richard Gordon. See also Wilson, C. W., Jr., 2.

Steece, Fred Victor.
5. Geology and shallow ground water resources of the Watertown-Estel­
line area, South Dakota: S. Dak. Geol. Survey Rept. Inv., no. 85,
v, 36 p.(4), illus. incl. geol. maps, June 1958.

Steere, Margaret L.
Fossil localities of the Eugene area, Oregon: Ore.-Bin, v. 20, no. 6,

Steere, William Campbell. See Just, T. K.

Stehli, Francis Greenough.
v. 255, no. 9, p. 607–618, illus., Nov. 1957; discussion by G. W.
2. (and Allen, Clarence Roderic, and Silver, Leon T.). [Geology and age
relations of rocks of Baja California, Mexico] [abs.]: Am. Assoc.

Steiner, A.
Occurrence of wairakite at The Geysers, California: Am. Mineralogist,
v. 43, nos. 7–8, p. 781, July–Aug. 1958.

Steiner, Robert L. See Bloss, F. D.

Steinfink, Hugo. See also Brunton, G. D.
The crystal structure of chlorite—[Pt.] 1. A monoclinic polymorph; [Pt.]
2. A triclinic polymorph: Acta Crystallographica, v. 11, pt. 3,

Steinhart, John S. See also Meyer, R. P.
(and Meyer, Robert Paul, and Woollard, George Prior). Crustal thick­
ness and associated gravity anomalies in selected areas [Mexico]

Steinhoff, Raymond Okley.
Alignments of oil and gas fields in South Louisiana [abs.]:: Gulf Coast
Assoc. Geol. Socs. Trans., v. 8, p. 126, 1958; Geol. Soc. America

Stelck, Charles Richard. See also Warren, P. S., 1, 2, 4.
1. (and Wall, John Hallett, and Wetter, Raymond Emil). Lower Ceno­
morian Foraminifera from Peace River area, Western Canada
[Alberta–British Columbia], Pt. 1 of [Lower Cenomanian faunas,
Peace River area]: Alberta Research Council Bull. 2, p. 1–95,
illus., 1958.
2. Stratigraphic position of the Viking sand: Alberta Soc. Petroleum


Stemple, Irene S.
(and Brindley, George William). A study of talc and talc-tremolite rela­
tions [abs.]:: Am. Ceramic Soc. Bull., v. 37, no. 4, Program p. 17,
19, Apr. 1958.

Stephen, I. See Beavers, A. H.

Stephens, James D.
(and Sand, Leonard B.). Alteration in part of the United States Mine,
West Mountain (Bingham) district, Utah [abs.]:: Econ. Geology,
v. 53, no. 7, p. 932, Nov. 1958; Geol. Soc. America Bull., v. 69,

Stern, Thomas Whital. See Cannon, R. S., Jr.
Sternberg, George Fryer.

Sterrett, Douglas Bovard.

Stettenheim, Peter.

Stevens, Anne. See Hodgson, J. H., 3.

Stevens, Calvin. See Chronic, B. J., Jr., 4.

Stevens, Calvin.

Stevens, Nelson Pierce.

Stevenson, I. M.

Stevenson, Robert Evans.

Stevenson, Robert Everett.

Stewart, David Benjamin.

Stewart, David Perry.

Stewart, Frederick H. See Greensmith, J. T.

Stewart, Harris B., Jr.

Stewart, John Conyngham.
Stewart, John Harris.

Stewart, Joseph William.

Stewart, Lincoln Adair. See Farnham, L. L.

Stewart, Richard M.

Stewart, Samuel Woods.

Stewart, Wendell J.
Some fusulinids from the upper Strawn, Pennsylvanian, of Texas: Jour. Paleontology, v. 32, no. 6, p. 1051-1070, illus., Nov. 1958.

Stewart, Wilson Nichols.

Stieff, Lorin Rollins. See Cannon, R. S., Jr.

Stirton, Ruben Arthur.
Paleontology in the University of California, in Symposium on the physical and earth sciences, by Calif. Univ. p. 66-78, 1958.

Stoenner, R. W.

Stoertz, G. E. See Kelly, W. C., 2.

Stokes, William Lee.
3. (and Heylmuin, Edgar Baldwin, Jr.). Outline of the geologic history and stratigraphy of Utah. 37 p., illus., Utah Geol. Mineralog. Survey [1958].

Stoll, Walter Clericus.

Stone, Richard O. See Mann, J. F., Jr., 3.

Storch, Richard H.

Storey, Taras Philip. See also Wheeler, H. E., 1.

Storie, R. Earl.

Storms, Walter Rex. See Thurmond, R. E.

Stout, Wilber Elihu.

Stovall, John Willis, 1891-1953. See Brown, H. E.

Stow, Marcellus Henry, 1902-1957.

Stoyanow, Alexander.

Strachan, Clyde G.

Straczek, John A. See Simons, F. S.

Strahl, Erwin O. See also Bates, T. F., 2.
An investigation of the relationships between selected minerals, trace elements and organic constituents of several black shales. viii, 155 p., illus., University Park, Pa. State Univ. Dept. Mineralogy and Petrology, Aug. 1958.

Strahler, Arthur Newell.

Strain, William Samuel.

Stramel, Gilbert Joseph.

Strand, Rudolph G. See also Jennings, C. W.

Strecker, John Richard. See Privrasky, N. C.

Street, Norman. See Verhoogen, J., 1.

Stricklin, Fred Lee, Jr.

Stringham, Bronson Ferrin.

Strobell, John Dixon, Jr.

Strongin, Oscar.

Stuik, Dirk Jan.

Stuart, John W.

Stucker, Gilbert F. See Good, J. M.

Stuckey, Jasper Leonidas.

Stugard, Frederick, Jr. See also Lesure, F. G., 1-3.

Stumm, Erwin Charles.

Sturgeon, Myron Thomas.
(and others). The geology and mineral resources of Athens County, Ohio: Ohio Div. Geol. Survey Bull. 57, xiv, 600 p., illus. incl. geol. map, 1958. Includes a paper by A. T. Cross, which is cited individually.

Sujkowski, Zbigniew Leliwa, 1899-1954.
Sulik, John Frank.  

Sullivan, Charles John.  See also Knight, C. L.  

Sullivan, John C. See also Albright, M. B., Jr.  

Sullwold, Harold H., Jr. See also Roth, G. H.  

Sumida, William K. See Atlas, L. M.

Summers, George E., Jr. See Smith, G. W.

Summerson, Charles Henry.  


Sun, Ming-Shan.  

Sun, Shiou Chuan. See Spokes, E. M.

Sunderman, Jack A.  

Susuki, Takeo.  

Suter, Hans H.  

Sutherland, Patrick Kennedy.  
Sutterlin, Peter George.

Sutton, Albert George Archibald.

Sutton, George H.

Svoboda, Richard Frank. See also Reed, E. C., 1.

Swadley, W. C. See Brand, D. D.

Swain, Frederick Morrill, Jr.

Swann, David Henry. See also Collinson, C. W., 3; Potter, P. E., 3; Willman, H. B., 2.

Swanson, Vernon Emanuel. See Vine, J. D.

Swartz, Frank McKim.

Swayne, Lawrence Edward. See Brechtel, F. C.

Sweeting, Marjorie Mary.

Swenson, Herbert Alfred. See Bjorklund, L. J.
BIBLIOGRAPHY OF NORTH AMERICAN GEOLOGY, 1958

Swineford, Ada. See also Dalton, J. A.

Swingle, George D.

Swirczynski, Richard Paul.

Sylvester-Bradley, Peter Colley.

Szmuc, Eugene Joseph.
Stratigraphy and paleontology of the Cuyahoga formation of northern Ohio (Volumes 1 and 2) [abs.]: Dissert. Abs., v. 18, no. 6, p. 2109, June 1958.

Taning, A. Vedel, 1890–1958.

Taber, Stephen.

Tagg, Kathleen McQueen. See McQueen, K.

Taggart, Millard Seals, Jr. See also Buckley, S. E.

Taillefer, François.

Tailleur, Irvin Lorraine.

Takahashi, Taro. See Kelly, W. C., 2.

Take, William F.

Tamura, Tsuneo.
Tank, Ronald Warren.

Tanner, Allan B.

Tanner, J. G. See Garland, G. D., 1.

Tanner, James T.

Tanner, William Francis, Jr. See also Brenneman, L.

Tarbox, George E.

Tarver, George Robert.

Tarver, Jack Hamilton. See Meholin, G. L., 2.

Tasch, Paul.

Tator, Benjamin Almon.

Taubeneck, William Harris.

Tauber, Arthur.

Taylor, Andrew.

Taylor, Dwight Willard.

Taylor, Frederick C. See also Canada. G. S., 19.

Taylor, H. F. W. See Buckle, E. R.; Gard, J. A.

Taylor, James Rulie.
Pennsylvanian stratigraphy and history of northern Denver basin, in Rocky Mt. Assoc. Geologists, Symposium on Pennsylvanian rocks of Colorado and adjacent areas, p. 64-68, illus., 1958.

Taylor, Melvin Hall, Jr.

Taylor, Peter W.

Taylor, Stanley A. G.
Taylor, Stuart Ross. See Moorbath, S.

Taylor, William H. See Ferguson, R. B.

Teas, Livingston Pierson.


Tedie, W. D.


Tedrow, John C. F. See also Krebs, R. D.


Teichert, Curt.


Templeton, Charles Clark. See Adams, J. A. S., 1.

Tennant, Charles Beard. See Metsger, R. W.

Terasmae, Jaan. See also Dreimanis, A., 4.


Terzaghi, Karl Charles.


Tesmer, Irving Howard.


Texas University, Bureau of Economic Geology.


Texas University Geological Society.

1. Tertiary field trip [guidebook]. 10 p.(†), illus. incl. geol. sketch maps [1954†].


Texas University, Geology Department Teaching Staff.

Thalmann, Hans Ernst.

Tharin, James C. See Droste, J. B., 1.

Thayer, Thomas Prenc.

Theobald, Paul Kellogg, Jr.

Thiel, George Alfred. See also Schwartz, G. M., 1.
1. (and Prokopovich, Nikola, compilers). Groundwater map of Minnesota. Scale 1:2,000,000 (about 1 in. to 31 mi.), Minn. Geol. Survey, 1954.

Thode, Henry George. See also Harrison, A. G.

Thom, William Taylor, Jr.

Thomas, Alwyne Nicholson.

Thomas, Glenn H.

Thomas, Horace Davis. See also Boos, E. J.

Thomas, Leo Almor. See Payton, C. E.

Thomas, W. H. See Bien, G. S.-N.

Thomasson, Edwin Marion.


Thompson, Henry Dewey. See King, L. C.

Thompson, J. M. See Bryce, J. D.

Thompson, James Burleigh, Jr. See Boucot, A. J., 3, 4; Rosenfeld, J. L., 2.


Thompson, Robert Mitchell. See Mursky, G. A.


Thoms, Harold Wayne. See Kazmann, R. G.
Thomson, Betty Flanders.

Thomsen, Richard Wyatt.

Thornbury, William David.

Thornton, Charles Perkins.

Thorsteinsson, Raymond. See Harker, P., 3.

Thralls, Hugh Miller.

Threet, Richard Lowell.

Thurber, David L.

Thurmond, Robert E.

Thurston, Ralph H. See Trites, A. F., Jr., 2.

Thurston, William Roberts.

Thwaites, Fredrik Turville.

Tiedemann, Herbert Allen. See Brooks, H. K., 1.

Tihen, Joseph Anton.
Tilden, Paul Mason.

Tiller, K. G. See McKenzie, R. M.

Tilton, George Robert. See also Aldrich, L. T., 2; Davis, G. L.

Tinney, Edwy Roy. See Liu, H.-K.

Tipton, Merlin Joseph.

Titley, Spencer Rowe.

Tixier, Maurice Pierre.

Tocher, Don.

Todd, Robert George. See Upshaw, C. F.

Todd, Ruth.

Tolbert, Albert Marion.
The Frio offers lucrative hunting [Texas]: Oil and Gas Jour., v. 56, no. 1, p. 156–157, 159–161, illus., Jan. 6, 1958.

Tolemon, Frank John.

Torón Villegas, Luis. See Cortés-Obregón, S.

Totten, Robert Briggs. See also Meholin, G. L., 2.
   1. (chairman, and others). North-south cross section—Morton County, Kansas, to Lubbock County, Texas: Panhandle Geol. Soc. [Cross Sec., no. 3], May 1955.

Toulmin, Lyman Dorgan, Jr. See LaMoreaux, P. E.

Toulmin, Priestley, 3d.

Tovell, Walter Massey.

Townsend, Roland C.
   Reliability of geiger and scintillation counters as proof of presence and grade of uranium: Mines Mag., v. 48, no. 4, p. 23–25, 36, Apr. 1958.

Tozer, Edward Timothy.

Tracey, Joshua Irving, Jr. See also Gordon, M., Jr., 1.

Traill, R. J. See Ferguson, R. B.

Trantina, John Amos. See Brune, G. M.

Trask, Parker Davies. See also Langston, R. B.

Trauger, Frederick Dale.

Traverse, Alfred Freeman, Jr.

Travis, Russell Burton.

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Tripp, Ronald Pearson.


Tri-State Geological Field Conference.


Trites, Albert Fillion, Jr.


Trömel, Gerhard.


Trost, W. R.


Trotter, James.


Troutman, Arthur.


Trow, James William.


Trowbridge, Arthur Carleton.

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Tuttle, Orville Frank.  See also Wyllie, P. J., 2.  

Tuttle, Richard Carol.  

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Twenhofel, William Henry, 1875-1957.  

Twenhofel, William Stephens.  

Tweto, Ogden Linne.  See also Pearson, R. C.  

Twidale, C. R.  

Twiss, Page Charles.  See Soc. Econ. Paleontologists and Mineralogists Perrian Basin Sec.


Uchupi, Elazar.  
Sediments of Todos Santos Bay, Baja California, Mexico: Compass, v. 35, no. 4, p. 238-243, illus., May 1958.
Uffen, Robert James. *See also* Carmichael, C. M.


United Nations.


United States Atomic Energy Commission.


United States Bureau of Mines. *See* Fischer, W. August, 1; Gryc, G., 1; Pakiser, L. C., Jr., 1; Roberts, A. E., 1.

United States Bureau of Reclamation.


United States Geological Survey. *See also* Fischer, W. August, 1; Gryc, G., 1; Pakiser, L. C., Jr., 1; Roberts, A. E., 1.


United States Hydrographic Office.


Unklesbay, Athel Glyde.


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BIBLIOGRAPHY

Upton, Richard Alvin.

Urey, Harold Clayton. See also Kohman, T. P.; Lovering, J. F., 1, 2.

Utah Geological Society.
(Rigby, J. Keith, editor). Guidebook to the geology of Utah, no. 13, geology of the Stansbury Mountains, Tooele County, Utah. v, 176 p., illus. incl. geol. maps, 1958. Includes papers by J. K. Rigby and W. L. Stokes, which are cited individually.

Uyeda, R. See Brindley, G. W., 2.

Vacquier, Victor. See Menard, H. W., Jr., 2.

Vajk, Raoul.

Valentine, James William. See also Marianos, A. W.
Late Pleistocene megaflorana of Cayucos, California, and its zoogeographic significance: Jour. Paleontology, v. 32, no. 4, p. 687-696, illus., July 1958.

Vallentyne, John R.

Vance, Joseph Alan.

Van Couvering, Martin.

Van Hook, Harry Jerrold.

Van Horn, Richard. See Schlocker, J., 2; Sheridan, D. M.

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Vidrine, Louis O.


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Virgin, William W., Jr.


Virginia Academy of Science, Geology Section.


Virginia Division of Geology. See Appalachian Geol. Soc.

Virginia University.


Visher, Frank Newell.

Visher, Stephen Sargent.

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Vlisidis, Angelina Calomeris. See Schaller, W. T.

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Volborth, A.

von Bandat, Horst Frank.
Martian features have considerable similarity to geologic patterns on Earth: GeoTimes, v. 2, no. 7, p. 6–7, 14, illus., Jan. 1958.

Vondra, Carl F.

Vosburg, David Lee.

Vries, Hessel de. See Coachman, L. K.

Waage, Karl Mensch. See also Turekian, K. K., 2.

Wadsworth, Albert Hodges, Jr.

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Wahrhaftig, Clyde Adolph. See also Williams, Howel.

Waidelich, Walter C.

Wait, Robert L.

Waite, Stephen Temple. See Barr, K. W., 2.


Waldron, John Francis.
Reconnaissance geology and ground water study of a part of Socorro County, New Mexico [abs.]: Dissert. Abs., v. 19, no. 5, p. 1057, Nov. 1958.

Waldschmidt, William Albert.

Walenta, Kurt. See Gross, E. B.

Walker, Edward Corbell.


Walker, Myrl Vincent. See Sternberg, G. F.


Walker, Philip Caleb.
The forest sequence of the Hartstown bog area [Pa.][abs.]: Dissert. Abs., v. 18, no. 6, p. 1959, June 1958.
Walker, Woodville Joseph. See Knight, C. L.


Wallerstein, George.

Wallington, Dale. See Smith, G. W.


Wallner, Jack D.

Walper, Jack Louis.

Walpole, Bruce Philip. See Knight, C. L.

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Ward, Richard F.

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Warren, Percival Sidney.


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Weaver, Charles Edward. *See also* Adams, J. A. S., 2.


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Webb, Robert T.

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BIBLIOGRAPHY

Weeks, Lewis George.

Weeks, Ludlow Jackson. See Canada G. S., 6.


Weidick, Anker.

Weidner, Melvin I.

Weimer, Robert Jay.

Weinstein, Michael.
The world of jewel stones. ix, 430 p., illus., New York, Sheridan House, 1958.

Weir, Charles Edward.

Weir, Gordon Whitney.
Weir, James Elbert, Jr.

Weis, Paul Lester. See also Becraft, G. E., 2.

Weiss, Malcolm Pickett.

Weissenborn, Helen Frances. See Avery, R. B.

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Weld, Betsy Anne.

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Wells, Ralph Gordon.

Welsh, John Elliott.

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Wengerd, Sherman Alexander.

Werner, Courtney.

Werner, Harry Jay.

Wertz, James Claude, Jr.

Wescott, Eugene M. See Casey, R. D.

West, Samuel Wilson.

West, Thomas Scott.

West, Warren Earl, Jr.
West Texas Geological Society.

West Virginia Geological Survey. See also Appalachian Geol. Soc. [Map] Mineral resources and mineral industries of West Virginia. Scale 1:500,000 (about 1 in. to 8 mi.), Morgantown, 1958.

Westbrook, Jack Hall.

Westby, Gerald Holinbeck.
1. Discovery of stratigraphic traps by the reflection seismograph: Oil and Gas Jour., v. 56, no. 11, p. 144–156 incl. ads., illus., Mar. 17, 1958.

Westermann, Jan Hugo.

Westland, A. D.

Westoll, Thomas Stanley. See Colbert, E. H., 1; Gregory, W. K.; Romer, A. S., 2.

Westrick, Edmond W.

Wetherill, George W. See Aldrich, L. T., 1, 2; Davis, G. L.; Tilton G. R., 2, 4.

Wetmore Alexander.


Weyl, Peter K.
Weyl, Richard.

Wheeler, Everett Pepperrell, 2d.

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Whited, Maurine.  See Wheeler, R. R.

Whitehead, A. B.  See Schultz, C. G.


Wiebenga, William A.  See Aggarwala, B. D.
Wier, Charles Eugene.
Distribution, structure, and mined areas of coals in Warrick County, Indiana: Ind. Geol. Survey Prelim. Coal Map, no. 7, scale about 1 in. to 2 mi., with sections and tables, 1958.

Wilcox, Ronald E.

Wild, J. See Kupsch, W. O., 2.

Wildt, Ruppert. See Hodge, P. W.

Wilkerson, Albert Samuel.

Wilkins, Thurman.

Willard, Bradford.

Willard, Max Emery.

Willden, Charles Ronald.

Williams, Eugene Griffin. See also Degens, E. T.

Williams, Gordon Keith.

Williams, Harold L.

Williams, Howel.
(editor). Landscapes of Alaska—their geologic evolution. xii, 148 p., illus., Berkeley, Univ. Calif. Press, 1958. Includes papers by numerous authors which are not cited individually.
BIBLIOGRAPHY OF NORTH AMERICAN GEOLOGY, 1958

Williams, James Stewart.

Williams, John Bernard Edgar. See also Versey, H. R., 3; Zans, V. A., 5.
Silica sands and glassmaking [Jamaica]: Geonotes, v. 1, no. 3, p. 72-76(t), July 1, 1958; also available as Jamaica Geol. Survey Pub., no. 37, July 1, 1958.

Williams, John Ropes.

Williams, Merton Yarwood.

Williams, Sidney Arthur. See Thomssen, R. W., 2.

Williamson, Donald Robert.

Willis, David Grinnell. See Hubbert, M. K., 1.

Willis, Ronald Porter.

Willman, Harold Bowen. See also Frye, J. C., 1.


Wilmoth, Benton McMillian, Jr.

Wilshire, Howard G.
Alteration of olivine and orthopyroxene in basic lavas and shallow intrusions: Am. Mineralogist, v. 43, nos. 1-2, p. 120-147, illus., Jan.-Feb 1958.

Wilson, Bates E.
Wilson, Cedric Clark. *See also* Barr, K. W., 2.

Wilson, Charles William, Jr.

Wilson, Derek William Raymond.

Wilson, Eldred Dewey. *See also* Butler, B. S.

Wilson, Ernest Elmer. *See* Vaughn, W. W., 1, 2.

Wilson, George Miller.

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Wilson, William Westfall.

Wilt, James W.

Winar, Richard Marion. See Merrill, W. M.

Winchell, Horace. See also Hurlbut, C. S., Jr., 1.

Winchester, John W.

Winder, Charles Gordon.
Bioplastic crystal models: Jour. Geol. Education, v. 6, no. 2, p. 9–12, illus., Fall 1958.

Winer, A. S. *See* Ball, D.

Winfrey, Walter Michael, Jr.

Wing, Lawrence Alvin.


Wingard, Paul S. *See also* Chapman, C. A., 3.

Wingert, John R.

Winkler, Harmut A. *See* Seigel, H. O., 2.

Winn, R. H.

Winslow, Allen George.

Winslow, John Durfee.

Winterer, Edward Litton.
BIBLIOGRAPHY OF NORTH AMERICAN GEOLOGY, 1958

Winters, Stephen Samuel. See Lapinsky, W. J.

Wintringham, Neil A.

Wise, Donald Underkoffler. See also Burnt, R.; Moody, J. D.

Wise, Edward Nelson.

Witherspoon, Paul Adams, Jr.
Studies on petroleum with the ultracentrifuge: Ill. State Geol. Survey Rept. Inv. 206, 82 p., illus., 1958.

Witkind, Irving Jerome. See also Ross, C. P., 1.


Wojciechowski, Walter Anthony. See Price, G. W.

Wolfe, Jack A. See Durham, J. W., 2.

Wolfe, John A.

Wolman, Markley Gordon.

Wones, D. R.

Wood, Gordon Harry, Jr. See also Johnson, Ross B., 2.
(and others). Geology of the northern half of the Minersville quadrangle and a part of the northern half of the Tremont quadrangle, Schuylkill County, Pennsylvania: U. S. Geol. Survey Coal Inv. Map C 43, 2 sheets, scale 1:12,000 (1 in. to 1000 ft.), with sections and text, 1958.

Wood, Hiram Bud.
Wood, John A., Jr.

Wood, Leonard Alton. See Winslow, A. G.

Wood, Paul A. See also Lance, J. F., 3.

Wood, Percival Walter James. See Darling, G. B.


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Woodmansee, Walter Clark.

Woodring, Wendell Phillips.

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Wourms, John P., Jr. See Nagy, B. S., 2.

Wright, Edward M., Jr. See Conner, D. C.

Wright, Harold Douglas.


Wright, Herbert Edgar, Jr.
Problems—solved (?) and unsolved—in the glacial history of northeastern Minnesota [abs.], in Institute on Lake Superior geology, April 21–22, 1958, p. 15-16(1), Minneapolis, Univ. Minn. Center for Continuation Study [1958].

Wright, James Clifton.


Wright, Jean Davies. See Stumm, E. C., 1.

Wright, John Frank. See Canada G. S., 9.

Wright, Martin. See Morgan, J. P.

Wu, T. H.

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Wyble, Donald O.
Wyckoff, Dorothy.

Wyllie, Malcolm Robert Jesse.

Wyllie, Peter John. See also Tuttle, O. F., 3.

Guidebook, 13th annual field conference, Powder River Basin, 1958. 380 p., illus., 1958. Includes papers by numerous authors which are cited individually.

Yalkovsky, Ralph.

Yamasaki, Kazuo. See Kuno, H.

Yardley, Donald Homer.

Yates, Robert Giertz.

Ybarra, R. A.

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Zähringer, J. *See* Schaeffer, O. A.; Steenner, R. W.

Zangerl, Rainer.  
Dinosaurs, predator and prey—the *Gorgosaurus* and *Lambeosaurus* exhibit in Chicago Natural History Museum. 12 p., illus. [Chicago Nat. History Mus. Press, Mar. 1956].

Zans, Verners Aleksandrs.  

Zeigler, John M. *See* Miller, Robert L.

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Zeller, Robert Allen, Jr.  

Zeller, Ronald P.  

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Zink, Edman R.  

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Coal, geology and industry: Cady, Gilbert H., 2.
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Earth: Vincenz, S. A., 2.
Geological geomorphology: Russell, R. J., 2.
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Industrial minerals: Gillson, J. L., 2.
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Paleontology, trend, biological phases vs. stratigraphic: Cooper, G. A.
Stratigraphic classification and terminology: Hedberg, H. D.
Aerial photographs. See also Photogeology.
Northwest Territories, Queen Elizabeth Islands: Taylor, A.
Texas, Tordilla Hill area, color: South Texas Geol. Soc.
Aeromagnetic maps. See Maps, Aeromagnetic.
Agricultural minerals. See also Limestone: Phosphate.
Idaho: Prater, L. S.
Illinois, limestones, Pennsylvanian, trace elements: Ostrom, M. E.
Alabama.
Guidebook, Birmingham area and Coastal Plain fossil localities: Ala. G. S.
Coastal Plain fossil localities, west-central: LaMoreaux, P. E.
Economic geology.
Montgomery County: Reade, H. L., Jr.
Geologic maps.
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Montgomery County: Reade, H. L., Jr.
Ground water.
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Tuscaloosa County: Miller, J. D., Jr., 2.
Historical geology.
Coastal Plain, Cretaceous-Tertiary: LaMoreaux, P. E.
Epes quadrangle, Cretaceous-Tertiary: Monroe, W. H.

Alabama—Continued
Historical geology—Continued
Midway-Wilcox groups, Tertiary, west-central: Roux, W. F., Jr.
Mississippian, Upper, northern: Welch, S. W., 2.
Montgomery County, profile, Cretaceous: Reade, H. L., Jr.
Mineralogy.
Meteorite, Tombigbee iron: Henderson, Edward P., 1.
Paleontology.
Coastal Plain, Cretaceous-Tertiary: LaMoreaux, P. E.
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Weinsler quartzite, Bluffton Mtn., petrofabric study: Grant, W. H., 2.
Physical geology.
Epes quadrangle: Monroe, W. H.
Physiographic geology.
Epes quadrangle: Monroe, W. H.
Alaska. See also Arctic America.
Aeromagnetic map, Copper River basin: Andreasen, G. E., 1.
Aeromagnetic survey, Cook Inlet area: Andreasen, G. E., 3; Zietz, L., 1.
Copper River basin: Andreasen, G. E., 2.
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Point Spencer spit, Seward Peninsula: Black, R. F., 1.
Exploration, Naval Petroleum Reserve No. 4: Reed, J. C., 1.
Geochemical exploration, Kantishna area, soils and stream sediments, metals: Chapman, R. M., 2.
Geothermal investigations, permafrost, northern: Brewer, M. C.
Land-use study, Kenai-Kasilof area: Karlstrom, T. N. V.
Alaska—Continued

**Paleoclimatology, Pleistocene, Pacific coast area, pollen-peat studies:** Heusser, C. J.

**Seismic measurements, Malaspina Glacier:** Sharp, R. P., 3.

**Soils, Arctic slope, relation to drainage:** Tedrow, J. C. F.

**Areas described.**

**Northeastern:** Gryc, G., 2.

**Physiographic regions, popular account:** Williams, Rowel.

**Prince of Wales Island, reconnaissance:** Houston, J. R.

**Southeastern:** Lathram, E. H., 2.

**Yukon River, lower:** Patton, W. W., Jr.

**Economic geology.**

**Coal, Beluga River field, strip-mine possibilities:** Maloney, R. P.

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**Nome gold fields, lode deposits, possibilities:** Hummel, C. L., 2.

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**Umiat area, test wells:** Collins, F. R., 1.

**Petroleum, exploration:** Gryc, G., 1.

**Possibilities, northeastern:** Gryc, G., 2.

**Radioactive minerals, Salmon Bay area:** Houston, J. R.

**Geologic maps.**

**Alaska Range, central, bedrock:** Wahrhaftig, C. A.

**Fairbanks quadrangle: Fëvé, T. L.**

**Juneau quadrangle: Latham, E. H., 1.**

**Malaspina district, photogeologic:** Plafker, G.

**Nenana River valley, Healy and Fairbanks quadrangle areas, Quaternary:** Wahrhaftig, C. A.

**Salmon Bay area, sketch:** Houston, J. R.

**Yukon River, lower, generalized:** Patton, W. W., Jr.

**Ground water.**

**Huntsville area: Sanford, T. H., Jr.**

**Mineral springs, relation to linear features, southeastern:** Twenhofel, W. S.

**Point Spencer spit, Seward Peninsula:** Black, R. F., 1.

**Historical geology.**

**Copper River basin, Pleistocene volcanic mudflow:** Ferrians, O. J., Jr.

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**Historical geology—Continued**

**Cretaceous-Tertiary granitic rocks, lead-alpha ages cf. geology:** Matzko, J. J.

**Grandstand area, Cretaceous, test well:** Robinson, F. M., 2.

**Gubik area, Cretaceous, test wells:** Robinson, F. M., 1.

**Gulf of Alaska, northeast coast, glacial:** Miller, D. J., 2.

**Kaolak area, Cretaceous, test well:** Collins, F. R., 3.

**Meade area, Cretaceous, test well:** Collins, F. R., 3.

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Barite districts, generalized: Scull, B. J.
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American Association for the Advancement of Science, history and functions: Mather, K. F.
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International Association of Scientific Hydrology, Commission on Snow and Ice: Baird, P. D.
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Cuba: Chaves Figueredo, A. F.
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Differential thermal analysis: Smothers, W. J.
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Geology theses: Chron., B. J., Jr., 1.
Texas University: DeFord, R. K., 1.
Geophysical abstracts: Rabett, M. C.: Vitaliano, D. B.
Geophysics theses: Tarbox, G. E.
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Ruedemann, Rudolf: Goldring, W.
Russell, H. N.: Shapley, H.
Scott, I. D.: Hussey, R. C.
Seismology: Smith, W. E. T.
Engineering: Hollis, E. P.
SIPPE Bibl. Proj.
Soll-profile relation to land slope: Chorley, R. J., 1.
Texas, Canyon and Strawn series, Pennsylvanian: Creager, N. G.
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Uraniferous black shales, United States, annotated: Fix, C. E.
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Rowley, A. B.: Kennedy, L. E.
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North Carolina, Cape Fear River to South Carolina border: Heron, S. D., Jr., 5.

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Bibliography, Elliott County: Jillson, W. R., 4.

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BIBLIOGRAPHY OF NORTH AMERICAN GEOLOGY, 1958
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Evolution, study since Darwin: Clark, W. E. L.

Texas, Midland area, radioactivity dating of bones, adsorbed uranium: Oakley, K. P.

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Arizona: Farnham, L. L.

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Bibliography: Hoffman, J. N.

Maine, Hammond Plantation and Hodgdon Townships: Ellertsen, N. A.

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Manitou area: Halstead, E. C., 1.

Pilot Mound area: Halstead, E. C., 2.

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Gunn member of Stony Mtn. formation, Ordovician, new name: Sinclair, G. W., 1.

Jurassic cross section, southwestern:

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Lodgepole formation, Mississippian, members, Wirten-Whitewater area: Stanton, M. S.

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United States, pool maps, principal areas: Oil and Gas Jour.
Washington, dry holes: Livingston, V. E., Jr.
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Mercury and sulfur, origin, experimental studies, system S-Na2S-H2O: Arntson, R. H.

Metalliferous provinces and ores, classification, origin: Sullivan, C. J.

Metals, origin, medieval views, Albertus Magnus: Wyckoff, D.

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Santa Barbara district, Chihuahua, sulfide: Scott, J. B.

Minnesota, Cuyuna district, sulfides, paragenesis: Han, T. M.

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Vanadium, types, origin: Williamson, D. R., 3.

Virginia, Great Gossan Lead, sulfides: Corriveau, M. P.

Iris Creek tin district, cassiterite-bearing veins, paragenesis: Glass, J. J., 1.

Manganese, bibliography: Pegau, A. A.

Washington, Lovitt gold-silver mine, Wenatchee area: Lovitt, E. H.

Maehnaw mine, nickel-gold, paragenesis: Milton, C., 2.

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Iron-titanium oxides, magnetism, lithologic relations, Adirondack area, New York: Balsley, J. R., Jr.

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Copper-nickel, Ely district, geochemical exploration: Yardley, D. H.

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Cuyuna district, North range: Schmidt, R. George, 1, 2.

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Lyon County, Upper Cretaceous, well data: Rodis, H. G.


Winter and spring levels, correlation with air temperatures: Schneider, R.

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Cuyuna district, North range, Precambrian: Schmidt, R. George, 1.

Cuyuna iron-formations, Precambrian, titaniferous layers: Schmidt, R. George, 2.

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Lake Carlos State Park, glacial geology: Thiel, G. A., 2.

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Bibliography, Cretaceous: Mellen, F. F.

Areas described.

Kemper County: Hughes, R. J., Jr.

Economic geology.

Mineral resources, Kemper County: Hughes, R. J., Jr.

Oil and gas, Cretaceous shelf sediments: Mellen, F. F.

Fields: Shreveport Geol. Soc.

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Kemper County: Hughes, R. J., Jr.

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Composite stratigraphic sections, oil and gas test wells: Belkman, H. M., 2.

Cretaceous, Upper, surface and subsurface: Mellen, F. F.

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Alabama, northern, Upper: Welch, S. W., 2.
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Edwards lime: Knebel, R. M.

Frio fields: Tolbert, A. M.


Johns field: Peeler, T. E.

North-central, location related to coal isocarbs: Kollaja, A. A.

Oakville field: West, T. S.

Ouachita Mts. foreland, possibilities: Goldstein, A. Jr.

Pecos County, fields: Phifer, R. L., 2.

Permian basin: Galley, J. E.

Eastern shelf fields: Conselman, F. B.

Truncated traps: Dodge, C. F., 2.

Reeves-Loving-Culberson Counties: Phifer, R. L., 3.

Shafter Lake field: Shreveport Geol. Soc.


Petroleum—Continued

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Frio trend: Johnson, Ray B.

Sutton-Schleicher Counties, Pennsylvanian-Permian: Rall, R. W.

Trinidad, Los Bajos fault area: Wilson, C. C.

Penal field, Herrera sands: Bitterli, P.

Southern, Miocene: Barr, K. W., 2.

United States, Denver basin, habitat: McGinnis, C. J.

Geophysical exploration: Pakiser, L. C., Jr., 1.


Great Plains-Rocky Mts., northern, habitat: Pye, W. D., 2.

Illinois basin, habitat: Swann, D. H.

Midcontinent, new possibilities: Levorsen, A. I., 3.

Pool maps, principal areas: Oil and Gas Jour.

Utah: Barkell, C. A.

Aneth area fields: Quigley, W. D., 1.

Aneth field, Desert Creek and Ismay zones: Carter, K. E., 1.

Big Flats field: Saterdal, A. O.

Big Flats-Cane Creek area, possibilities: Carlton, P. E.

Buff field: Conner, D. C.

Book Cliffs area, possibilities: Campbell, G. S.

Desert Creek field: Lauth, R. E.

Fields, reservoir characteristics: Quigley, W. D., 2.


Ismay field: Carter, V. E.

Kai prowits region, possibilities: Heylun, E. B., Jr., 2, 3.

Maroon basin, Pennsylvania-Permian fields: Jensen, P. S.

Paradox basin, pre-Pennsylvanian possibilities: Moritz, C. A.

Pennsylvania-Permian, habitat: Sharkey, H. H.

Ratherford field: Robinson, B. B.

Utah Basin: Wells, L. F.

Washington, exploration, 1900-57: Livingston, V. E., Jr.

Williston basin, Canadian portion, habitat: Darling, G. B.

Devonian possibilities: Sandberg, C. A.

Mississippian habitat: Smith, G. W.

Wyoming: Thomas, Horace D.

Ash Creek fields: Morgando, F. P.

Big Piney-La Barge area: McDonald, R. E.

Bighorn Basin, Mississippian-Permian, origin: Partridge, J. F., Jr.

Brooks Ranch field: Buskula, M. A.

Burke Ranch field: Swireszynski, R. P.

Dead Horse Creek field: Lawton, J. E.

Donkey Creek fields: Barkley, C. J.; West, W. E., Jr.

East Tespeot field: Eaton, E. C.
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Green River basin: Morrissey, N. S., 2.
North Fork field: Rea, B. B.
Powder River basin: Wyg, Geol. Assoc.
Habitat: Curtis, B. F., 2.
Newcastle-Muddy sandstone: Johnson, M. S., 2.
Properties, correlation with formations: Wengen, W. J.

Sage Spring field: Johnson, M. S., 1.
Sussex-Meadow Creek area: Padden, M.
Tisdale anticline: Eckelberg, D. J.
Wind River basin, possibilities: Thompson, Raymond M.

Petroleum geology, American, history: Owen, E. W.

Petrology. For area see subheading Petrology under the states and countries. See also Igneous rocks; Metamorphic rocks; Petrogenesis; Petrography; Rock descriptions; Sedimentary petrology: Sedimentary rocks; Technique, Petrographic.

Analytical data, descriptive information needed: Hamilton, W. B., 2.
Basalt flows, olivine and orthopyroxene alteration: Wilshire, H. G.
Basaltic magmas, crystallisation and differentiation, oxygen partial-pressure constancy: Osborn, E. F.
Coal, analytic techniques, American and European: Cady, Gilbert H., 1.
Bituminous, high-volatile, petrographic components, properties: Ergun, S.
Methods and applications: Schopf, J. M.
Coronites, origin of coronas: Murthy, M. V. N., 2.

Earth's crust, chemical differentiation, igneous, sedimentary, and metamorphic averages: Green, J., 1.

Earth's mantle, constitution, olivine-spinel transition: Ringwood, A. E., 4.

Epigenetic and syngenetic theories: Amstutz, G. C., 6.
Evaporites, stratified, status and nomenclature: Greensmith, J. T.

Fabric diagrams, three-dimensional, orientation tests, cf. random diagrams: Flinn, D.
Feldspar staining method: Hayes, J. R., 2.
Glaucophane schists, origin: Miyashiro, A., 1.
Granite, origin, equilibrium studies: Tuttle, O. F., 2.

Origin, orthoclase vs. microcline: Marmo, V.

Petroleum—Continued

Indentation tests and plastic properties: Brace, W. F., 2.
Limestones, Bahaman type: Beales, F. W.
Marble: Bowles, O.
Metamorphic reactions and facies: Frye, W. S., 1.

Microscopic components, relation to lithologic sequence: Carozzi, A. V.

Mineral assemblages, macroscopic features, role of minimum interfacial free energy: DeVore, G. W.
Modal analysis, medium- and coarse-grained rocks, technique: Emerson, D. O., 2.

Nepheline-kalsilite system, phase relations: Tuttle, O. F., 2.


Pegmatites, genesis, sedimentary source: Emmann, R. D.
Quartz grains, plastic deformation in nature, correlation with rock origin: Bailey, S. W.

Sedimentary rocks, clay-mineral origin: Weaver, C. Edward, 1.

Serpentinites, intrusive, and altered peridotites, age distinction: Thayer, T. P., 2.
Soils, clay content, effects: Trask, P. D., 2.

Standard rocks G-1 and W-1, spectrographic analysis, successive additions method: McKenzie, R. M.

Tekrites, origin, theories explaining properties: Barnes, E. V., 2.

Textbook, sedimentary rocks: Pettijohn, F. J.

Two-dimensional orientation data, method of handling: Kahn, J. S.
Volcanic glasses, deuterium content of water, secondary hydration: Friedman, I. L., 2.

Phosphate.

Continental shelf, possible resources: Pepper, J. F.

Florida, Ocala area, uraniferous: Espenshade, G. H.
Southern, sediment concentrations, effect of bird rookeries: Land, E. H., 1.
Idaho, agricultural: Prater, L. S.
Phosphoria formation, pellets, cf. other deposits: Emigh, G. D.
Mexico, southern, possibilities: Cserna, Z. de, 1.
North Carolina, Beaufort County, origin, ground-water relations: Brown, P. M., 2.

Pellets, sedimentary deposits, petrography, mineralogy, origin: Emigh, G. D.

Tennessee, Centerville quadrangle: Colvin, J. M., Jr.
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Cottontown quadrangle: Wertz, J. C., Jr.
Spring Hill area: Luther, E. T.
Sunrise quadrangle: Oden, T. E., 3d.
Thompsons Station area: Statler, A. T.
West Harpeth area: Floyd, R. J.
United States, western, Phosphoria formation, pellets, cf. other deposits: Emigh, G. D.
Uranium geochemistry: Altschuler, Z. S.
Photogeologic-Continued
Analysis, technique: Volborth, A., 2.
Rare-earth, paragenesis, fractionation, fractional precipitation: Carron, M. K., 1.
Strunzite, new: Frondel, C., 3.
Photogeology. See Maps, Photogeologic.
Photogeology. See also Aerial photographs; Technique, Photogeologic.
Photogeologic features, systematic study: Hartman, R. R.
Physical geology. For areal, see subheading Physical geology under the states and countries. See also Structural geology; Tectonics.
Block diagrams and other graphic methods: Lobeck, A. K.
Intrusion mechanism, zone melting: Dickson, F. W., 2.
Evaporites, deposition mechanics: Gibson, J. B.
Fabric diagrams, three-dimensional, orientation tests, cf. random diagrams: Flinn, D.
Fault mechanisms: Dix, C. H.
Fluvial erosion, dimensional analysis of landforms: Strahler, A. N.
Glacier crevasses, mechanics of formation: Meier, M. F., 2.
Intrusion mechanism, zone melting: Dickson, F. W., 2.
Laboratory workbook: Texas Univ. Geology Dept. Teaching Staff.
Landslides: Varnes, D. J.
Orogenesis, cooling and contracting earth theory: Bucher, W. H., 1.
Photogeologic features, systematic study: Hartman, R. R.
Physical geology—Continued

Pisces—Continued

Shark teeth, Cretaceous-Eocene, Georgia.
Coastal Plain: Richards, H. G., 7.
Sparidae, teeth, Pleocene, Florida, Halifax area: Caldwell, D. K.
Sylasbus hansfisi, Cretaceous, South Dakota, Carlile shale: Green, M., 2.
United States, western interior basin, Late Cretaceous: Dunkle, D. H.
Pisoliths. See Limestone; Oolites.
Pitchblende. See Radioactive minerals; Uranium.

Placers.
Colorado, South Platte Valley, moraines, gold: Gillerman, E., 2.
Idaho, Deadwood placer, ilmenite: Storch, R. H., 2.
Murray area, gold-bearing: Dort, W., Jr., 1.
South Carolina, beaches, heavy minerals: Neihiesel, J., 1.

Plants, fossil. See Paleo-botany.

Platinum.
Minerals, chemical analysis: Westland, A. D.
Native metals and alloys, distribution: Buddhue, J. D., 2.
Ontario, Sudbury district, mihenerite and froodite: Hawley, J. E., 1.
Pollen analysis. See also Paleo-botany; Peat.
Alaska, Pacific coast area, Pleistocene environments: Heusser, C. J.
Argillaceous rocks, separation and study methods: Enciso de Castro, M. T.
California, Searles Lake core, Pleistocene climates: Roosma, A.
Canada, Pleistocene, correlation and dating: Terasme, J., 1.
Geologic use: Leopold, E. B.

Labrador, postglacial history: Grayson, J. F.

Massachusetts, Petersham area, Quaternary: Davis, M. B.
Methods: Bopp Oeste, M. G.
Nova Scotia, Gillis Lake, Cape Breton Island, Quaternary: Livingston, D. A., 2.
Pennsylvania, Huntstown bog area, Pleistocene: Walker, P. C.
Marsh area, Pleistocene taiga-tundra: Martin, P. Schultz, 2.

Quebec, postglacial history: Grayson, J. F.

Popular and elementary geology.
Alaska, landscapes, geologic evolution: Williams, Howel.
Arizona, ground sloth, Rampart Cave: Gruter, R. K.
Minerals, collecting: Flagg, A. L.
Painted Desert and Petrified Forest: Welton, M. S., Jr.
California, Kings Canyon National Park, geologic history: Hamilton, W. B., 1.

Los Angeles area, landslides and building problems: Jahns, R. H., 4.
Popular and elementary geology—Continued

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Los Angeles County Museum, Caltech
fossil vertebrate collection: How­ard, H., 1.

Canada, Arctic Archipelago, exploration:
Fortier, Y. O.

Classification, mollusks, history: Batten,
R. L., 1.

Colorado, gem trails and mineral guide:
Pearl, R. M., 1.

Copper minerals: Klein, J. R.

Crystallography, history: Mason, B. H., 2.

Dinosaurs: Brown, S. B.; Pistorius, A.

Dinosaur National Monument, Colorado­Utah: Good, J. M.

Earth, age, determination methods:
McGinty, D. A.

General: Gamow, G. A., 1; May, J.;
Sevrey, O. I.

Geophysics: Spilhaus, A.

Historical geology: Moore, P.

Elephants, ancient: Scheele, W. E.

Evolution: Meleah, H. E. L.


Fossil plants, Illinois, Wilmington area:
Pennsylvanian: Langford, G.

Fossils, collecting and identification: Mat­thews, W. H., 3d, 2.

Nature and classification: Matthews,
W. H., 3d, 1.

Fulgurites: Fleener, F. L., 2.

Gem materials, data book: Parsons, C.

Gemology:
Pearl, R. M., 2.


Gems, guidebook: MacFall, R. P.

Geology and scouting: Agnew, A. F., 2.

Glaciation, catastrophic origins: Hooker,
D. E.

Ground water: Anonymous, 2.

Historical geology: Gamow, G. A., 2.

Illinois, Wilmington coal flora, Pennsyl­vanian: Langford, G.

International Geophysical Year: Mar­shall, A.

Isotopes, stable, abundance variations:
Clayton, R. N., 1.

Kansas, Fencenpost limestone: Mullenburg,G.


Meteorites and meteor craters: Beals,
C. S., 2.

Michigan, Branch County, glacial history:
Martin, H. M. M., 3.

Kalamazoo County, glacial history: Mar­tin, H. M. M., 2.

Shiawassee County, geologic history:
Martin, H. M. M., 4.

Mineral descriptions, Niagara Frontier re­gion, New York-Ontario: Awald, C. J.

Minerals, names: Carnahan, V. M.

New Brunswick, mineral resources: Smith,
John C.

Popular and elementary geology—Continued

New England, geologic history: Thomson,
B. F.

New Mexico, Roswell-Capitan-Ruidoso and
Bottomless Lakes Park, guidebook:
Allen, J. E.

Oklahoma, Robbers Cave State Park: Rus­sell, D. T.

Paleoclimates, Cenozoic: Emilian, C., 3.

Petroleum: Wheeler, R. R.

Reptiles, paleoecology: Shuttlesworth,
D. E.


Rocks and minerals, collecting: Jensen,
D. E.

Story of ancient life: Fritz, M. A.

Uranium, prospecting: Mullenburg, G. A.

Vertebrate paleontology, elementary: Col­bert, E. H., 2.

Virginia, rocks and minerals: Dietrich,
R. V., 1.

Washington, Grand Coulee area: Hind­man, J.

Wonder world of land and water: Neu­rath, M.

Porifera.

Catalog of type specimens: Squires, D. F., 2.

Hyphantaenia chemungensis, Devonian, West Virginia, Chemung forma­tion: Rice, N. E.


Nomenclature: deLaubenfels, M. W.

Oklahoma, Redoak Hollow formation, Mis­sissippian: Elias, M. K., 1.

Systematic descriptions, classification: de­Laubenfels, M. W.

Porosity. See also Permeability.

Carbonate rocks, log interpretation: Winn,
R. H.

Core analysis: Crawford, J. G.

Petroleum-reservoir engineering: Pirson,
S. J.

Petroleum-reservoir rocks, pore geometry,
relation: Hamburger, K. L.

Petroleum-reservoir systems, microscopic behavior of fluids: Chatenever, A.

Photomicrolog, record of subsurface thin sections: Lewis, P. J., 2.

Sandstone, compressible sphere-pack mod­els: Fatt, I., 1.

Oil-bearing, pressure effects, experimen­tal: Wyble, D. O.

Reservoir types, resistivity dependence on fluid distribution: Holmes, C. E.

West Virginia, Cow Run sand, St. Marys area wells, relation to petrogra­phy: Griffiths, J. C., 2.

Porphyry. See also Igneous rocks.

Albite porphyry, gold deposits, guide:
Ward, H. J., 2.

New Brunswick, Bathurst-Newcastle dis­trict: Smith, Charles H., 2.

Quebec, Destor-Duparquet Townships,
metasomatism: Graham, R. B.
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United States, Basin and Range province, ore relations: Stringham, B. F.
Potash.
Saskatchewan: Cheesman, R. L.; Goudie, M. A.
Utah, Paradox basin: Hite, R. J.
Pototholes.
Connecting grooves, origin: Blank, H. R.
Texas, James River, Mason County, connecting grooves: Blank, H. R.
Precambrian. See also Paleontology, Precambrian.
Alberta, basement, gravity measurement: Garland, G. D., 2.
Basement, rock types, K-A ages: Burwash, R. A., 1, 2.
Northern, basement topography, tectonic history: Green, R.
Arizona, Diamond Butte quadrangle, lower: Gastil, R. G., 1.
Jerome area: Anderson, C. A.
Northern: Lance, J. F., 1.
Pinal County, Oracle granite, structure and petrology: Banerjee, A. K.
Southeastern: Shride, A. F.
Belt series: Ross, C. P. 3.
British Columbia, Dewar Creek area: Reesor, J. E.
California, San Fernando quadrangle: Oakeshott, G. B.
Sierra Pelona, Pelona schist: Muehlberger, W. R., 3.
Canada, argillaceous rocks, petrography and trace elements: MacPherson, H. G.
Canadian Shield, Animikie group, iron deposition: Bartley, M. W., 2.
Classification and correlation: Wilson, M. E.
Eastern, later orogenic belt: Gastil, R. G., 3.
Colorado, Copper King uranium mine: Sims, P. K., 2.
Denver area, structures: Boos, M. F., 2.
Sawatch Range, northern: Pearson, R. C.
Wet Mts., southern, core, structure: Boyer, R. E.
Connecticut, Danbury quadrangle: Clarke, J. W., 1.
Greenland, central metamorphic complex, Staunings Alper-Forahlade Pjord: Haller, J.
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Lake Superior region, banded iron-formations, fresh-water deposition: Hough, J. L., 2.
Problems in time division: Goldieh, S. S., 1.
Manitoba, Barlow Lake area: Tedlie, W. D.
Shethanei Lake area: Taylor, F. C.
Maryland, Baltimore gneiss, absolute age: Tilton, G. R., 2.
Carroll-Frederick Counties, aquifers: Meyer, G.
Dickinson-Iron Counties, pre-Keweenaw, stratigraphy: James, H. L.
Minnesota, Gyuila district, North range: Schmidt, R. George, 1.
Northern, organic substances in sedimentary rocks: Swain, F. M., Jr., 1.
New Jersey, Covent magnetite district: Sims, P. K., 1.
New Mexico, Big Burro Mts.: Hewitt, C. H., 2.
Las Tablas quadrangle: Barker, F.
New York, Hudson Highlands complex: Lowe, K. E., 2.
Newfoundland, Sunnyside area, Musgrave-town group: McCartney, W. D.
North America, orogenic culmination, ages, area distribution: Gastil, R. G., 2.
North Carolina, Great Smoky Mts., Ooee series: King, P. B., 2.
Oklahoma, Lake Altus area, igneous complex: Merritt, C. A.
Ontario, Blind River area, Huronian: Roscoe, S. M.
Clarendon-Dalhousie area: Smith, B. L.
Darling-Lavant Townships: Peach, P. A.
Gunflint iron-formation: Goodwin, A. M., 1.
Populus Lake area: Davies, J. C.
Orogenic culmination, ages, possible eras: Gastil, R. G., 2.
Quebec, Abir Lake area: Baragar, W. R. A.
Bignell area: Gilbert, J. E. J.
Bourget area, titaniferous magnetite: Jooste, R. F.
Destor-Duperquet Townships, porphyritization: Graham, R. B.
Fiedmont Township, northeast quarter: Brown, W. G.
Finger Lake area, Archean-Proterozoic relation: Bédard, J.
Louvigny-Bochart area: Bergeron, R., 1.
Marin-Fiquet area: Remick, J. H., 3d, 1.
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Roy Township: Horscroft, F. D. M., 1.
Sakami Lake area: Canada G. S., 14.
Thévenet Lake area, east half: Gélinas, L., 1.
Tuttle Lake area: Phillips, L. S.
Saskatchewan, Deschambault Lake area, eastern: Kirkland, S. J. T.
Northern, radioactive pegmatites: Mawdsley, J. B.
South Dakota: Stevenson, R. Evans, 3.
Black Hills, Keystone district: Norton, S. J. T.
Northern, radioactive pegmatites: Mawdsley, J. B.
South Dakota: Stevenson, R. Evans, 3.

Puerto Rico—Continued
Geologic maps.
General: Mitchell, R. C., 2.
Utudno pluton: Weaver, J. D.

Historical geology.
Cretaceous, Upper, eastern: Berryhill, H. L., Jr.
Jurassic (?)-Quaternary: Mitchell, R. C., 2.
Utudno pluton area, Cretaceous: Weaver, J. D.
Yauco area, Cretaceous-Tertiary: Slodowski, T. R.

Mineralogy.
Puerto Rico trench, sediment cores: Norton, M. F., 2.

Petrology.
Utudno pluton, phases and origin: Weaver, J. D.

Physical geology.
General: Mitchell, R. C., 2.
Utudno pluton: Weaver, J. D.

Physiographic geology.
General: Mitchell, R. C., 2.
Utudno pluton: Weaver, J. D.
Yauco area: Slodowski, T. R.


Protozoa. See also Foraminifera.

Chitinozoa, Ordovician, Oklahoma, Sylvan shale, Davis area: Wilson, L. R., 3.
Coccoliths, Cretaceous, United States, western interior, possible index fossils: Rezak, R.
Ontario, Keeatin cherts, Precambrian, Schreiber area: Madison, K. M.

Pteropoda. See Gastropoda.

Publication lists. See also Bibliography.

Puerto Rico. See also West Indies.

Engineering geology, Antonio Lucchetti Dam: Kaye, C. A.
Areas described.
San Sebastian area: Turner, M. D.

Economic geology.
Silica sand: Vázquez, L.
Quartz—Continued

Maine, Deer Hill, pegmatite pocket: Shub, B. M., 1.
Microhardness, temperature inversion, relation: Westbrook, J. H.
Mosaiclike Bragg reflection in crystals under strain: Berreman, D. W.
Pelagic clay, distribution, Pacific Ocean: Rex, R. W.
Plastic deformation in nature, optical and X-ray studies: Bailey, S. W.
Solubility, h: dc, thermal experiments: Smith, F. G.
Supercritical water, pressure function: Wasserburg, G. J., 1.
West Virginia, Cow Run sand, grain-size study, St. Marys area wells: Griffths, J. C., 2.

Quartzite.

Alabama, Weiters quartzite, petrofabries: Grant, W. H., 2.
Alberta, Jasper area, Cambrian, source of foothills erratics train: Mountjoy, E. W.
Michigan, Norway area, Sturgeon quartzite, shear joints, relation to tear fault: Trow, J. W.
Nevada, Middle Ordovician, cf.: Utah: Webb, G. W.

Quaternary. See also Cenozoic; Glacial geology: Paleontology, Quaternary.

Alaska, Nenana River valley, Alaska Range: Wahrhaftig, C. A.
Alberta, Kipp area, Pleistocene type section: Stalker, A. M.
Atlantic Ocean, midequatorial core, sedimentation rates, climate variations: Broecker, W. S., 1.
California, Manhattan Beach area, West Coast ground-water basin: Zielbauer, E. J.
San Diego area, Pleistocene dating, fossil man, evidence: Carter, G. F., 1.
Searles Lake, dry, Pleistocene stratigraphy and radiocarbon dates: Flint, R. F., 2.
Climatic changes, ocean-floor sediments: Arrhenius, G. O. S.
Florida, Caloosahatchee marl, age relations, Pleistocene: Du Bar, J. R., 3.
Caloosahatchee marl and Fort Thompson formation, Pleistocene, Caloosahatchee River area: Du Bar, J. R., 2.
Southwestern, Pleistocene: Du Bar, J. R., 1.
Glacial ages, cause, crustal shifting theory: Hangood, C. H.
Gulf Coastal Plain, Recent, late: LeBlanc, R. J.

Quaternary—Continued

Gulf of Mexico, submarine sediments, Pleistocene Mississippi River: J. Krause, W. H., 3.
Idaho, Ada-Canyon Counties: Savage, C. N.
Illinois, St. Louis, Missouri, area: Willman, H. B., 1.
Iowa, Scranton area, Pleistocene section, radiocarbon age: Rubin, M., 3.
Waterloo area, Buchanan interglacial material: Cable, E. J.
Kansas, Bonner Springs-Lawrence area: Dufford, A. E.
Southwestern, Pleistocene, new names: Hibbard, C. W., 2.
Lake Michigan basin, late glacial and postglacial: Quimby, G. L.
Louisiana, Mississippi delta, environments of deposition: Kolb, C. R., 2.
Manitoba, southwestern, Pleistocene: Elson, J. A.
Maryland, Brandywine area: Hack, J. T.
Cecil-Kent-Queen Ann Counties, aquifers: Overbeck, R. M.
Southern, upland deposits, origin: Hack, J. T.
Massachusetts, Lawrence quadrangle, Pleistocene: Castle, R. O.
Mexico, Basin of Mexico, climatic changes and archeology: Lorenzo, J. L., 1.
Basin of Mexico, correlations with glacial stages: Mooser, F., 1.
Guadalupe Valley, Durango: Albritton, C. C., Jr.
Isticahuital volcano, glaciation, substages: White, S. E.
Yanhuittian archeological site, Oaxaca, paleosols: Lorenzo, J. L., 3.
Michigan, Lower Peninsula, late Pleistocene chronology, cf. other areas: Mason, R. J.
Minnesota, northeastern, Pleistocene glaciation: Wright, H. E., Jr.
Missouri, St. Louis area: Willman, H. E., 1.
Nebraska, south-central, subsurface Pleistocene: Reed, E. C., 3.
New Hampshire, Canaan area, Wisconsin stage: Denny, C. S.
New Mexico, Cienega area: Sun, M. S., 1.
New York, Watertown-Sackets Harbor quadrangles, Pleistocene: Stewart, D. P.
Cordilleran, Pleistocene chronology: Miller, J. P., 1.
North Dakota, Pleistocene: Lemke, B. W., 1.
Nova Scotia, Mahone Bay islands, Pleistocene drumlins: MacNell, R. H., 1.
Quaternary—Continued
Ohio, western, Wisconsin-age forests: Goldthwait, R. P.
Ontario, Missinabi River, Pleistocene, nonglacial, pollen analysis: Terasmae, J., 1.
Sarnia area, Nipissing phase of Lake Huron, radiocarbon dates: Dreimanis, A., 3.
Toronto area, Wisconsin stage: Dreimanis, A., 4.
Late, varves and sunspot cycle: De Geer, Quebec.
Stages: Lougee, R. J., 2.
Temperatures, deep-sea cores, dating correlations with fossil man: Emiliani, C., 2.
Substages: Rubin, M., 1.
Quebec, St. Lawrence lowlands, Pleistocene, nonglacial, pollen analysis: Terasmae, J., 1.
Sea-level movements, radiocarbon dating, late: Fairbridge, R. W., 1.
South Dakota, Brookings area, Pleistocene: Lee, K.-Y., 1.
Brookings quadrangle: Lee, K.-Y., 1.
Estelline quadrangle: Steece, F. V., 4.
Florences quadrangle: Tipton, M. J., 1.
Hayti quadrangle: Steece, F. V., 2.
Henry quadrangle: Tipton, M. J., 2.
Newton Hills sand, age: Baird, J. K.
Pierre area: Crandell, D. R., 1.
South Shore quadrangle: Tipton, M. J., 2.
Still Lake quadrangle: Tipton, M. J., 4.
Watertown quadrangle: Steece, F. V., 3.
Watertown-Estelline area, Pleistocene: Steece, F. V., 5.
White quadrangle: Lee, K.-Y., 2.
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Petroleum source rocks, organic matter, cf. crude oil: Brenneman, M. C.

Petroliferous, sulfur-isotope abundances: Thode, H. G.

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Textbook: Pettijohn, F. J.

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California, Santa Monica Mts., Modelo formation, turbidity currents: Sullwold, H. H., Jr.

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Bibliography, Canyon and Strawn series, Pennsylvanian: Creager, N. G.
Geology theses, University of Texas: DeFord, R. K., 1.
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Brown-Coleman Counties, Pennsylvanian-Permian: San Angelo Geol. Soc.

Caballos novaculite, Devonian (?), Marathon region, revision: Berry, W. B. N., 1.

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Comanchean series, Cretaceous, Kent quadrangle, new members, type sections: Brand, J. P.


Cottle County to Bailey County, cross sections: Lubbock Geol. Soc.

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