

Bibliography of North American Geology 1952 and 1953

By RUTH REECE KING, VIRGINIA M. JUSSEN, JOHN S. POMEROY,
and VSEVOLOD L. SKITSKY

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BIBLIOGRAPHY OF NORTH AMERICAN GEOLOGY
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INTRODUCTION

The current biennial volume of the bibliographic series lists publications that have appeared during 1952 and 1953 in the literature concerning the geology of the North American continent, including Greenland, West Indies, and other adjacent islands, and Hawaii, Guam, and other island possessions, but not the trust territories of the United States. In addition, a few articles published before 1952 but not included in previous volumes are cited. Articles by American authors published in foreign journals are cited if they deal with North American localities or are of a general character, but not if they deal with foreign areas. Articles by foreign authors on North America are included regardless of place of publication; those of a general character are included if they appeared in North American journals.

The citations are listed alphabetically by author, with full title and publication data. The author section of the volume is followed by 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 Elisabeth S. Loud, Georgianna D. Conant, Howard R. Cramer, Barbara L. Stringfield, Jean G. Selby, Nina R. de Osejo, and Yetta C. Millman in preparation of the volume is gratefully acknowledged.

The following U. S. Geological Survey bulletins comprise the issues of the Bibliography of North American Geology: 746-747 (1785-1918), 823 (1919-28), 937 (1929-39), 938 (1940-41), 949 (1942-43), 952 (1944-45), 958 (1946-47), 968 (1948), 977 (1949), 985 (1950), and 1025 (1951).

SERIALS

The following list gives both the abbreviated citation and the full name of periodicals and serials that have been most commonly cited in this bibliography. A few of the less common ones, whose place of publication appears in the citation within the bibliography proper, have not been included here. Publications that include many articles, such as guidebooks, conferences, congresses, symposia, etc., may be entered under either the editor or the society that sponsored them, with full information given there. Papers contained in them may also be cited individually in the abbreviated form, which refers the reader to the editor or author, where full information is given. Such material will not be found in this list.

- Abilene Geol. Soc.—Abilene Geological Society. Abilene, Texas.
- Acta Crystallographica. Cambridge, England.
- Ala. Acad. Sci. Jour.—Alabama Academy of Science Journal. Birmingham, Ala.
- Ala. Geol. Survey Bull.—Alabama Geological Survey Bulletin. University, Ala.
- Am. Antiquity—American Antiquity. Menasha, Wis.
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- Arkansas, Arkansas Valley, pre-Atoka rocks, Paleozoic: Maher, J. C., 4.
 Carboniferous goniatite zones: Gordon, M., Jr., 3.
 Jacksonian stage, Eocene: Wilbert, L. J., Jr.

Correlations—Continued

Arkansas—Continued

- Morrow group, Pennsylvanian: Henbest, L. G., 5.
- Northern, well samples, Paleozoic: Maher, J. C., 2.
- Paleozoic, with Oklahoma: Lantz, R. J.
- Atlantic Coastal Plain, Cretaceous, floral evidence: Dorf, E., 1.
- Miocene: Malkin, D. S.
- Atlantic Ocean, northern, sediment cores, Foraminifera, Cenozoic: Phleger, F. B., Jr., 1.
- Biofacies, use in petroleum geology: Rothwell, W. T., Jr., 2.
- British Columbia, Fernie area, Jurassic-Lower Cretaceous(?): Newmarch, C. B.
- Princeton coal seams: Shaw, W. S., 1.
- Sheep Creek camp, pre-Cambrian(?)—Cambrian: Mathews, W. H., 3.
- Vancouver Island, Late Cretaceous ammonites, worldwide: Usher, J. L., 1.
- California, Death Valley, Pleistocene, Manly terrace and shorelines: Clements, T. D., 2.
- Eel River Valley area, Wildcat group, Tertiary: Ogle, B. A., 1.
- Foraminifera, Cretaceous-Tertiary: Edgell, S.
- Los Angeles basin, Cenozoic: White, R. T.
- Martinez area, Cretaceous-Miocene: Weaver, C. Edwin.
- Pacific coast, Paleocene-Eocene: Am. Assoc. Petroleum Geologists, 2.
- Pliocene, horse teeth: Stirton, R. A.
- Pliocene-Pleistocene boundary: Woodring, W. P., 2.
- Quartz Spring area: McAllister, J. F.
- Salinas Valley, Cenozoic, section: Killenny, J. E.
- Saltdale quadrangle, Cenozoic: Dibblee, T. W., Jr., 1.
- San Diego County, Pleistocene terraces: Emerson, W. K., 2.
- San Joaquin - Cuyama Valley areas, Oligocene-Pleistocene: Am. Assoc. Petroleum Geologists, 2.
- Santa Barbara coast - San Joaquin Valley, lower Eocene: Mallory, V. S., 2.
- Tertiary formations, time ranges, regional sea transgressions: Corey, W. H., 2.
- Tumey-Panoche Hills area, Cretaceous-Recent: Schoellhamer, J. E.
- Ventura basin, Cenozoic: Redwine, L. E.; Sheller, J. W.
- West Edison field, Tertiary: Sullwold, H. H., Jr., 1.
- Canada, Jurassic: Frebald, H.
- Southeastern, Wisconsin substages: Flint, R. F., 4.
- Triassic: McLearn, F. H., 2.
- Coal seams, methods: Newmarch, C. B.

Correlations—Continued

- Colorado, Casper and Fountain formations, Pennsylvanian-Permian: Pederson, S. L.
- Florissant flora, Oligocene: MacGinitie, H. D.
- Leadville-Mosquito Range district: Behre, C. H., Jr., 2.
- Maroon formation, Pennsylvanian-Permian(?): Langenheim, R. L., Jr., 3.
- Pennsylvanian-Permian: Langenheim, R. L., Jr., 1.
- South-central, Purgatoire-Dakota formations, Cretaceous: Waagé, K. M., 2.
- Southeastern, Paleozoic: Maher, J. C., 8.
- Pennsylvanian-Permian: Maher, J. C., 1.
- Colorado-New Mexico, Pennsylvanian-Permian zeugogeosyncline: Brill, K. G., Jr., 1.
- Colorado Plateau, Jurassic-Cretaceous boundary changes: Stokes, W. L., 1.
- Vegetation differences, effects of uranium and vanadium: Cannon, H. L., 1.
- Connecticut, New Preston quadrangle, metamorphic rocks: Gates, R. M.
- Conodonts, zonal: Branson, E. B., 2.
- Cretaceous, Black Hills and central Montana: Cobban, W. A., 1.
- United States, western interior: Cobban, W. A., 3.
- Devonian, late Upper, western North America, new brachiopods: Crickmay, C. H., 1.
- Montana and Williston basin: Andrichuk, J. M., 1.
- North America with Germany: Schmidt, H.
- North America-Germany: Schmidt, H.
- Devonian-Mississippian plant-bearing strata, North America, charts: Cross, A. T., 2.
- Differential thermal analysis, use: Bailly, F. H., 2.
- Florida, Paleozoic subsurface: Bridge, J.
- Peninsular, Ocala group, Eocene, zonation: Puri, H. S., 6.
- Florida Panhandle, Miocene: Puri, H. S., 3.
- Miocene, reclassification: Puri, H. S., 7.
- Foraminifera, uses: Castillo Tejero, C., 3; Church, C. C., 2.
- Georgia, Cretaceous, western: Eargle, D. H., 2.
- Crystalline belt, pre-Cambrian series: Crickmay, G. W.
- Ellijay quadrangle, pre-Cambrian-Paleozoic(?) sequences: Furcron, A. S., 2.
- Paleozoic subsurface: Bridge, J.
- Thomaston quadrangle, pre-Cambrian(?): Clarke, J. W.
- Graptolites, Athens fauna, North America and world, Ordovician: Decker, C. E., 1.
- Great Basin: Easton, W. H., 1.
- Great Plains, Tertiary paleosols: Schultz, C. B.

Correlations—Continued

- Greenland, Andréas Land, pre-Cambrian-Ordovician: Fränkl, E., 1.
 Andréas Land and Fraenkels Land, pre-Cambrian: Haller, J.
 Danmarks Fjord, pre-Cambrian-Silurian: Adams, P. J.
 Eastern, Jurassic-Cretaceous: Donovan, D. T.
 Petermann series, pre-Cambrian: Wenk, E.
 Scoresby Land, pre-Cambrian-Paleozoic: Fränkl, E., 2.
 Svejstrups area, pre-Cambrian, with Scotland: Leedal, G. P.
 Idaho, eastern, Triassic: Kummel, B., Jr., 4.
 Southeastern, Cretaceous: Moritz, C. A. Ordovician faunal zones: Ross, R. J., Jr., 2.
 Upper Cambrian: Hanson, A. M., 3.
 Idaho-Wyoming, Phosphoria formation, Permian: McKelvey, V. E., 3.
 Idaho-Wyoming-Utah, Twin Creek limestone, Jurassic: Imlay, R. W., 5.
 Illinois, northeastern, Pleistocene: Horberg, C. L., 5.
 Illinois-Kentucky, Chester series, subsurface: Sutton, A. H., 1.
 Indiana, Allegheny series coal seams, spores: Guennel, G. K., 1.
 Southern, Upper Mississippian: Malott, C. A., 1.
 Jurassic, Canada: Frebold, H.
 North America except Canada: Imlay, R. W., 1.
 United States, western interior: Imlay, R. W., 3.
 Kansas, Lansing and Kansas City groups, Pennsylvanian, radioactive logs, oil zones: Morgan, J. V.
 Peorian loess, Pleistocene: Leonard, A. B., 1.
 Pleistocene: Frye, J. C., 1.
 Red Eagle formation, Permian: O'Connor, H. G., 1.
 Western, Pennsylvanian-Permian: Maher, J. C., 1.
 Kentucky, Cumberland sandstone-Liberty limestone, Upper Ordovician: Jillson, W. R., 13.
 Eastern, Pennsylvanian: Huddle, J. W., 3.
 Liberty-Saluda-Whitewater beds, Ordovician, with Ohio, Indiana: Conkin, J.
 Middle Devonian: McFarlan, A. C.
 Kentucky and vicinity, Cambrian-Ordovician: Freeman, L. B.
 Lake Agassiz sediments, Minnesota-North Dakota, soil mechanics data: Rominger, J. F.
 Lake Superior region, south shore, pre-Cambrian: Marsden, R. W.
 Limestones, subsurface correlation by thermoluminescence: Parks, J. M., Jr., 1.

Correlations—Continued

- Limestones—Continued
 Surface correlation by thermoluminescence: Saunders, D. F.
 Manitoba, Betty Lake area: Robertson, D. S.
 Hudson Bay lowlands, Ordovician: Nelson, S. J.
 Lake Winnipeg area, Ordovician: Baillie, A. D., 1.
 Southern, Paleozoic: Baillie, A. D., 2.
 Massachusetts, Bernardston formation, Silurian (?): Boucot, A. J., 3.
 Mexico, Cananea copper district, Paleozoic: Mulchay, R. B.
 Fusulinid-bearing formations, with Texas: Maldonado-Koerdell, M., 3.
 Gulf coast, Tertiary: Meneses de Gyves, J.
 Jurassic: Imlay, R. W., 6.
 Peyotes anticline, Coahuila, Cretaceous: Díaz-Gonzalez, T. E.
 Michigan, southeastern, Devonian: Ehlers, G. M., 1.
 Upper Peninsula, Huronian: Tyler, S. A.
 Micropaleontologic, petroleum geology: Castillo Tejero, C., 2.
 Miocene, worldwide, proposed standard time-stratigraphic divisions: Glaessner, M. F.
 Mississippian, Black Hills and Williston basin: Sloss, L. L., 1.
 Missouri, Marmaton group, Pennsylvanian: Howe, W. B., 1.
 Missouri-Kansas, Arbuckle limestone, upper, insoluble residue zones: McCracken, E., 2.
 Montana, Beaverhead formation, Cretaceous-Eocene: Lowell, W. R., 2.
 Coalwood coal field, Cretaceous-Recent: Bryson, R. P.
 Fox Hills - Hell Creek strata, Upper Cretaceous: Brown, Roland W., 2.
 Little Rocky Mtn. area, Upper Cretaceous: Gries, J. P., 6.
 Mississippian, Three Forks area, with Utah: Holland, F. D., Jr., 1.
 Northern, Jurassic-Lower Cretaceous: Hadley, H. D., 2.
 Mississippian: Nordquist, J. W.
 Ordovician-Devonian: Rader, M. T., Jr., 2.
 Philipsburg area, Cambrian: Hanson, A. M., 2.
 Southwestern, Cambrian: Hanson, A. M., 1.
 Nebraska, Oligocene, faunal zones: Falkenbach, C. H.
 Nevada, Goodsprings dolomite, Cambrian: Hazzard, J. C., 2.
 New Brunswick, Carboniferous: Gussow, W. C., 1.
 New England, Paleozoic, problems: Boucot, A. J., 4.

Correlations—Continued

- New Mexico, eastern, Quaternary: Judson, S. S., Jr., 3.
 Galisteo-Tonque area, Tertiary: Stearns, C. E., 1.
 Hodges archeological site, Quaternary events: Judson, S. S., Jr., 2.
 New Mexico-Texas, Permian: Roesli, F. J.
 Permian, amphibian fauna: Langston, W., Jr., 1.
 New York, Black River valley, Trentonian: Chenoweth, P. A.
 Brayman shale, Upper Silurian: Fisher, D. W., 4.
 Cambrian-Devonian, oil and gas bearing formations: Kreidler, W. L.
 Chautauqua County, Devonian, subsurface: Donnerstag, P.
 Cherry Valley limestone, Devonian: Rickard, L. V.
 Manlius-Coeymans contact, Silurian-Devonian: Davis, G. H., 3d.
 Western, lower Clinton group, Silurian: Fisher, D. W., 3.
 North Dakota, Emmons County, Cretaceous-Recent: Fisher, S. P., Jr. 1.
 South-central, subsurface: Towse, D. F., 2.
 Western, Oligocene: Skinner, M. F.
 Nova Scotia, Cape Breton Island, Cambrian: Hutchinson, R. D., 1.
 Cape Breton Island, Windsor group, Mississippian: Stacy, M. C.
 Sydney coal field, Carboniferous: Haites, T. B.
 Ohio, Mississippian: Hyde, J. E.
 Northeastern, tills, size analysis: Shepps, V. C.
 Northwestern, Devonian: Ehlers, G. M., 1.
 Oriskany sandstone, Devonian: Hall, J. F., 1.
 Perry County, Paleozoic: Alkire, R. L., 1.
 Pittsburg coal seam: Smith, G. E.
 Oklahoma, Carter Knox oil field, Pennsylvanian-Permian: Pate, J. H.
 Cookson Hills area, Paleozoic: Brauer, C. P.
 Desmoinesian, lower: Branson, C. C., 2.
 East-central, lower Pennsylvanian, subsurface: Jackson, N. A.
 Hilltop formation, Pennsylvanian: Tanner, W. F., Jr., 2.
 Lincoln-Payne Counties, Paleozoic: Akmal, M. G.
 "Mayes" formation, Mississippian: Huffman, G. G., 3.
 Mississippian-Pennsylvanian boundary, ammonoid faunas, with Europe: Elias, M. K., 1.
 Ouachita-Arbuckle facies, Paleozoic: Harlton, B. H.
 Spavinaw - Salina - Spring Creeks area: Gore, C. E., Jr.
 Tulsa County, Pennsylvanian: Oakes, M. C., 2.

Correlations—Continued

- Oklahoma—Continued
 Wauhatchau area, Paleozoic: Degraffenreid, N. B.
 Wewoka formation, Pennsylvanian: Swanson, R. H.
 Yonkers area, Ordovician-Pennsylvanian: Douglass, H. M.
 Ontario, Baldwin township, pre-Cambrian: Thomson, J. E., 2, 3.
 James Bay lowland area, Ordovician-Devonian: Martison, N. W.
 Silurian: Hogg, N.
 Silurian-Devonian: Wilson, A. E.
 Southwestern, pre-Middle Ordovician: Roliff, W. A., 2.
 Toronto subway, Pleistocene: Watt, A. K., 4.
 Oregon, Tertiary and Quaternary: Baldwin, E. M.
 Oregon-Washington, Columbia River valley, Cenozoic: Lowry, W. D., 1.
 Paleobotanic, spores and pollen: Norem, W. L., 2.
 Paleogene, North America, southern: Stainforth, R. M., 4.
 Paleozoic, Afro-American linkage: Caster, K. E., 4.
 Paleozoic faunas, North America - Australia: Teichert, C.
 Pennsylvania, anthracite, constitution diagrams: Wagner, H. C., 1.
 Butler district, Devonian-Carboniferous: Lytle, W. S.
 Cameron County, Devonian-Mississippian: Bolger, R. C., 4.
 Eastern, Martinsburg formation: Gault, H. R., 2.
 Triassic: Bock, W., 3.
 Percentage-of-thinning chart: Wadsworth, A. H., Jr.
 Pliocene-Pleistocene, North America - Europe, microfossils: Voorthuysen, J. H. van, 2.
 Quebec, Gaspé sandstone, Devonian: Boucot, A. J., 2.
 Gaspé, Silurian graptolites, with Europe: Cumming, L. M.
 Saguenay Valley area, Middle Ordovician: Sinclair, G. W., 5.
 Radioactivity logging applications, Paleozoic: Bishop, W. D.
 Rocky Mts. - Great Plains region, northern, Jurassic: Schmitt, G. T.
 Saskatchewan, Bearpaw formation, Cretaceous: Loranger, D. M.
 Central, Devonian, subsurface: Powley, D. E.
 East-central, Ordovician-Silurian: Kupsch, W. O., 2.
 South-central, Paleozoic-Mesozoic, well log: Wickenden, R. T. D.
 Southern, Devonian, subsurface: Williams, Frederick J.

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Saskatchewan—Continued

Southwestern, Jurassic - Lower Cretaceous: Hadley, H. D., 2.

Tertiary: Russell, L. S., 3.

Upper Cretaceous: Russell, L. S., 2.

Western, Ordovician-Devonian: Stanton, M. S.

Shale beds, ceramic tests: Dawson, A. S., 2.

South Carolina, Tertiary: Cooke, C. W., 2.

South Dakota, Black Hills, northern, Ordovician: McCoy, M. R.

Dakota and Fall River sandstones, subsurface: Gries, J. P., 11.

Oligocene, faunal zones: Falkenbach, C. H.

Stratigraphic units, bases of correlation, evaluation: Twenhofel, W. H., 1.

Structural, micromagnetic and reflection surveys: Jenny, W. P.

Subsurface, importance of precision: Moore, C. A., 4.

Oil-well cuttings, spectrographic analysis: Hash, B.

Problems and techniques: Moore, C. A., 3.

Tennessee, Ducktown basin, use of heavy minerals: Gibson, O.

Stewart County, Wilcox formation, clay deposits in explosion craters: Wilson, C. W., Jr., 3.

Tertiary-Pleistocene, North America with Eurasia: Stout, T. M.

Texas, Agua Fria quadrangle, Boquillas-Terlingua units, Cretaceous: Moon, C. G.

Cretaceous metabentonites: Herrin, E. T., Jr.

Ellenburger group, Ordovician: Hendricks, C. L.

Llano Estacado, Cretaceous: Brand, J. P.

Llano uplift, Burnam limestone, Ordovician: Barnes, V. E., 17.

Permian basin: Jones, T. S.

Rustler formation, Permian: Walter, J. C., Jr.

Tascotal Mesa quadrangle, Buck Hill volcanic series, Tertiary: Erickson, R. L., 1.

Wellman oil field, Paleozoic: Anderson, K. C.

Williamson County, Austin group, Cretaceous: Young, K. P., 1.

Woodbine formation, Cretaceous, worldwide: Stephenson, L. W., 1.

Triassic, Canada: McLearn, F. H., 2.

Trinidad, Cretaceous-Tertiary: Suter, H. H.

Cretaceous-Tertiary boundary: Bolli, H. M., 2.

United States, eastern, Devonian-Mississippian black-shale flora: Hoskins, J. H.

Northeastern, Wisconsin substages and events: Flint, R. F., 4.

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United States—Continued

Southeastern, Cambrian-Recent: Baum, R. B., 2.

Western, Phosphoria formation, Permian: Swanson, R. W., 2.

Western interior, Cretaceous: Cobban, W. A., 3.

Jurassic: Imlay, R. W., 2.

Utah, Canyon Range, Cambrian: Christiansen, F. W., 1.

Chinle formation, Triassic, with Wyoming, Popo Agie: Keller, W. D., 7.

Coalville area, Upper Cretaceous: Peterson, R. H.

Ferron sandstone, Cretaceous: Katich, P. J., Jr., 2.

Jurassic, regional: Hardy, C. T., 1.

La Sal Mts., Lakes Bonneville and Lahontan, Quaternary: Richmond, G. M., 6.

Mississippian, Logan area, with Montana: Holland, F. D., Jr., 1.

Northeastern, Ordovician faunal zones: Ross, R. J., Jr., 2.

Northern, Upper Cambrian: Hanson, A. M., 3.

Virgin formation, *Tirolites* zone, Triassic: Poborski, S. J.

Wasatch Range, Salt Lake City area: Granger, A. E., 2.

Vermont, Rochester - East Middlebury area, Cambrian: Osberg, P. H.

Rutland area, pre-Cambrian-Ordovician sequences: Brace, W. F.

Washington, Crescent formation, lower Eocene: Mallory, V. S., 2.

Olympic-Cascade Mts., clastic rocks, Mesozoic: Danner, W. R., 2.

Williston basin, Cretaceous: Gries, J. P., 10.

Devonian: Baillie, A. D., 4.

Canada-United States: Baillie, A. D., 3.

Elk Point formation, Devonian: McGehee, J. R.

Wyoming, Bear River formation, Cretaceous, with Europe: Yen, T.-C., 3.

Bighorn Basin, Cambrian-Ordovician: Thomas, Horace D., 1.

Mesozoic: Downs, G. R., 1.

Casper and Fountain formations, Pennsylvanian-Permian: Pederson, S. L.

Casper formation, Pennsylvanian(?) - Permian: Thomas, Horace D., 3.

Crude-oil composition and stratigraphy: Hunt, J. M.

Evanston area, Upper Cretaceous: Peterson, R. H.

Frontier formation, Cretaceous: Towse, D. F., 3.

Bighorn Basin: Hunter, L. D.

Zones: Masters, J. A.

Hoback formation, Tertiary: Dorr, J. A., Jr., 1.

Correlations—Continued

Wyoming—Continued

Jackson Hole area, Upper Cretaceous-Pleistocene: Love, J. D., 5.

Laramie Basin, marine Jurassic: Phipps, G. N.

Niobrara formation, Foraminifera: Shaw, A. B., 2.

Madison group, Bighorn and Wind River Basins, insoluble residues: Denson, M. E., Jr., 1.

Southeastern, Triassic: Burk, C. A., 2.

Western, Cretaceous: Moritz, C. A.

Wind River and Bighorn Basins, Permian-Triassic: Tourtelot, H. A., 1.

Wyoming and adjacent areas, Cretaceous: Cobban, W. A., 4.

Wyoming-Montana, Bighorn Basin, Cretaceous-Tertiary: Stow, M. H.

Corundum.

Artificial gems, synthesis: Frondel, C., 7.

Montana: Clabaugh, S. E., 1.

Ontario, Craigmont deposit, origin: Carlson, H. D., 1.

Wilberforce, Bancroft, Craigmont-Lake

Clear areas: Meen, V. B., 3.

Cosmochemistry.

Elements, distribution: Green, J., 1.

Isotopes, nonradiogenic: Ingerson, E., 2.

Costa Rica.

Economic geology.

Mineral resources: Pan Am. Inst. Geog-
raphy and History, 1.

Geologic maps.

Meseta Central Occidental: Williams, H., 3.

Historical geology.

Meseta Central Occidental, volcanic history,

Tertiary-Recent: Williams, H., 3.

Santa Elena Peninsula: Harrison, J. V., 2.

Paleontology.

Foraminifera, Eocene: Cole, W. S., 5.

Petrology.

Meseta Central Occidental, volcanics: Wil-
liams, H., 3.

Santa Elena Peninsula, petrography: Har-
rison, J. V., 2.

Physical geology.

Flood debris, boulders, 1951: Weyl, R., 3.

General: Weyl, R., 4.

Meseta Central Occidental, glowing ava-
lanche deposits, Pleistocene: Williams,
H., 3.

Physiographic geology.

Santa Elena Peninsula: Harrison, J. V., 2.

Craters.

Arizona, Meteor Crater, geologic origin:
Hager, D., 2.

Carolina bays, magnetic survey, depth to
anomaly source: Johnson, W. R., Jr.,
1.

Meteor, formation by high-speed particles:
Rostoker, N.

Mexico, Crater Elegante, origin, popular
account: Kelly, A. O., 1.

Pinacate region, Sonora, calderas: Jahns,
R. H., 5.

Craters—Continued

New Mexico, Valles caldera, Sandoval

County, origin: Stearns, H. T., 3.

Nicaragua, Managua region: Williams, H.,
1.

Oregon, Crater Lake National Park, popu-
lar account: Ruhle, G. C.

Jordan Craters: Whipple, R. C.

Oriented bays and lakes, cosmic collision-
iceberg theory: Kelly, A. O., 2.

Tennessee, Stewart County, Wells Creek
basin, meteoritic origin, age: Wilson,
C. W., Jr., 3.

Creation, scientific theories and the Bible:
Handrich, T. L.

Cretaceous.

Alabama, Fayette-Lamar Counties: Dren-
nen, C. W., 1.

Tuscaloosa group, outcropping, reclassi-
fied: Drennen, C. W., 2.

Alberta, central, subsurface: Badgley, P.
C.

Copton Creek area: Irish, E. J. W.

Grande Cache area: Thorsteinsson, R., 1.

Oil discoveries: Hunt, C. W., 3d.

Southeastern, oil-bearing sands, distribu-
tion: Strachan, C. G., 1.

Southwestern: Thompson, R. L.

Atlantic Coastal Plain, stratigraphy and
paleobotany: Dorf, E., 1.

British Columbia, Fernie area: Newmarch,
C. B.

Vancouver Island, Nanaimo group:
Usher, J. L., 1.

California, Ortigalita Peak quadrangle:
Briggs, L. I., Jr., 2.

Colorado, eastern, pre-Benton: Waagé, K.
M., 4.

Eastern, subsurface: Hayes, J. R.

Colorado Plateau, Jurassic-Cretaceous
boundary changes: Stokes, W. L., 1.

District of Columbia: Cooke, C. W., 1.

Florida, subsurface: Jordan, L., 1.

Georgia, outcropping: Eargle, D. H., 2.

Greenland, Lindemans Fjord, Jurassic-
Cretaceous boundary determination,
ammonites: Spath, L. F.

Traill Island: Donovan, D. T.

Gulf Coastal Plain, sediments, volume:
Applin, P. L., 2; Murray, G. E., 3.

Idaho, southeastern: Moritz, C. A.

Iowa, Sioux City area, Dakota stage:
Tester, A. C.

Kansas, North Solomon Valley: Leonard,
A. R.

Maryland, Prince Georges County: Cooke,
C. W., 1.

Mexico, Buenavista-Encantada area, Coa-
huila: Schulze, G., 4.

Cuesta del Cura formation, Nuevo Leon:
Pérez Martínez, J. J., 1.

Gulf Coastal Plain sediments, volume:
Guzmán Jiménez, E. J., 1.

Peyotes anticline, Coahuila: Díaz-Gon-
zalez, T. E.

Cretaceous—Continued

Mexico—Continued

- Tamán-Tamazunchale contact, San Luis Potosí: Maldonado-Koerdell, M., 2.
 Tampico, Urganian facies: Bonet, F., 1.
 Tampico embayment, Albian-Cenomanian reef facies: Nigra, J. O., 2.
 Montana, Beaverhead formation: Lowell, W. R., 2.
 Black Hills, northern: Cobban, W. A., 1.
 Fox Hills - Hell Creek strata, Bearpaw Mts.: Brown, Roland W., 2.
 Little Rocky Mtn. area, Upper: Gries, J. P., 6.
 Mosby area, section, Upper: Cobban, W. A., 5.
 Northern: Hadley, H. D., 2.
 Nebraska, Boyd-Holt Counties: Mendenhall, G. V.
 Dakota County, Dakota stage: Tester, A. C.
 New Mexico, Galisteo-Tonque area: Stearns, C. E., 2.
 Southwestern, Lower: Zeller, R. A.
 Oklahoma, Idabel area: Davis, L. V.
 Oregon, Calice quadrangle: Wells, F. G.
 Rocky Mts., lithofacies: Krumbein, W. C., 3.
 Paleogeography: Stokes, W. L., 7.
 Saskatchewan, southwestern: Hadley, H. D., 2.
 Southwestern, Upper: Russell, L. S., 2.
 South Dakota, Black Hills, northern: Cobban, W. A., 1.
 Butte County: Stevenson, R. Evans.
 Crow Creek member of Pierre shale, origin: Crandell, D. R., 2.
 Western: Gries, J. P., 3.
 Texas, Carrollton quadrangle: Winn, V.
 Chinati Mts. region: West Texas Geol. Soc., 2.
 Dallas quadrangle: Roberts, C. N., Jr.
 Eagle Ford shale, Dallas County: Reid, W. T.
 Eagle Mts., trans-Pecos: Gillerman, E., 2.
 Llano Estacado: Brand, J. P.
 Oak Cliff quadrangle: Bryan, T. W.
 Pleasant Grove area: Overmyer, D. O.
 Preston Hollow quadrangle: Hall, G. W.-B., Jr.
 Woodbine formation, Arlington area: Dodge, C. F.
 Texas-Mexico, Big Bend district, drill cores: Evensen, C. G.
 Trinidad: Suter, H. H.
 Cucho formation: Barr, K. W., 2.
 United States, western interior, correlation: Cobban, W. A., 3.
 Utah, Canyon Range: Christiansen, F. W., 1.
 Castle Valley, pre-Niobrara: Katich, P. J., Jr., 3.
 Gunnison plateau: Hardy, C. T., 3.
 West Indies, Antillean arc: Weyl, R., 1.
 Antilles structure: Weyl, R., 2.

Cretaceous—Continued

- Williston basin: Gries, J. P., 10.
 Wyoming, Bear River formation, Cenomanian age: Yen, T.-C., 3.
 Black Hills, northern: Cobban, W. A., 1.
 Frontier formation: Masters, J. A.
 Bighorn Basin: Hunter, L. D.
 Sage Junction area: Yen, T.-C., 6.
 Western: Moritz, C. A.
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Indium: Shaw, Denis M., 2.

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- Phosphates, biogeochemistry: Hutchinson, G. E., 1.
- Phosphoria formation, uranium distribution: Thompson, M. E.
- Planets, origin: Brown, H. S., 2.
- Polymorphous minerals, phases, pH factor: Frueh, A. J., Jr., 2.
- Potassium, rubidium, cesium, thallium, in sedimentary rocks: Canney, F. C.
- Potassium minerals, argon content, age determination: Gentner, W.
- Pre-Cambrian slates, chemical composition: Nanz, R. H., Jr., 1.
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- Radioactivity, ore guide in intrusives: Gross, W. H.
- Radiogenic Sr^{87} in biotite, feldspar, celestite: Herzog, L. F.
- Review, 1950: Fleischer, M., 3.
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- Relative oxygen isotope ratios: Schwander, H.
- Silicon, isotopic constitution variations in minerals and rocks: Reynolds, J. H.
- Soils, metal content near metalliferous veins: Huff, L. C., 1.
- Solids, heats of reaction, relation to composition: Ramberg, H., 3.
- Spectrographic analysis, common rock-forming minerals: Keller, W. D., 4.
- Stable isotope abundance, geological importance: Jensen, M. L., 3.
- Stone meteorites, composition, origin: Urey, H. C., 6.
- Strontium, limestones and fossils: Kulp, J. L., 5.
- Mineral sources, isotope abundances: Aldrich, L. T., 2.
- Sulfur isotope fractionation, geologic and biologic time scales: Thode, H. G., 1.
- Supercritical fluids, review of data: Smith, F. G., 4.
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- Thallium in rocks and minerals: Shaw, Denis M., 1.
- Thorite and zircon, hydroxyl substitution: Frondel, C., 5.
- Thucholite, ash and volatile gas constituents: Barthauer, G. L.
- Trace elements, concentrations in sea water: Krauskopf, K. B., 3.
- Distribution, magmatic minerals: Shaw, Denis M., 3, 4.

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- Trace elements—Continued
- Distribution—Continued
- Minerals, temperature: DeVore, G. W., 2.
- Plants and minerals: Warren, H. V., 4.
- Ultramafic rocks, potassium content: Holyk, W. K.
- Uranium: Adams, J. A. S., 1.
- Association with petroleum and asphalt: Erickson, R. L., 2.
- Chemical age determination, RaD method: Begemann, F.
- Uranospinites, synthesis: Mrose, M. E., 2.
- Water testing for minerals: Warren, H. V., 7.
- Water-soluble salts in limestones and dolomites: Lamar, J. E., 3.
- Weathering mechanism, ion exchange, plants and colloidal acids: Keller, W. D., 5.
- Zirconium ores, hafnium content and radioactivity: Cooley, R. A.
- Geochronology. *See* Geologic time.
- Geodes, South Dakota, Badlands, chalcedony: Bump, J. D., 2.
- Geologic data, measurement methods, precision: Hamilton, W. B., 1.
- Geologic formations.
- Abiquiu(?) formation, Tertiary, New Mexico: Stearns, C. E., 1.
- Aladdin sandstone, Ordovician, Wyoming, new: McCoy, M. R.
- Albemarle group, Silurian, Ontario, new: Bolton, T. E.
- Albert formation, Mississippian, New Brunswick: Gussow, W. C., 1.
- Alhambra formation, Eocene, California, new: Weaver, C. Edwin.
- Allamore formation, pre-Cambrian, Texas: King, P. B., 3.
- Amabel formation, Silurian, Ontario, new members: Bolton, T. E.
- Amsden formation, Carboniferous, Montana: Nieschmidt, C. L.
- Arapien shale, Jurassic, Utah: Hardy, C. T., 1.
- Armagh group, Cambrian(?), Quebec, new: Béland, J.
- Arvison formation, Jurassic, California: Sanborn, A. F.
- Atoka formation, Pennsylvanian, Arkansas: Henbest, L. G., 5.
- Banff formation, Mississippian, Alberta: Spreng, A. C., 2.
- Bear River formation, Cretaceous, Wyoming: Yen, T.-C., 3.
- Bearpaw formation, Cretaceous, Alberta-Saskatchewan: Loranger, D. M.
- Beaverhead formation, Cretaceous-Eocene, Montana, new: Lowell, W. R., 2.
- Big Cottonwood series, pre-Cambrian, Utah, new: Granger, A. E., 1.
- Blairmore formation, Cretaceous, British Columbia: Newmarch, C. B.
- Bliss sandstone, Cambrian-Ordovician, New Mexico: Flower, R. H., 7.

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- Bloyd shale, Pennsylvanian, Arkansas: Henbest, L. G., 5.
- Bone Bed sandstone, Devonian, Kentucky: Jillson, W. R., 2.
- Boquillas-Terlingua units, Cretaceous, Texas: Moon, C. G.
- Brayman shale, Silurian, New York: Fisher, D. W., 4.
- Brevard series, pre-Cambrian, Georgia: Crickmay, G. W.
- Brightseat formation, Paleocene, Maryland, new: Bennett, R. R., 2.
- Browns Park formation, Tertiary, Wyoming: Love, J. D., 3.
- Burnam limestone, Ordovician, Texas, new: Barnes, V. E., 17.
- Cabaniss group, Pennsylvanian, Oklahoma: Oakes, M. C., 3.
- Cabot Head formation, Silurian, Ontario: Bolton, T. E.
- Calvin sandstone, Pennsylvanian, Oklahoma: McDade, L. B.
- Carlotta formation, Pliocene-Pleistocene, California, new: Ogle, B. A., 1.
- Carolina series, pre-Cambrian, Georgia: Crickmay, G. W.
- Carrizo Mtn. group, pre-Cambrian, Texas: King, P. B., 3.
- Casper formation, Pennsylvanian-Permian, Colorado-Wyoming: Pederson, S. L.
- Pennsylvanian(?) -Permian, Wyoming: Thomas, Horace, D., 3.
- Castro formation, Eocene, California, new: Weaver, C. Edwin.
- Cataract group, Silurian, Ontario: Bolton, T. E.
- Cerbat complex, pre-Cambrian, Arizona: Thomas, B. E.
- Cherry Valley limestone, Devonian, New York: Rickard, L. V.
- Chicotepec formation, Eocene, Mexico: Nájera Chiapa, H.
- Chouteau formation, Mississippian, Illinois: Buschbach, T. C.
- Cieneguilla limburgite, Tertiary, New Mexico, new: Stearns, C. E., 3.
- Clinton group, Silurian, Ontario: Bolton, T. E.
- Cloverly formation, Cretaceous: Wyoming: Oster, L. D.
- Coffin Butte volcanics, Eocene, Oregon, new: Allison, I. S., 3.
- Conception formation, Miocene, Mexico: Ríos Macbeth, F.
- Conestoga limestone, Ordovician, Pennsylvania: Wise, D. U.
- Conococheague limestone, Cambrian, Pennsylvania-Maryland-Virginia: Wilson, J. L., 2.
- Cuche formation, Cretaceous, Trinidad: Barr, K. W., 2.
- Cuesta del Cura formation, Mexico: Pérez Martínez, J. J., 1.
- Dakota sandstone, Cretaceous, Colorado: Waagé, K. M., 2.

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- Davidson evaporite formation, Devonian, Williston basin, new: Baillie, A. D., 3.
- Dawson Bay formation, Devonian, Williston basin, new: Baillie, A. D., 3.
- Deadwood formation, Cambrian, South Dakota: Gries, J. P., 2.
- Denmark formation, Ordovician, New York, new members: Chenoweth, P. A.
- Depósito-La Laja series, Oligocene, Mexico: Ríos Macbeth, F.
- Don member, Toronto formation, Pleistocene, Ontario: Gray, A. B.
- Dotsero formation, Cambrian, Colorado: Bass, N. W.
- Doughnut formation, Mississippian-Pennsylvanian, Utah, provisional: Granger, A. E., 1.
- Duff formation, Oligocene, Texas: Moon, C. G.
- Dundas formation, Ordovician, Ontario: Correll, H. A.
- Eagle Ford shale, Cretaceous, Texas: Reid, W. T.
- Eel River formation, Pliocene, California, new: Ogle, B. A., 1.
- Eleonore Bay formation, pre-Cambrian, Greenland: Fränkl E., 1, 2; Haller, J.; Katz, H. R., 1.
- Elk formation, Jurassic-Cretaceous(?), British Columbia, new: Newmarch, C. B.
- Elk Point formation, Devonian, Williston basin: McGehee, J. R.
- Elk Point group, Devonian, Alberta, units: Belyea, H. R., 2.
- Devonian, Williston basin, new: Baillie, A. D., 3.
- Ellenburger dolomite, Ordovician, Texas: Barnes, V. E., 16.
- Escobar sandstone, Eocene, California, new: Weaver, C. Edwin.
- Everton formation, Ordovician, Arkansas: Glick, E. E.
- Fernie formation, Jurassic, British Columbia: Newmarch, C. B.
- Filisola formation, Miocene, Mexico: Ríos Macbeth, F.
- Fool Creek conglomerate, Oligocene(?), Utah, new: Christiansen, F. W., 1.
- Fossil Hill formation, Silurian, Ontario, new: Bolton, T. E.
- Fountain formation, Pennsylvanian-Permian, Colorado-Wyoming: Pederson, S. L.
- Frontier formation, Cretaceous, Wyoming: Cobban, W. A., 4; Masters, J. A.; Towse, D. F., 3.
- Fusselman(?) formation, Silurian, New Mexico: Pray, L. C., 1.
- Gatesburg formation, Cambrian, Pennsylvania: Wilson, J. L., 2.
- Goodsprings dolomite, Cambrian, Nevada: Hazzard, J. C., 2.
- Gorman formation, Ordovician, Texas: Hendricks, C. L.

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- Gothic formation, Pennsylvanian, Colorado, new: Langenheim, R. L., Jr., 1.
- Grainger formation, Mississippian, Tennessee: Sanders, J. E., 1.
- Green River formation, Colorado, Eocene: Donnell, J. R.
- Grimsby formation, Silurian, Ontario: Bolton, T. E.
- Guayabal formation, Eocene, Mexico: Nájera Chiapa, H.
- Gym limestone, Pennsylvanian-Permian(?), New Mexico: Kelley, V. C., 4.
- Haggard limestone, Ordovician, Kentucky, new: Jillson, W. R., 13.
- Hale formation, Pennsylvanian, Arkansas: Henbest, L. G., 5.
- Hazel formation, pre-Cambrian, Texas: King, P. B., 3.
- Heath shale, Mississippian, Montana: Nieschmidt, C. L.
- Hermosa formation, Pennsylvanian, Colorado-Utah: Shenkel, C. W., Jr.
- Hilltop formation, Pennsylvanian, Oklahoma: Tanner, W. F., Jr., 2.
- Hoback formation, Tertiary, Wyoming: Dorr, J. A., Jr., 1.
- Holy Cross sandstone, Silurian, Kentucky: Jillson, W. R., 4.
- Hondo member, Woodbend formation, Devonian, Alberta, new: Belyea, H. R., 2.
- Honeycut formation, Ordovician, Texas: Hendricks, C. L.
- Hookton formation, Pleistocene, California, new: Ogle, B. A., 1.
- Hosston formation, Cretaceous, Mexico: Díaz-Gonzalez, T. E.
- Ice Box shale, Ordovician, South Dakota-Wyoming, new: McCoy, M. R.
- Ione formation, Eocene, California: Pask, J. A.
- Jackfork formation, Mississippian, Arkansas-Oklahoma: Bokman, J. W., 2.
- Jelm formation, Triassic, Wyoming: Pippingos, G. N.
- Kaibab formation, Permian, Arizona: Chronic, H.
- Knox dolomite, Cambrian-Ordovician, Georgia: Allen, A. T., Jr., 1.
- Kootenay formation, Jurassic-Cretaceous(?), British Columbia: Newmarch, C. B.
- Krebs group, Pennsylvanian, Oklahoma: Oakes, M. C., 3.
- Lacomb gravels, Pleistocene, Oregon, new: Allison, I. S., 3.
- La Gloria formation, Jurassic, Mexico: Imlay, R. W., 6.
- La Juntas shale, Eocene, California, new: Weaver, C. Edwin.
- Laketown dolomite, Silurian, Idaho: Stokes, W. L., 4.
- Leatham formation, Mississippian, Utah, new: Holland, F. D., Jr., 1.

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- Leffler gravels, Pleistocene, Oregon, new: Allison, I. S., 3.
- Linn gravels, Pleistocene, Oregon, new: Allison, I. S., 3.
- Little River series, pre-Cambrian-Paleozoic(?), Georgia: Crickmay, G. W.
- Little Willow series, pre-Cambrian, Utah, new: Granger, A. E., 1.
- Lockport formation, Silurian, Ontario, restricted: Bolton, T. E.
- Low Lands formation, Miocene, West Indies: Christman, R. A., 2.
- Manitoba group, Devonian, Williston basin, new: Baillie, A. D., 3.
- Manitou formation, Ordovician, Colorado: Bass, N. W.
- Mannville formation, Cretaceous, Saskatchewan: Ambler, J. S.
- Marble Falls limestone, Pennsylvanian, Texas: Barnes, V. E., 15.
- Marmaton group, Pennsylvanian, Oklahoma: Cade, C. M., 3d.
- Martin formation, Devonian, Arizona: Hudde, J. W., 1.
- Martinsburg formation, Cambrian(?) - Ordovician, Pennsylvania: Gault, H. R., 2.
- Ordovician, Pennsylvania: Gray, C., 1.
- Mayes formation, Mississippian, Oklahoma: Huffman, G. G., 3.
- Mesaverde formation, Cretaceous, Colorado-Wyoming: Bergstrom, J. R.
- Mineral Fork tillite, pre-Cambrian, Utah, new: Granger, A. E., 1.
- Modelo formation, Miocene, California: Dehlinger, P., 3.
- Montoya formation, Ordovician, New Mexico: Pray, L. C., 1.
- Mosley Hill formation, Tertiary, Gulf Coastal Plain, new: Murray, G. E., 1.
- Muir sandstone, Eocene, California, new: Weaver, C. Edwin.
- Murphy series, Paleozoic(?), Georgia: Furrer, A. S., 2.
- Mush Lake group, Triassic-Jurassic, Yukon, new: Kindle, E. D.
- Mutual formation, pre-Cambrian, Utah, new: Granger, A. E., 1.
- Newby glauconite sand member, Reklaw formation, Eocene, Texas: Stenzel, H. B., 4.
- Newcastle formation, Cretaceous, Wyoming-South Dakota: Grace, R. M.
- Niobrara formation, Cretaceous, Wyoming: Shaw, A. B., 2.
- Ogallala formation, Pliocene, Nebraska-Colorado: Hill, D. R.
- Ogallala group, Pliocene, Texas: Holt, R. W.
- Oneota formation, Ordovician, Wisconsin: Raasch, G. O., 2.
- Oriskany group, Devonian, Pennsylvania: Willard, B., 1.

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- Oriskany sandstone, Devonian, Ohio: Hall, J. F., 1.
- Otter formation, Mississippian, Montana: Terry, O. L.
- Paradox member, Hermosa formation, Pennsylvanian, Colorado-New Mexico: Borden, J. L.
- Pawnee Creek formation, Miocene, Colorado: Galbreath, E. C.
- Pereira shale, Eocene, California, new: Weaver, C. Edwin.
- Petermann series, pre-Cambrian, Greenland: Wenk, E.
- Phosphoria formation, Permian, Idaho: Davidson, D. F.; Lowell, W. R., 1; McKelvey, V. E., 4; O'Malley, F. W., 1; Sheldon, R. P., 1.
- Permian, Idaho-Wyoming: McKelvey, V. E., 3.
- Montana: Klepper, M. R.; Paine, W. R.; Swanson, R. W., 1, 3.
- Utah: Cheney, T. M.; Smith, L. E.
- Wyoming: McKelvey, V. E., 5; Sheldon, R. P., 2.
- Pine Mountain series, pre-Cambrian, Georgia: Crickmay, G. W.
- Pointe Blanche formation, Eocene (?), West Indies: Christman, R. A., 2.
- Power Glen formation, Silurian, Ontario, new: Bolton, T. E.
- Prairie evaporite formation, Devonian, Williston basin, new: Baillie, A. D., 3.
- Pruett formation, Eocene, Texas: Moon, C. G.
- Pullen formation, Miocene-Pliocene, California, new: Ogle, B. A., 1.
- Purgatoire formation, Cretaceous, Colorado: Waagé, K. M., 2.
- Qu'Appelle group, Devonian, Williston basin, new: Baillie, A. D., 3.
- Quartzite Range formation, pre-Cambrian (?), British Columbia: Mathews, W. H., 3.
- Raritan formation, New Jersey: Dorf, E., 1.
- Rattlesnake formation, tuff member, Pliocene, Oregon: Thayer, T. P.
- Red Eagle formation, Permian, Kansas: O'Connor, H. G., 1.
- Redfield formation, Eocene, Arkansas, new: Wilbert, L. J., Jr.
- Redwall limestone, Mississippian, Arizona: Huddle, J. W., 1.
- Reno formation, pre-Cambrian (?), British Columbia: Mathews, W. H., 3.
- Ridge Route formation, Miocene or Pliocene, California: Dehlinger, P., 3.
- Ringold formation, Pleistocene, Washington: Strand, J. R.
- Rio Dell formation, Pliocene, California, new: Ogle, B. A., 1.
- Rohnerville formation, Pleistocene (?), California, new: Ogle, B. A., 1.
- Roop sandstone, Eocene, California, new: Weaver, C. Edwin.

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- Rosaire group, Cambrian (?), Quebec, new: Béland, J.
- Roughlock siltstone, Ordovician, South Dakota-Wyoming, new: McCoy, M. R.
- Sacajawea formation, Mississippian, Montana-Wyoming: Scott, W. F.
- St. Bartholomew formation, Eocene, West Indies, new members: Christman, R. A., 2.
- St. Peter sandstone, Ordovician, Arkansas: Glick, E. E.
- San Angelo formation, Permian, Texas: Olson, E. C., 4.
- San Jon formation, Quaternary, New Mexico, new: Judson, S. S., Jr., 3.
- Santa Fe formation, Tertiary, New Mexico: Stearns, C. E., 1.
- Saskatchewan group, Devonian, Williston basin, new: Baillie, A. D., 3.
- Sespe formation, Tertiary, California: Paschall, R. H.
- Shoreham formation, Ordovician, New York: Chenoweth, P. A.
- Sligo formation, Cretaceous, Mexico: Díaz-Gonzalez, T. E.
- Stanley formation, Mississippian, Arkansas-Oklahoma: Bokman, J. W., 2.
- Sundance formation, Jurassic, Wyoming: Phipps, G. N.
- Supai formation, Pennsylvanian (?)-Permian, Arizona: Hughes, P. W.
- Talladega series, pre-Cambrian, Georgia: Crickmay, G. W.
- Tamiami formation, Pleistocene, Florida: Hoy, N. D.
- Tantoyuca formation, Eocene, Mexico: Nájera Chiapa, H.
- Tanyard formation, Ordovician, Texas: Hendricks, C. L.
- Taylor marl, Cretaceous, Texas: Blank, H. R.
- Tensleep formation, Pennsylvanian, Wyoming: Agatston, R. S., 1.
- Tillite formation, pre-Cambrian, Greenland, new: Haller, J.
- Tioga bentonite, Devonian, Pennsylvania, new: Fettke, C. R., 1.
- Tohatchi formation, Cretaceous, New Mexico: Allen, J. E., 3.
- Tongue River formation, Paleocene, North Dakota: Fisher, S. P., Jr., 2.
- Tuscaloosa group, Cretaceous, Alabama: Drennen, C. W., 1, 2.
- Twin Creek limestone, Jurassic, Idaho-Wyoming-Utah: Imlay, R. W., 5.
- Twist Gulch formation, Jurassic, Utah: Hardy, C. T., 1.
- Valmont dolomite, Ordovician, New Mexico, new: Pray, L. C., 1.
- Vine Hill sandstone, Paleocene, California, new: Weaver, C. Edwin.
- Virgin formation, Triassic, Utah, new: Poborski, S. J.
- Waramaug formation, pre-Cambrian (?), Connecticut, new: Gates, R. M.

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- Wewoka formation, Pennsylvanian, Oklahoma: Swanson, R. H.
- Whiskey Creek member, Madera formation, Pennsylvanian, Colorado-New Mexico, new: Brill, K. G., Jr., 1.
- White Bluff formation, Eocene, Arkansas, new members: Wilbert, L. J., Jr.
- White River formation, Oligocene, Colorado, new members: Galbreath, E. C.
- Wildcat group, Tertiary, California: Ogle, B. A., 1.
- Willamette silts, Pleistocene, Oregon, new: Allison, I. S., 3.
- Wingfield formation, Silurian, Ontario, new: Bolton, T. E.
- Woodbine formation, Cretaceous, Texas: Dodge, C. F.; Stephenson, L. W., 1.
- Yager formation, Jurassic-Cretaceous, California, new: Ogle, B. A., 1.
- Geologic formations, lists, sections, tables. *See also* Correlations; Geologic names, lexicons, etc.; Historical geology.
- Alabama, Fayette-Lamar Counties, Cretaceous: Drennen, C. W., 1.
- Midway-Wilcox groups, Tertiary, detailed: LaMoreaux, P. E., 2.
- Paleozoic, subsurface: Bridge, J.
- Southwestern, oil and gas fields: Shreveport Geol. Soc.
- Tuscaloosa group, Cretaceous: Drennen, C. W., 2.
- Woodstock-Bucksville areas, Silurian-Cretaceous: Reed, A. H., Jr.
- Alabama-Mississippi, Claiborne group, Eocene: Miss. Geol. Soc., 1.
- Alaska, Alaska Peninsula and Cook Inlet, Jurassic correlation chart: Imlay, R. W., 4.
- Alaska Railroad belt: Rutledge, F. A., 3.
- Arctic slope, post-Devonian: Payne, T. G.
- Correlation chart: Brooks, A. H.
- Middleton Island, Pliocene-Pleistocene: Miller, D. J., 1.
- Southeastern, Katalla area: Foran, W. T.
- Alberta, Bearpaw formation, Cretaceous: Loranger, D. M.
- Cambrian-Paleocene, oil and gas: Dougherty, J. F.
- Central, Lower Cretaceous: Badgley, P. C.
- Cessford oil field, Cretaceous: Clow, W. H. A.
- Copton Creek area: Irish, E. J. W.
- Cretaceous: Hunt, C. W., 3d.
- East-central, Cretaceous-Tertiary: Stalker, A. M., 1, 2.
- Grande Cache area, Jurassic-Cretaceous: Thorsteinsson, R., 1.
- Leduc oil field, Devonian: MacEwen, G. A.
- Lethbridge region, Pleistocene: Horberg, C. L., 4.
- Markerville area, Cretaceous-Tertiary: Stalker, A. M., 3.

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- Mt. Greenock area, Carboniferous: Brown, R. A. C.
- North-central, Devonian, subsurface: Belyea, H. R., 2.
- Pincher Creek area: Erdman, O. A.
- Rocky Mts., Devonian: McLaren, D. J., 1, 2.
- St. Mary River - Willow Creek contact. Upper Cretaceous-Paleocene: Tozer, E. T., 1.
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- Southern foothills, Carboniferous: Douglas, R. J. W., 2.
- Southwestern: Fox, F. G.
- Cretaceous: Thompson, R. L.
- Cretaceous-Paleocene: Tozer, E. T., 2.
- Sunwapta Pass area, Mississippian: Spreng, A. C., 2.
- Alberta-Saskatchewan, correlation chart: Farmilo, A. W.
- Appalachian basin, Pennsylvanian-Permian: Cross, A. T., 1.
- Pennsylvanian-Permian, vertebrate fossil localities: Moran, W. E.
- Appalachians, central, Upper Cambrian: Wilson, J. L., 2.
- Arctic America, Cornwallis Island: Thorsteinsson, R., 2.
- Devon Island, Cambrian-Ordovician: Kurtz, V. E.
- Arizona, central: Huddle, J. W., 1.
- Central and northeastern, upper Paleozoic: Huddle, J. W., 2.
- Cocconino County, Triassic-Jurassic: Wanek, A. A.
- Cretaceous-Tertiary, northwestern: Bissell, H. J., 1.
- Johnson camp, Cochise County: Baker, A., 3d.
- Kaibab formation, Permian, Walnut Canyon: Chronic, H.
- Lake Mead region: McKelvey, V. E., 1.
- Meteor Crater, Tertiary: Hager, D., 2.
- Northwestern, Paleozoic: McNair, A. H.
- Ray-Superior area: Wilson, E. D., 1.
- Southeastern, sedimentary: Brown, S. C.
- Supai formation, Pennsylvanian (?) - Permian: Hughes, P. W.
- Arkansas, Arkansas Valley, pre-Atoka rocks, chart: Maher, J. C., 4.
- Batesville district, Paleozoic: Rutledge, F. A., 2.
- Columbia County, Tertiary-Quaternary: Tait, D. B.
- Gilbert area, Ordovician-Carboniferous: Maher, J. C., 5.
- Jacksonian stage, Eocene: Wilbert, L. J., Jr.
- Morrow group, Pennsylvanian, Washington County: Henbest, L. G., 5.
- Northern, well samples, Paleozoic: Maher, J. C., 2.

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Ozark Highland, Ordovician-Pennsylvanian: Read, R. A.

Paleozoic, correlation with Oklahoma: Lantz, R. J.

St. Peter sandstone and Everton formation, Ordovician: Glick, E. E.

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British Columbia, Ashcroft area: Duffell, S., 1.

Bonnington area, Triassic-Tertiary: Mulligan, R.

Fernie area, Jurassic-Lower Cretaceous(?): Newmarch, C. B.

Nanaimo group, Cretaceous, Vancouver Island: Usher, J. L., 1.

Princeton coal field, Triassic-Tertiary: Shaw, W. S., 1.

Sheep Creek mining camp, pre-Cambrian(?)—Cambrian: Mathews, W. H., 3.

Surrey Municipality, Quaternary: Armstrong, J. E., 1.

British Columbia-Yukon, Alaska Highway, Quaternary: Denny, C. S.

California, Breckenridge Mtn. quadrangle: Dibblee, T. W., Jr., 3.

Buena Vista area, Jurassic-Recent: Pask, J. A.

Burruel ridge, Eocene-Recent: Richmond, J. F.

Castaic Hills oil field, Cenozoic: Roth, G. H.

Castaic Junction oil field, Los Angeles County, Miocene-Pleistocene: Gaede, V. F.

Eel River valley area, Jurassic-Recent: Ogle, B. A., 1.

Gasquet quadrangle, Jurassic-Quaternary: Cater, F. W., Jr.

Griffith Park area, pre-Cretaceous(?)—Recent: Neuerburg, G. J., 1.

Johnston Grade area: Guillou, R. B.

Kern River oil field, Eocene-Recent: Crowder, R. E.

Las Trampas Ridge area, Cretaceous-Recent: Ham, C. K.

Lebec quadrangle: Crowell, J. C., 2.

Los Angeles, downtown area: Martin, L.

Los Angeles basin, Cenozoic: White, R. T.

Lower Lake quadrangle, Jurassic-Recent: Brice, J. C., 2.

Mammoth mine, Shasta County: Kinkel, A. R., Jr.

Geologic formations, lists, etc.—Continued

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Martinez area, Cretaceous-Miocene: Weaver, C. Edwin.

Ortogonal Peak quadrangle, Jurassic-Recent: Briggs, L. I., Jr., 2.

Pacific coast, Paleocene-Eocene: Am. Assoc. Petroleum Geologists, 2.

Pearland quadrangle, San Andreas fault zone: Noble, L. F.

Quail quadrangle: Jennings, C. W., 1.

Quartz Spring area: McAllister, J. F.

Ridge basin, Tertiary-Quaternary: Dehlinger, P., 3.

River Island gas field, Tertiary-Quaternary: Corwin, C. H., 2.

Riverdale oil field, Tertiary: Hunter, G. W.

Russell Ranch oil field, Cretaceous-Recent: Barger, R. M.

Salinas Valley, Cenozoic: Kilkenny, J. E.

Saltdale quadrangle: Dibblee, T. W., Jr., 1.

San Bernardino County, pre-Tertiary: Wright, L. A., 2.

San Francisco Bay, bottom sediment profiles: Trask, P. D., 4.

San Joaquin-Cuyama Valley areas, Oligocene-Pleistocene: Am. Assoc. Petroleum Geologists, 2.

San Miguelito field, Ventura County, Pliocene: Kaplow, E. J.

Santa Ynez River valley, aquifers: Wilson, H. D., Jr.

Sebastopol quadrangle: Travis, R. B.

Southern, strontium deposits, Tertiary: Durrell, C.

Superior talc area, pre-Cambrian: Wright, L. A., 1.

Sutter-Yuba area: Davis, G. H.

Tumey-Panoche Hills area, Cretaceous-Recent: Schoellhamer, J. E.

Ventura basin, Cenozoic: Redwine, L. E.; Sheller, J. W.

Wayside area, Miocene-Pleistocene: Mathews, J. F., Jr.

West Edison field: Sullwold, H. H., Jr., 1.

Whittier-LaHabra region, Miocene-Recent: Kundert, C. J., 1.

Wildcat group, Tertiary, Eel River valley: Ogle, B. A., 1.

Canada, Jurassic correlation chart: Frebold, H.

Petroleum reservoirs, western: Link, T. A., 3.

Southeastern, Wisconsin substages: Flint, R. F., 4.

Triassic correlation chart: McLearn, F. H., 2.

Williston basin: Barnes, T. R.; Burg, K. E., 1.

Canadian Shield, granitic relief, pre-Cambrian: Vogt, J., 1.

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- Colorado, Archuleta County, Triassic-Recent: Wood, G. H., Jr., 1.
 Burro Canyon formation, type section, Lower Cretaceous: Stokes, W. L., 1.
 Casper and Fountain formations, Pennsylvanian-Permian: Pederson, S. L.
 Cathedral Bluffs area, Cretaceous-Quaternary: Donnell, J. R.
 Colorado Springs region, piedmont: Tator, B. A., 2.
 Crested Butte quadrangle, Pennsylvanian-Permian: Langenheim, R. L., Jr., 1.
 Cretaceous and Tertiary: Spencer, F. D., 1.
 Dakota formation, Cretaceous, San Juan Basin: Reese, V. R.
 Denver basin, Cretaceous: Boreing, M. J. Pre-Cretaceous: Mitchell, J. G.
 Denver-Golden area: Waagé, K. M., 1.
 Dotsero and Manitou formations, Cambrian-Ordovician: Bass, N. W.
 Green River areas: Thomas, H. E., 3.
 Ignacio area, Cretaceous-Tertiary: Barnes, H.
 Leadville-Mosquito Range district, pre-Cambrian-Pennsylvanian: Behre, C. H., Jr., 2.
 North Park: Wyo. Geol. Assoc., 2.
 Northeastern, Tertiary: Galbreath, E. C.
 Northwestern, columnar sections: Rocky Mtn. Assoc. Geologists.
 Paradox basin, southern, Paleozoic: Clair, J. R., 1.
 Pennsylvanian-Permian zeugogeosyncline, detailed sections: Brill, K. G., Jr., 1.
 Sheep Mtn. - Delaney Butte area, columnar section: Welsh, J. E.
 Sinbad Valley, Pennsylvanian-Cretaceous: Holmes, R. W.
 South-central, Purgatoire-Dakota formations, Cretaceous: Waagé, K. M., 2.
 Refractory-clay mining district, Permian-Cretaceous: Waagé, K. M., 2.
 Southeastern, Paleozoic: Maher, J. C., 8.
 Pennsylvanian-Permian: Maher, J. C., 1, 6, 7.
 Thomasville-Woods Lake area, Cambrian-Mississippian: Mackay, I. H., 2.
 Wray area, Cretaceous-Recent: Hill, D. R.
 Colorado-Utah, Paradox basin: Tatum, J. L.
 Connecticut, Connecticut Valley, Triassic: Lull, R. S., 2.
 District of Columbia: Milojević, B. Z.
 El Salvador, Barranca del Tzitzimico, diatomite, Quaternary: Maldonado-Koerdell, M., 4.
 Florida, Cenozoic: Fla. G. S.
 Paleozoic, subsurface: Bridge, J.
 Panhandle, Miocene: Puri, H. S., 3.
 Regional cross section: Gunter, H.
 Southern, Cenozoic: Schroeder, M. C., 2.
 Tertiary: Fla. G. S.

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- Geologic time scale: Moore, R. C., 3.
 Georgia, Knox dolomite, Cambrian-Ordovician, Graysville area: Allen, A. T., Jr., 1.
 Northwestern, Cambrian-Ordovician: White, W. S., 1.
 Paleozoic subsurface: Bridge, J.
 Ringgold area, Mississippian: Allen, A. T., Jr., 2.
 Thomaston quadrangle, pre-Cambrian (?): Clarke, J. W.
 Western, Cretaceous: Eargle, D. H., 2.
 Great Basin, correlation chart: Easton, W. H., 1.
 Greenland, Andrées Land, pre-Cambrian-Ordovician: Fränkl, E., 1.
 Andrées Land and Fraenkels Land, pre-Cambrian-Ordovician: Haller, J.
 Danmarks Fjord, pre-Cambrian-Silurian: Adams, P. J.
 Eastern, nunatak zone: Katz, H. R., 2.
 Pre-Devonian: Eha, S.
 Kap Brewster, Tertiary: Hassan, M. Y.
 Northeastern, pre-Cambrian: Katz, H. R., 3.
 Petermann series, pre-Cambrian: Wenk, E.
 Scoresby Land, pre-Cambrian: Fränkl, E., 2.
 Strindbergs Land: Katz, H. R., 1.
 Traill Island, Jurassic-Cretaceous: Donovan, D. T.
 Gulf Coastal Plain, Alabama-Mississippi-Louisiana, Mesozoic-Cenozoic: Murray, G. E., 3.
 Arkansas-Louisiana, Mesozoic, correlation chart: Philpott, T. H., 2.
 Eocene, surface correlation chart: Stenzel, H. B., 2.
 Florida-Georgia, Cenozoic: Toulmin, L. D., Jr., 1.
 Mesozoic: Applin, P. L., 2.
 Jackson group, Eocene, transgression: Stenzel, H. B., 3.
 Texas, Mesozoic-Cenozoic, dip sections: Colle, J. O.
 United States - Mexico, Mesozoic-Cenozoic: Murray, G. E., 2.
 Gulf of Mexico, Mississippi delta, Recent sediments: Shepard, F. P., 4.
 Idaho, Ammon - Paradise Valley quadrangles, Mississippian-Recent: Mansfield, G. R.
 Eastern, Triassic: Kummel, B., Jr., 4.
 Fall Creek area, sedimentary strata, Jurassic-Cretaceous: Vine, J. D., 3.
 Phosphoria formation, Permian: Davidson, D. F.; Lowell, W. R., 1; McKelvey, V. E., 4; O'Malley, F. W., 1; Sheldon, R. P., 1.
 Preuss sandstone, Jurassic: Imlay, R. W., 2.
 Sheep Creek anticline, Mississippian-Recent: Zeni, M.

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Soda Springs quadrangle: Intermountain Assoc. Petroleum Geologists.

Southeastern, Cretaceous: Moritz, C. A.

Upper Cambrian: Hanson, A. M., 3.

Idaho-Wyoming, Phosphoria formation, Permian: McKelvey, V. E., 3.

Illinois, Carlinville quadrangle: Ball, J. R.

Chicago area, Niagaran reefs, Silurian: Willman, H. B., 1.

Coal beds, Pennsylvanian: Cady, Gilbert H., 1.

Danville area, Pleistocene: Eveland, H. E., Jr., 1.

Hardin-Brussels quadrangles: Rubey, W. W., 1.

Northeastern, Pleistocene: Horberg, C. L., 5.

Northern, Cambrian - Lower Ordovician: Willman, H. B., 2.

Oil region: Meents, W. F.

Upper Chester sandstones, Mississippian: Siever, R., 1.

Illinois-Kentucky, Chester series, subsurface: Sutton, A. H., 1.

Indiana, Chester series, Mississippian, Crawford-Perry Counties: McGrain, P., 3.

Jasonville quadrangle, Carboniferous, Quaternary: Wier, C. E., 1.

Ordovician-Quaternary, high-silica sands and sandstones: Murray, H. H., 1.

Parke County, Carboniferous: Wier, C. E., 4.

Pennsylvanian: Spencer, F. D., 2.

Southern, upper Mississippian: Malott, C. A., 1.

Iowa, Tete des Morts area, Ordovician: Agnew, A. F., 1.

Jamaica: Zans, V. A., 5.

Jurassic, North America except Canada, correlation charts: Imlay, R. W., 1.

Kansas, Arkansas River basin, limestones: Brown, W. F., 1.

Central, Pennsylvanian, radioactive logs, oil zones: Morgan, J. V.

Cheyenne County, Cretaceous-Recent: Prescott, G. C., Jr., 1.

Dakota formation, lignite beds, Cretaceous: Schoewe, W. H., 1.

Fredonia quadrangle, Pennsylvanian: Wagner, H. C., 2.

General, graphic rock column: Moore, R. C., 1.

Generalized: Phillips, S. H.

Jackson County, Pennsylvanian-Quaternary: Walters, K. L.

Kansas River valley: Davis, S. N.

Lincoln County: Berry, D. W.

Lyon County, Cambrian-Permian: O'Connor, H. G., 3.

Meade-Smith Counties, subsurface section: Lee, W., 1.

Morton-Seward Counties, pre-Pennsylvanian cross section: Collins, J. B.

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North Solomon Valley, Cretaceous-Quaternary: Leonard, A. R.

Pawnee Valley: Fishel, V. C., 1.

Pennsylvanian organic limestones: Lebsack, W.

Pleistocene: Frye, J. C., 1; Leonard, A. B., 1.

Pliocene-Pleistocene, volcanic ash beds: Carey, J. S.

Red Eagle formation, Permian: O'Connor, H. G., 1.

Sherman County, Cretaceous-Quaternary: Prescott, G. C., Jr., 2.

Western, Pennsylvanian-Permian: Maher, J. C., 1.

Kansas-Oklahoma, Pennsylvanian: Weirich, T. E., 1.

Kentucky, Buckhorn quadrangle: Stafford, P. T.

Burkesville area, Ordovician-Mississippian: Jillson, W. R., 13.

Calvert City-Gilbertsville area: Pree, H. L., Jr., 1.

Cambrian-Ordovician: Freeman, L. B.

Chester series, Mississippian, Breckinridge County: McGrain, P., 3.

Covington-Newport area, Ordovician, Quaternary: Walker, E. H.

Eastern, Pennsylvanian: Huddle, J. W., 3.

Guffie area, Carboniferous: Bowen, R. L.

Jackson Purchase region, Mississippian-Recent: Pree, H. L., Jr., 2.

Kentucky River fault zone, Ordovician-Mississippian: Flege, R. F.

Marion County: Jillson, W. R., 5.

Paintsville quadrangle, Cambrian-Pennsylvanian: Hauser, R. E.

Silurian-Devonian: McFarlan, A. C.

Sleepy Hollow area, Upper Ordovician: Conkin, J.

Troublesome quadrangle, Pennsylvanian: Williamson, A. D.

Kentucky-Indiana, Louisville area, water-bearing formations: Rorabaugh, M. I.

Labrador, northern coast, pre-Cambrian: Christie, A. M., 1.

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Louisiana, gulf coast, Tertiary facies: Dickinson, G.

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Southwestern, formation-water salinities, Cenozoic: Timm, B. C.

Manitoba, Batty Lake area: Robertson, D. S.

Counsell Lake and Wilmot Lake areas, pre-Cambrian: Oliver, T. A.

Daly field, Virden area: Kerr, L. B.

Devonian: Andrichuk, J. M., 1.

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Elkhorn area, Jurassic-Recent: Halstead, E. C., 3.

Hamiota area: Halstead, E. C., 2.

Lake Winnipeg area, Ordovician: Baillie, A. D., 1.

Lasthope Lake area, pre-Cambrian, Quaternary: Fawley, A. P.

Laurie Lake area, pre-Cambrian, Quaternary: Milligan, G. C., 1.

Oiseau (Bird) River area, pre-Cambrian, Quaternary: Davies, J. F., 1.

Rice Lake area: Davies, J. F., 2.

Rivers area, Jurassic-Recent: Halstead, E. C., 1.

Southern, Paleozoic: Baillie, A. D., 2.

Regolith: Ellis, J. H.

Southwestern: Ower, J. R.

Utik Lake-Bear Lake area, pre-Cambrian, Quaternary: Milligan, G. C., 2.

Williston basin, Ordovician-Cretaceous: Fowler, N. M.

Maryland, Baltimore area: Bennett, R. R., 1.

Castleman basin, Pennsylvanian: Toenges, A. L., 2.

Chesapeake Bay Bridge area, Cretaceous-Recent: Supp, C. W. A.

Chesapeake Bay region: Ryan, J. D., 2.

Prince Georges County, Cretaceous-Pleistocene: Meyer, G.

St. Marys County: Ferguson, H. F.

Massachusetts, "Chelmsford granite" area, Paleozoic: Currier, L. W., 1.

Mexico, Avalos-Providencia district, Jurassic-Tertiary: Triplett, W. H.

Basin of Mexico, Quaternary: Arellano, A. R. V., 4.

Caborca area, Sonora, Cambrian: Cooper, G. A., 5.

Coastal Plain sediments, Jurassic-Recent: Guzmán Jiménez, E. J., 1.

Durango-Coahuila, lagunal region, Tertiary: Schulze, G., 2.

Ebano-Panuco oil fields, Mesozoic-Tertiary: Millison, C. D., 1.

Fusulinid-bearing formations, Pennsylvanian-Permian: Maldonado-Koerdell, M., 3.

José Colomo oil field, Tabasco, Miocene: Rocha Gonzales, R.

Jurassic: Imlay, R. W., 6.

La Aguada-Comales area, Veracruz, Mesozoic-Cenozoic: Gibson, J. B., 1.

Peyotes anticline, Coahuila, Cretaceous: Diaz-Gonzalez, T. E.

Poza Rica region, Eocene: Nájera Chiapa, H.

Poza Rica-Golden Lane area, Mesozoic-Tertiary: Rockwell, D. W., 3.

Reyes area, Durango, lead-copper mineralization: Schulze, G., 3.

Rosita area, Coahuila, Cretaceous: Ro-
beck, R. C.

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San José mine, San Luis Potosí, Jurassic: Archibald, J. C., Jr.

Tamán-Tamazunchale contact, Jurassic-Cretaceous: Maldonado-Koerdell, M., 2.

Tampico-Tuxpan basin, Tertiary: Ruiz Vasquez, M.

Teziutlán area, Mesozoic-Tertiary: Olivas R., M.

Tuxtla region, Cenozoic: Ríos Macbeth, F.

Veracruz, east of Faja de Oro, Cenozoic: Lopez Ramos, E., 1.

Veracruz basin, Tertiary: Meneses de Gyves, J.

Yucatán, Merida area, Chicxulub borehole, Cretaceous-Pleistocene: Cué A., V.

Michigan, Ahmeek quadrangle, pre-Cambrian: White, W. S., 3.

Detroit area: Wisler, C. O.

Ordovician, Middle and Upper: Hussey, R. C.

Southeastern, Devonian: Ehlers, G. M., 1.

Upper Peninsula, Huronian: Tyler, S. A.

Minnesota, Cloquet area: Akin, P. D., 1.

Minneapolis-St. Paul area: Prior, C. H.; Thiel, G. A., 2.

Mississippi, Black Warrior basin, Paleozoic: Mellen, F. F.

George Vassen's Fee well 1, Jurassic-Cretaceous: Applin, P. L., 3.

Northeastern, Tertiary: Reed, D. F.

Southern, oil and gas fields: Shreveport Geol. Soc.

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Vicksburg stage, Oligocene, oscillation chart, Foraminifera: Hoppin, R. A.

Webster County, Eocene-Recent: Vestal, F. E.

Yalobusha County, Eocene-Pleistocene: Turner, J.

Mississippi River valley, alluvial deposits: Fisk, H. N., 1.

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Kansas City area, Pennsylvanian, columnar section: Greene, F. C.

Marmaton group, Pennsylvanian: Howe, W. B., 1.

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Upper Pennsylvanian: Cordell, R. J.

Western, Cambrian-Pennsylvanian: Kans. Geol. Soc.

Montana, Amsden formation, graphic sections: Nieschmidt, C. L.

Beaverhead formation, Cretaceous-Eocene, type section: Lowell, W. R., 2.

Cambrian-Tertiary: Perry, E. S.

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- Central, Jurassic: Imlay, R. W., 3.
 Coalwood coal field, Cretaceous-Recent: Bryson, R. P.
 Devonian: Andrichuk, J. M., 1.
 Glendive-Baker anticline: Gilles, V. A.
 Heath shale, Mississippian, graphic sections: Nieschmidt, C. L.
 Little Rocky Mtn. area, Upper Cretaceous: Gries, J. P., 6.
 Mosby area, Upper Cretaceous: Cobban, W. A., 5.
 Northern, Jurassic - Lower Cretaceous: Hadley, H. D., 2.
 Mississippian: Nordquist, J. W.
 Ordovician-Devonian: Rader, M. T., Jr., 2.
 Phillipsburg area, Cambrian: Hanson, A. M., 2.
 Phosphoria formation, Permian: Cressman, E. R., 1; Klepper, M. R.; Swanson, R. W., 1, 3.
 Plains area, Cretaceous-Recent: Brundall, L.
 Powder River drainage basin: Hembree, C. H.
 Southwestern, Cambrian, detailed sections: Hanson, A. M., 1.
 Three Forks area, Mississippian: Holland, F. D., Jr., 1.
 Williston basin, Mississippian: Sloss, L. L., 1.
 Montana and adjacent areas, correlation charts: Parker, J. Marchbank.
 Nebraska, Gurley oil field, Cheyenne County: Reed, E. C., 1.
 Platte River basin, Wood River unit, Cretaceous-Recent: Keech, C. F.
 Wray area, Cretaceous-Recent: Hill, D. R.
 Nevada, Coaldale quadrangle: Ferguson, H. G., 3.
 Frenchman Mtn., Las Vegas area, pre-Cambrian-Triassic: Thune, H. W.
 Goodsprings dolomite, Cambrian: Hazard, J. C., 2.
 Lake Mead region: McKelvey, V. E., 1.
 Muddy Mts., Cambrian-Miocene: Longwell, C. R., 3.
 Pogonip group, Ordovician, detailed: Hintze, L. F., 1.
 Sloan area dolomite deposit: Deiss, C. F., 1.
 Southeastern: Longwell, C. R., 2.
 Cretaceous-Tertiary: Bissell, H. J., 1.
 Paleozoic: McNair, A. H.
 New Brunswick, Paleozoic-Triassic: Gussow, W. C., 1.
 New Hampshire, Appalachians, Paleozoic: Billings, M. P.
 New Jersey, Coastal Plain, Cretaceous-Pleistocene: Johnson, M. E., 1.
 Palisades to Ramapo Mts., section: Lobeck, A. K.

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- New Mexico, Blanco field: Budd, H.
 Caballo Mts.: Kelley, V. C., 1.
 Colfax County, Paleozoic-Mesozoic: Wood, G. H., Jr., 2.
 Dos Cabezas area: Jones, S. M., 1.
 Doswell field: Lilly, O. J., 1.
 Eddy-Chaves Counties: Helmig, P. D.
 Galisteo-Tonque area, pre-Cambrian-Quaternary: Stearns, C. E., 1.
 Tertiary volcanics: Stearns, C. E., 3.
 Guadalupe Mts. area, Permian: Newell, N. D., 2.
 Gym limestone, Pennsylvanian-Permian(?), Florida Mts.: Kelley, V. C., 4.
 Hansonburg mining district, Pennsylvanian-Permian: Kottowski, F. E., 1.
 Lake Valley district: Creasey, S. C., 2.
 Mesaverde formation, Cretaceous: Stearns, C. E., 2.
 Mesaverde group, Cretaceous: Allen, J. E., 3.
 Mora County: Bachman, G. O.
 Pecos area, Pennsylvanian: Sidwell, R., 1.
 Pennsylvanian-Permian zeugogeosyncline, detailed sections: Brill, K. G., Jr., 1.
 Picuris Range, pre-Cambrian: Montgomery, A.
 Raton basin - Sangre de Cristo Mts. region, pre-Cambrian-Tertiary: Panhandle Geol. Soc.
 Rattlesnake field: Cooper, J. C.
 Sacramento Mts., Ordovician-Permian: Plumley, W. J.
 Ordovician-Silurian: Pray, L. C., 1.
 San Jon site, Cretaceous-Quaternary: Judson, S. S., Jr., 3.
 Santa Rita quadrangle: Hemon, R. M.
 Southern, Paleozoic: Flower, R. H., 6.
 Rio Grande valley, Cenozoic: Kottowski, F. E., 3.
 Southwestern: N. Mex. Geol. Soc., 2.
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 New Mexico-Colorado, San Juan Basin: Wengerd, S. A., 4.
 New York, Appalachians, Paleozoic: Billings, M. P.
 Brayman shale, Silurian, correlation: Fisher, D. W., 4.
 Cambrian-Devonian, oil- and gas-bearing formations: Kreidler, W. L.
 Cayuga Lake area, Devonian: Winder, C. G., 1.
 Chautauqua County, Devonian, subsurface: Donnerstag, P.
 Cherry Valley limestone, Devonian: Rickard, L. V.
 Denmark formation, Ordovician, Black River valley: Chenoweth, P. A.
 Grenville series: Engel, A. E. Jr., 3.
 Manlius-Coeymans contact, Silurian-Devonian: Davis, G. H., 3d.
 New York City: Perlmutter, N. M.

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- Oriskany (Rome) quadrangle, Ordovician-Devonian: Dale, N. C.
- Palisades to Atlantic Ocean, section: Lobeck, A. K.
- Saranac quadrangle: Buddington, A. F., 2.
- Schenectady County: Simpson, E. S.
- Silver Creek quadrangle, Upper Devonian: de Witt, W., Jr.
- Spruce Mtn. tract, magnetite deposits: Leonard, B. F., 3d, 2.
- Washington County: Cushman, R. V., 1.
- Western, lower Clinton group, Silurian: Fisher, D. W., 3.
- Newfoundland, Great Northern Peninsula: Fritts, C. E.
- Torbay area: Rose, E. R.
- North America, Devonian-Mississippian, plant-bearing strata, correlation: Cross, A. T., 2.
- Jurassic, correlation charts, except Canada: Imlay, R. W., 1.
- North Carolina, Cenozoic: Swain, F. M., 1.
- Jackson County, Webster-Addie ultramafic ring: Miller, R., 3d.
- Mesozoic: Swain, F. M., Jr., 2.
- Roanoke-Tar River basins: LeGrand, H. E., 2.
- North Dakota, Bowbells quadrangle, Tertiary-Quaternary: Lemke, R. W., 2.
- Cambrian-Tertiary: Laird, W. M., 3.
- Columnar section, generalized: Harris, S. H.
- Devonian: Andrichuk, J. M., 1.
- Emmons County, Cretaceous-Recent: Fisher, S. P., Jr., 1.
- Michigan City area, Cretaceous, Pleistocene: Aronow, S., 2.
- Minnewaukan area, Cretaceous-Pleistocene: Aronow, S., 1.
- Nesson anticline, Williams County: Amerada Petroleum Corp.
- South-central, subsurface: Towse, D. F., 2.
- Tongue River formation, Paleocene, McKenzie County: Fisher, S. P., Jr., 2.
- Western, Devonian: Towse, D. F., 4.
- Oligocene, correlation with South Dakota and Nebraska: Skinner, M. F.
- Williston basin: Petroleum Inf.
- Northwest Territories, Giauque Lake area, pre-Cambrian: Tremblay, L. P.
- McLean Bay area, pre-Cambrian: Barnes, F. Q.
- Yellowknife greenstone belt: Henderson, J. F., 3.
- Yellowknife-Beaulieu region: Rowe, R. B., 1.
- Nova Scotia, Cape Breton Island, Cambrian: Hutchinson, R. D., 1.
- Cape Breton Island, Windsor group, Mississippian: Stacy, M. C.
- Sydney coal field, Carboniferous: Haites, T. B.

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- Ohio, Belmont and Noble Counties, Pennsylvanian: Smith, W. H.
- Clark County, Ordovician-Silurian: Norris, S. E.
- Cleveland area, Pleistocene section: White, G. W., 5.
- Coal beds, Pennsylvanian-Permian: Fieldner, A. C.
- Cuyahoga County, Devonian-Mississippian: Winslow, J. D.
- Generalized section: Alkire, R. L., 2.
- Hocking State Park, Carboniferous: Hall, J. F., 2.
- Jackson County: Walker, Alfred C., 2.
- Mahoning River basin, Carboniferous: Cross, W. P.
- Mississippian, detailed sections: Hyde, J. E.
- Northwestern, Devonian: Ehlers, G. M., 1.
- Pike County, generalized: Smith, R. C., 1.
- Scioto County: Walker, Alfred C., 1.
- Summit County: Smith, R. C., 2.
- Oklahoma, Anadarko basin, correlation chart: Moore, C. A., 1.
- Anadarko basin, south-central, Pennsylvanian-Permian: McNeal, R. P., 2.
- Ardmore district, Carboniferous: Tomlinson, C. W., 1.
- Beaver County, Paleozoic: Grimes, W. H., 1, 2.
- Pre-Pennsylvanian cross section: Collins, J. B.
- Carter Knox oil field, Pennsylvanian-Permian: Pate, J. H.
- Central, Pennsylvanian cross sections: Shawnee Geol. Soc.
- Cleveland-McClain Counties, pre-Pennsylvanian, subsurface: Disney, R. W.
- Coal County, Paleozoic: Dannenberg, R. B.
- Comanche County, Paleozoic: Hayes, L. N.
- Cookson Hills area, Paleozoic: Brauer, C. P.
- East-central, lower Pennsylvanian, subsurface: Jackson, N. A.
- Elk City field, Pennsylvanian-Permian: Beams, R. J., 1.
- Healdton oil field, Carter County: Riggs, C. H.
- Hilltop formation, Pennsylvanian: Tanner, W. F., Jr., 2.
- Hollis basin: Sears, J. M., 2.
- Idabel area, Cretaceous: Davis, L. V.
- Lincoln-Payne Counties, Paleozoic: Akmal, M. G.
- Logan County, Paleozoic, subsurface: McKenny, J. W.
- Northeastern, Paleozoic: Wright, L. M.
- Northern, Cimarron River terrace deposits: Reed, E. W.
- Nowata-Craig Counties, Pennsylvanian: Cade, C. M., 3d.

Geologic formations, lists, etc.—Continued

Oklahoma—Continued

- Ordovician-Recent aquifers: Dott, R. H., 2.
 Ouachita Mts.: Okla. Acad. Sci.
 Cambrian-Pennsylvanian: Goldstein, A., Jr., 2.
 Ouachita-Arbuckle facies, Paleozoic correlation chart: Harlton, B. H.
 Ozark uplift area: Huffman, G. G., 1.
 Pennsylvanian, pre-Missouri, correlation: Okla. City Geol. Soc.
 Quapaw oil pool, Osage County: West, J. A.
 South Palacine oil field, subsurface: Atkinson, W. E.
 Spavinaw - Salina - Spring Creeks area: Gore, C. E., Jr.
 Strang area, Carboniferous: Simpson, I. D., Jr.
 Tulsa County, Pennsylvanian: Oakes, M. C., 1.
 Velma pool, Paleozoic: Rutledge, R. B.
 Wauhatchau area, Paleozoic: Degraffenreid, N. B.
 West Duncan field, Ordovician-Permian: Putman, D. M.
 West-central, Pennsylvanian-Permian: McNeal, R. P., 1.
 Wewoka formation, Pennsylvanian, correlation: Swanson, R. H.
 Wichita Mts.: Chase, G. W., 3.
 Woodward County, Paleozoic, subsurface: Powell, B. D. H., Jr.
 Yonkers area, Ordovician-Pennsylvanian: Douglass, H. M.
 Ontario, Baldwin Township, pre-Cambrian: Thomson, J. E., 2, 3.
 Bancroft area, pre-Cambrian, Pleistocene: Hewitt, D. F., 3.
 Errington Township: Pye, E. G.
 James Bay lowland: Martison, N. W.
 Subsurface: Hogg, N.; Satterly, J., 4.
 King Township, pre-Cambrian-Silurian: Hainstock, H. N., 1.
 Kirkland Lake - Larder Lake area, pre-Cambrian: Savage, W. S.
 Munro Township: Satterly, J., 2.
 Munro-Beatty Townships: Jones, W. A.
 Niagara escarpment, Silurian: Bolton, T. E.
 Renfrew area: Quinn, H. A.
 Southeastern: Meen, V. B., 3.
 Southern, Long-Spragge Townships, pre-Cambrian: Abraham, E. M.
 Williamsburgh Township: Owen, E. B., 2.
 Oregon, Coos Bay coal field, Cenozoic: Duncan, D. C., 1.
 Keasey formation, Tertiary: Moore, R. C., 6.
 Northwestern, Tertiary: Warren, W. C.
 Scappoose limonite deposits, Cenozoic: Hotz, P. E., 2.
 Spirit Mtn. quadrangle: Baldwin, E. M.

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Oregon—Continued

- Oregon-Washington, Columbia River valley, Cenozoic: Lowry, W. D., 1.
 Panama Canal Zone, Tertiary: Cole, W. S., 1.
 Pennsylvania, Ashland quadrangle, Carboniferous: Haley, B. R.
 Berks County, Martinsburg formation, Cambrian(?)—Ordovician: Gault, H. R., 2.
 Butler district, Devonian-Carboniferous: Lytle, W. S.
 Driftwood quadrangle, Paleozoic: Bolger, R. C., 3.
 Eastern, Silurian-Devonian: Willard, B., 1.
 Triassic: Bock, W., 3.
 Easton area: Lafayette Coll. Dept. Geology and Geography.
 Hyner-Ferney anticlines area, Devonian-Pennsylvanian: Ebricht, J. R.
 Meyersdale quadrangle, Devonian-Carboniferous: Flint, N. K.
 Mt. Carmel quadrangle, Pennsylvanian coal beds: Rothrock, H. E., 1.
 Northeastern, Paleozoic: Willard, B., 4.
 Philadelphia area: Watson, E. H.
 South Mtn., metadiabase, Ordovician(?): O'Brien, G. D.
 Southeastern, Hammer Creek section, Triassic: McLaughlin, D. B., 1.
 Martinsburg formation, base: Gray, C., 1.
 Vertex monocline: Bock, W., 1.
 Southwestern, Mississippian-Permian: Pa. Geol. Survey.
 Western and north-central, Paleozoic: Fettke, C. R., 2.
 Pleistocene, North America: Flint, R. F., 3.
 Quebec, Albanel area, pre-Cambrian: Neilson, J. M., 1.
 Bethoulat Lake area: Neale, E. R. W., 1.
 Dalember River - Dufresnoy Lake area: L'Espérance, R. L., 2.
 Disraeli area, granitic relief inversion, Devonian: Vogt, J., 2.
 Duprat Township: L'Espérance, R. L., 1.
 Fabre Township, pre-Cambrian: Mauffette, P.
 Fancamp-Haüy area: Holmes, S. W., 1.
 Gamache area, pre-Cambrian: Grenier, P. E., 2.
 Gaspé Peninsula, Devonian: Roliff, W. A., 1.
 McKenzie Township: Smith, J. R.
 Montreal area: Clark, T. H., 1.
 Montreal-Three Rivers area, Cambrian-Ordovician: Belyea, H. R., 1.
 Nipississ River area: Grenier, P. E., 1.
 Nipisso Lake area: Hogan, H. R.
 Olga-Goéland area, pre-Cambrian, Quaternary: Imbault, P. E.
 Pontgrivé-Bergeronnes area, pre-Cambrian, Quaternary: Greig, E. W.

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Quebec—Continued

- Preissac-Lacorne region, pre-Cambrian: Rowe, R. B., 3.
- Rohault area: Gilbert, J. E. J., 1.
- Saguenay Valley area, Middle Ordovician: Sinclair, G. W., 5.
- St. Magloire area: Béland, J.
- Tadoussac area: Miller, M. L.
- Temiscamie River area, pre-Cambrian: Wahl, W. G.
- Wacoune River area: Blais, R. A., 1.
- Waswanipi Lake area: Claveau, J.
- Rhode Island, Georgiaville quadrangle: Richmond, G. M., 1.
- Rocky Mts. - Great Plains region, northern, Jurassic: Schmitt, G. T.
- Saskatchewan, Bearpaw formation, Cretaceous: Loranger, D. M.
- Black Bay area, pre-Cambrian: Hale, W. E.
- Central, Devonian, subsurface: Powley, D. E.
- Correlation chart: Edmunds, F. H.; Rowland, L. O.
- Goldfields-Martin Lake area, pre-Cambrian: Christie, A. M., 2.
- Mississippian: Kamen-Kaye, M., 2.
- Nome Lake - Ballantyne Bay area, Ordovician-Silurian: Kupsch, W. O., 2.
- Nevins Lake area, pre-Cambrian: Blake, D. A. W., 1.
- South-central, Paleozoic-Mesozoic, well log: Wickenden, R. T. D.
- Southern, Devonian, subsurface: Williams, Fredrick J.
- Southwestern, Jurassic-Lower Cretaceous: Hadley, H. D., 2.
- Tertiary: Russell, L. S., 3.
- Upper Cretaceous: Russell, L. S., 2.
- Western, Ordovician-Devonian: Stanton, M. S.
- Williston basin, Mississippian: Sloss, L. L., 1.
- South Carolina, Tertiary: Cooke, C. W., 2.
- South Dakota, Badlands, Oligocene: Bump, J. D., 2.
- Black Hills: Bump, J. D., 1; Sonnenberg, F. P.
- Ordovician: McCoy, M. R.
- Butte County: Stevenson, R. Evans.
- Correlation chart, generalized: Brown, J. L.
- Missouri River cross sections, Chamberlain area, Pleistocene: Warren, C. R., 2.
- Newcastle formation, Cretaceous, Black Hills: Grace, R. M.
- Pierre area, Pleistocene stages and sub-stages: Crandell, D. R., 3.
- Pre-Cretaceous: Gries, J. P., 7.
- Subsurface formations: S. Dak. G. S.
- Williston basin, Mississippian: Sloss, L. L., 1.
- Tennessee, Athens quadrangle, Cambrian-Ordovician: Rodgers, J., 2.

Geologic formations, lists, etc.—Continued

Tennessee—Continued

- Chattanooga shale, DeKalb County: Klepser, H. J.
- Niota quadrangle, Cambrian-Ordovician: Rodgers, J., 1.
- Stewart County, Wells Creek basin, Ordovician-Mississippian: Wilson, C. W., Jr., 3.
- Texas, Agua Fria quadrangle, Cretaceous-Tertiary: Moon, C. G.
- Bear Creek quadrangle, Cretaceous-Quaternary: Barnes, V. E., 1.
- Blacklands experimental watershed: Blank, H. R.
- Bowie County - Gulf of Mexico cross section: Thomas, W. A.
- Chinati Mts. region: West Texas Geol. Soc., 2.
- Comal County, Cretaceous-Quaternary: George, W. O., 1.
- Crabapple Creek quadrangle, Cretaceous: Barnes, V. E., 4.
- Eagle Mts., trans-Pecos: Gillerman, E., 2.
- Ector County, water-bearing formations: Knowles, D. B.
- Ellenburger group, Ordovician: Hendricks, C. L.
- Galveston - Dallas - Gainesville: Houston Geol. Soc.
- Glen Rose formation, Cretaceous, Foraminifera: Stead, F. L., 1.
- Guadalupe Mts. area, Permian: Newell, N. D., 2.
- Henrys Chapel quadrangle, Eocene, detailed sections: Stenzel, H. B., 4.
- Hilltop quadrangle, Cretaceous: Barnes, V. E., 6.
- Kenmore Farms area, Kendall County, Trinity group: George, W. O., 2.
- Kilgore area: Towles, H. C., Jr.
- Live Oak Creek quadrangle, Cretaceous: Barnes, V. E., 7.
- Llano Estacado, Triassic-Recent: Brand, J. P.; Holt, R. W.
- Llano uplift, Pennsylvanian: Cheney, M. G.
- Lynn County: Leggat, E. R.
- Marathon basin: West Texas Geol. Soc., 1.
- Marble Falls limestone, Pennsylvanian: Barnes, V. E., 15.
- Midland basin: Warn, G. F., 1.
- Morris Ranch quadrangle, Cretaceous: Barnes, V. E., 8.
- Ochiltree-Gray Counties, pre-Pennsylvanian cross section: Collins, J. B.
- Palo Alto Creek quadrangle, Cretaceous: Barnes, V. E., 10.
- Phillips Elsinore No. 1 well, Pennsylvanian-Permian: Young, A.
- Pinto Canyon, Permian: Rigby, J. K., 2.
- Presidio County, Cretaceous-Recent: Skees, W.

Geologic formations, lists, etc.—Continued

Texas—Continued

- San Angelo formation, Permian: Olson, E. C., 4.
- Scurry reef, Pennsylvanian-Permian (?), subsurface: Heck, W. A., 1.
- Stonewall quadrangle, Cretaceous: Barnes, V. E., 13.
- Tascotal Mesa quadrangle, Cretaceous-Quaternary: Erickson, R. L., 1.
- Trans-Pecos areas: West Texas Geol. Soc., 3.
- Van Horn area, pre-Cambrian: King, P. B., 3.
- Wellman oil field: Anderson, K. C.
- Williamson County, Austin group, Cretaceous: Young, K. P., 1.
- Woodbine formation, Cretaceous: Stephenson, L. W., 1.
- Texas-Louisiana, gulf coast, correlation chart, Cenozoic: Am. Assoc. Petroleum Geologists, 4.
- Texas-Mexico, Big Bend district, Lower Cretaceous: Kiersch, G. A., 2.
- Texas-New Mexico, Delaware basin: Stead, F. L., 3.
- Delaware basin, Permian-Quaternary: Maley, V. C.
- Trinidad: Suter, H. H.
- Jurassic-Recent: Anonymous, 13.
- Upper Cretaceous-lower Tertiary: Bolli, H. M., 2.
- United States, Coastal Plain, Cretaceous: Cooke, C. W., 3.
- Cretaceous and Miocene, ostracodes: Sexton, J. V.
- Eastern interior, Devonian-Mississippian black-shale flora: Hoskins, J. H.
- Four Corners region, correlation chart: Di Giambattista, C. D.
- Northeastern, Wisconsin substages and events: Flint, R. F., 4.
- Northern mid-Continent, Desmoinesian, Pennsylvanian: Searight, W. V.
- South-central, Ouachita facies, Paleozoic: Goldstein, A., Jr., 1.
- Southeastern, Athens shale, Ordovician: Decker, C. E., 1.
- Cambrian-Recent: Baum, R. B., 2.
- Western, Phosphoria formation, Permian: McKelvey, V. E., 2; Swanson, R. W., 2.
- Western interior, Cretaceous, correlation chart: Cobban, W. A., 3.
- Jurassic: Imlay, R. W., 2, 3.
- Jurassic correlation chart: Imlay, R. W., 4.
- Williston basin: Barnes, T. R.; Burg, K. E., 1; Sonnenberg, F. P.
- Utah, Canyon Range: Christiansen, F. W., 1.
- Cedar Mtn. formation, Cretaceous, type section: Stokes, W. L., 1.
- Coalville area, Upper Cretaceous: Peterson, R. H.

Geologic formations, lists, etc.—Continued

Utah—Continued

- Correlation chart: Hansen, G. H., 1.
- Ferron sandstone, Cretaceous: Katich, P. J., Jr., 2.
- Green-Colorado River canyons: Thomas, H. E., 3.
- Gunnison plateau, Jurassic-Recent: Hardy, C. T., 3.
- Henry Mts. region, Permian-Recent: Hunt, C. B., 2.
- La Sal Mts., Lakes Bonneville and Lahontan, Quaternary: Richmond, G. M., 6.
- Little Grand District, Jurassic (?)—Cretaceous: Baker, A. A., 1.
- Logan area, Mississippian: Holland, F. D., Jr., 1.
- Monument upwarp, Clay Hills area: Bradish, B. B.
- North-central, columnar sections: Granger, A. E., 2.
- Northern, Tertiary: Smith, N. J.
- Upper Cambrian: Hanson, A. M., 3.
- Paradox basin, Carboniferous: Heylman, E. B., Jr.
- Southern, Paleozoic: Clair, J. R., 1.
- Payson Canyon area, southern Wasatch Mts.: Brown, R. S.
- Phosphoria formation, Permian: Cheney, T. M.; Smith, L. E.
- Pine Valley Mts., Jurassic-Quaternary: Cook, E. F., 1.
- Selma Hills, Paleozoic: Rigby, J. K., 1.
- Sevier Valley, Jurassic: Hardy, C. T., 1.
- Silver Reef mining district: Proctor, P. D., 2.
- Southeastern: Baker, A. A., 1.
- Southwestern: Longwell, C. R., 2.
- Cretaceous-Tertiary: Bissell, H. J., 1.
- Jurassic: Williams, N. C., 1.
- Paleozoic: McNair, A. H.
- Triassic: Thomas, H. E., 4.
- Strawberry Valley quadrangle: Bissell, H. J., 2.
- Thompsons area, Jurassic-Cretaceous: Stokes, W. L., 2.
- Uinta Basin: Hager, D., 1.
- Uinta Mts., western, pre-Cambrian, Paleozoic: Williams, N. C., 2.
- Utah Valley, Cenozoic: Hunt, C. B., 3.
- Virgin formation, Triassic: Poborski, S. J.
- Wasatch Mts., Salt Lake City area: Granger, A. E., 1, 2; Marsell, R. E., 2.
- White Canyon area, Pennsylvanian-Jurassic (?): Benson, W. E. B.
- Vermont, Appalachians, Paleozoic: Billings, M. P.
- Cambrian-Ordovician, correlation chart: Osberg, P. H.
- Rochester-East Middlebury area, pre-Cambrian-Ordovician: Osberg, P. H.
- Rutland area, pre-Cambrian-Ordovician sequences: Brace, W. F.

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- Virginia, Lynchburg quadrangle: Brown, W. Randall.
- Virginia-West Virginia, Appalachians, Oriskany sandstone area, Paleozoic: W. Va. Geol. Survey, 3.
- Washington, Bead Lake district: Schroeder, M. C., 1.
- Puget Sound area: Wash. State Univ. Dept. Oceanography.
- West Indies, Antillean arc, Cretaceous-Cenozoic: Weyl, R., 1.
- Aruba, Oranjestad water test well, Tertiary-Quaternary: Westermann, J. H.
- Cretaceous-Quaternary: Weyl, R., 4.
- Williston basin, Cretaceous: Gries, J. P., 10.
- Devonian: Baillie, A. D., 3, 4.
- North Dakota - South Dakota, cross section: Gries, J. P., 1.
- Wisconsin, Beetown lead-zinc area, Ordovician: Heyl, A. V., Jr.
- Brown County: Drescher, W. J., 1.
- Highland area, Ordovician: Agnew, A. F., 1.
- Milwaukee-Waukesha area: Drescher, W. J., 2; Foley, F. C., 1.
- Oneota formation, Ordovician: Raasch, G. O., 2.
- Wyoming, Badwater area: Tourtelot, H. A., 2.
- Bighorn Basin: Wyo. Geol. Assoc., 1.
- Mesozoic: Downs, G. R., 1.
- Paleozoic: Stipp, T. F.
- Pennsylvanian: Agatston, R. S., 1.
- Phosphoria formation, Permian, lithofacies: Ketterer, W. P.
- Tertiary: Van Houten, F. B., 1.
- Browns Park formation, Tertiary, Carbon County: Love, J. D., 3.
- Casper formation, Pennsylvanian(?) - Permian: Thomas, Horace D., 3.
- Casper and Fountain formations, Pennsylvanian-Permian: Pederson, S. L.
- Eastern, Jurassic: Imlay, R. W., 3.
- Egbert-Pine Bluffs-Carpenter area, Oligocene-Recent: Rapp, J. R., 1.
- Evanston area, Upper Cretaceous: Peterson, R. H.
- Fremont County coal fields, Cretaceous-Eocene: Thompson, Raymond M.
- Frontier formation, Cretaceous: Cobban, W. A., 4.
- Bighorn Basin: Hunter, L. D.
- Powder River basin: Towse, D. F., 3.
- Zones: Masters, J. A.
- Gebo oil fields, subsurface: Mees, E. C.
- Glendo-Wendover area: Rapp, J. R., 2.
- Gros Ventre Mts., Pennsylvanian-Cretaceous: Smith, K. G., 1.
- Hartville area, Paleozoic: Love, J. D., 4.
- Hoback formation, Tertiary: Dorr, J. A., Jr., 1.
- Jackson Hole area, Upper Cretaceous-Pleistocene: Love, J. D., 5.

Geologic formations, lists, etc.—Continued

- Wyoming—Continued
- La Prele area: Rapp, J. R., 3.
- Laramie Basin: Wyo. Geol. Assoc., 2.
- Marine Jurassic: Pippingos, G. N.
- Madison group, Mississippian, Bighorn and Wind River Basins: Denson, M. E., Jr., 1.
- Medicine Bow Mts., stages of development: Knight, S. H., 2.
- Newcastle formation, Cretaceous, Black Hills: Grace, R. M.
- Niobrara formation, Cretaceous, Laramie Basin: Shaw, A. B., 2.
- Oil and gas producing formations: Hunt, J. M.
- Pass Creek Flats area: Visser, F. N., 1.
- Phosphoria formation, Permian: McKelvey, V. E., 5; Sheldon, R. P., 2.
- Powder River drainage basin: Hembree, C. H.
- Pumpkin Buttes area, Tertiary: Love, J. D., 2.
- Southeastern, Tertiary: McGrew, P. O., 1.
- Triassic: Burk, C. A., 2.
- Teton Range, north end: Edmund, R. W.
- Torrington area, Tertiary-Quaternary: Visser, F. N., 2.
- Western, Cretaceous: Moritz, C. A.
- Wind River and Bighorn Basins, Permian-Triassic: Tourtelot, H. A., 1.
- Wyoming-Colorado, Mesaverde formation, Laramie Basin: Bergstrom, J. R.
- Yukon, Dezadeash area: Kindle, E. D.
- Northwest Shokwak Valley area: Bostock, H. S.
- Whitehorse area, pre-Cambrian-Recent: Wheeler, J. O.
- Geologic history. *See also* Paleoclimatology; Paleogeography.
- Alaska: Brooks, A. H.
- Arctic slope: Payne, T. G.
- Buldir Island, Quaternary: Coats, R. R., 2.
- Lower Kuskokwim region: Hoare, J. M.
- Alberta, Leduc oil field, Devonian: MacEwen, G. A.
- Rocky Mts., Devonian: McLaren, D. J., 1.
- Southwestern, Cambrian-Ordovician: North, F. K.
- Cretaceous: Thompson, R. L.
- Arctic America, Ellesmere Island, Canadian Bay area: Troelsen, J. C., 3.
- Arizona, Aubrey Valley, graben structure: Blissenbach, E., 2.
- Central: Huddle, J. W., 1.
- Chloride quadrangle: Thomas, B. E.
- Cocconino County, Permian-Quaternary: Wanek, A. A.
- Globe-Miami district: Peterson, N. P., 1.
- Prescott quadrangle, Cenozoic: Krieger, M. H.
- Tornado - Tam O'Shanter Peaks area: Kiersch, G. A., 1.

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- Arizona-Utah, Monument Valley, popular account: Klinck, R. E.
- Arkansas, southern, Cretaceous: Philpott, T. H., 2.
- British Columbia-Yukon, Alaska Highway, Cenozoic: Denny, C. S.
- California, Breckenridge Mtn. quadrangle: Dibblee, T. W., Jr., 3.
- Buena Vista area, Jurassic-Recent: Pask, J. A.
- Eel River valley area, Jurassic-Recent: Ogle, B. A., 1.
- Evolution of landscape: Hinds, N. E. A.
- Gasquet quadrangle, Jurassic-Quaternary: Cater, F. W., Jr.
- Griffith Park area, pre-Cretaceous (?) - Recent: Neuerburg, G. J., 1.
- Johnston Grade area: Guillou, R. B.
- Lassen Volcanic National Park, popular: Schulz, P. E.
- Las Trampas Ridge area, Cretaceous-Recent: Ham, C. K.
- Leona rhyolite, Tertiary: Robinson, G. D., 2.
- Lower Lake quadrangle, Jurassic-Recent: Brice, J. C., 2.
- Lower Lake-Middletown area: Upson, J. E.
- Merced County, Jurassic-Recent: Davis, F. F.
- Ortiguera Peak quadrangle, Jurassic-Recent: Briggs, L. I., Jr., 2.
- Pearland quadrangle, San Andreas fault zone: Noble, L. F.
- Ridge basin, Tertiary-Quaternary: Dehlinger, P., 3.
- Russian River area: Higgins, C. G., Jr., 2.
- Salt Lake quadrangle: Dibblee, T. W., Jr., 1.
- San Andreas - Garlock - Big Pine faults: Hill, M. L.
- San Francisco area: Lee, C. H.
- San Joaquin Valley, southeastern, Oligocene (?) - Recent: Kasline, F. E.
- San Nicolas Island: Norris, R. M., 3.
- Sutter-Yuba area: Davis, G. H.
- Temecula region, Cenozoic: Mann, J. F., Jr., 1.
- Canada, Cordilleran region: Cockfield, W. E.
- Southeastern, Wisconsin substages and events: Flint, R. F., 4.
- Canadian Shield, pre-Cambrian: Gill, J. E., 3.
- Climate succession, cloud canopy theory: Cyr, D. L.
- Colorado, Archuleta County, Triassic-Recent: Wood, G. H., Jr., 1.
- Cathedral Bluffs area: Donnell, J. R.
- Crested Butte quadrangle, Pennsylvanian-Permian: Langenheim, R. L., Jr., 1.
- Denver-Cheyenne basin: Sternberg, C. W.

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- Colorado—Continued
- Denver-Julesburg basin: McCoy, A. W., 3d, 2.
- Ignacio area, Cretaceous-Quaternary: Barnes, H.
- Las Animas arch: Curtis, B. F.
- Leadville-Mosquito Range district: Behre, C. H., Jr., 2.
- Northgate district: Steven, T. A.
- Rocky Mts., ancestral: Holmes, C. N.
- Sangre de Cristo Range: Gabelman, J. W., 1.
- Sheep Mtn. - Delaney Butte area: Welsh, J. E.
- Southeastern, Mississippian - Permian: Maher, J. C., 6.
- Paleozoic: Maher, J. C., 8.
- Thomasville - Woods Lake area: Mackay, I. H., 2.
- Wray area, Cretaceous-Recent: Hill, D. R.
- Crustal shift, cause of ice ages: Pauly, K. A.
- El Salvador, southern: Williams, H., 10.
- Florida: Gunter, H.
- General: Gibson, J. B., 2.
- Great Basin: Sloss, L. L., 3.
- Great Lakes, Pleistocene chronology, revision: Hough, J. L., 3.
- Gulf Coastal Plain, sedimentation and orogeny: Fisk, H. N., 3.
- Idaho, Ammon - Paradise Valley quadrangles: Mansfield, G. R.
- Eastern, Triassic: Kummel, B., Jr., 4.
- Illinois, Carlinville quadrangle, pre-Cambrian-Pleistocene: Ball, J. R.
- Hardin-Brussels quadrangles: Rubey, W. W., 1.
- Northeastern, Pleistocene: Horberg, C. L., 5.
- Indiana, generalized: Deiss, C. F., 2.
- Parke County: Wier, C. E., 4.
- Jamaica: Zans, V. A., 4.
- Kansas, central uplift, development: Lee, W., 1.
- Jackson County, Pennsylvanian-Quaternary: Walters, K. L.
- "Monument Rocks," popular account: Busch, B. L.
- North Solomon Valley, Cretaceous-Quaternary: Leonard, A. R.
- Sherman County, Cretaceous-Quaternary: Prescott, G. C., Jr., 2.
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Federal Creek coal field, Pennsylvanian: Smith, G. E.

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Strang area: Simpson, I. D., Jr.

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Craigmont corundum mine, Raglan Township, pre-Cambrian: Hewitt, D. F., 3.

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- White Canyon district, Permian-Recent: Benson, W. E. B.
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- Pumpkin Buttes area, Tertiary, sketch: Love, J. D., 2.
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 Gypsum: Ver Planck, W. E., Jr.
 Kings County: Jennings, C. W., 2.
 Madera-Fresno-Tulare Counties, tungsten: Krauskopf, K. B., 2.
 Mammoth mine, copper-zinc: Kinkel, A. R., Jr.
 Mendocino County: O'Brien, J. C., 4.
 Merced County: Davis, F. F.
 Mineral localities: Murdoch, J., 1.
 Northern Sierra Nevada, chromite: Ryerson, G. A.
 Rosamond uranium prospect: Walker, G. W., 2.
 Saltdale quadrangle: Dibblee, T. W., Jr., 2.
 San Bernardino County, bastnaesite: Sharp, W. N., 1.
 Resources: Wright, L. A., 2.
 Uranium-bearing pegmatites: Hewett, D. F.
 Southern, strontium: Durrell, C.
 Southern Coast Ranges, chromite: Walker, G. W., 1.
 Starbright mine, tungsten: Hazenbush, G. C.
 Superior area, talc: Wright, L. A., 1.
 War Eagle mine, Tecopa area: Kildale, M. B.
 Yuba County: O'Brien, J. C., 2.
 Canada, cobalt: Vhay, J. S., 1.
 Iron: Tanton, T. L., 1.
 Pegmatitic lithium: Rowe, R. B., 5.
 Pyrite: Janes, T. H.
 Radioactive minerals: Canada Geol. Survey Radioactivity Div. Officers.
 Tin: McClelland, W. R.
 Uranium: Buffam, B. S. W.
 Uranium and thorium: Lang, A. H.
 Western, ore minerals: Thompson, Robert M.
 Canadian Shield, uranium, age determinations: Collins, C. B., 1.
 Chromite-vanadium-titanium, geochemical control: Wilson, H. D. B., 1.
 Classification: Light, M. A., 2.
 Colorado, Battle Mtn. district, Eagle mine, zinc: Radabaugh, R. E.
 Boulder County, tungsten: Warne, J. D.

Mineral deposits—Continued

Colorado—Continued

- Boulder Creek tungsten district: Lovering, T. S., 1.
 Caribou mine, pitchblende: Moore, F. B., 2.
 Central City district, pitchblende: Armstrong, F. C.; Moore, F. B., 1.
 Central mineral belt, uranium: King, R. U., 2.
 Copper King mine, pitchblende: Sims, P. K., 3.
 Garfield quadrangle: Dings, M. G.
 Golden Gate Canyon - Ralston Creek areas, uranium: Adams, J. W., 2.
 Gunnison County, pegmatite: Wilson, S. R.
 Jamestown, Blue Jay mine, uranorthorite in fluorite breccia: Phair, G., 1.
 Jo Reynolds area, pitchblende: Harrison, J. E., 1.
 Leadville-Mosquito Range district: Behre, C. H., Jr., 2.
 Mt. Antero region, beryllium: Adams, J. W., 1.
 Pando area: Tweto, O. L.
 San Juan Mts., uranium-bearing: Burbank, W. S., 1.
 Sinbad Valley, copper: Holmes, R. W.
 South-central, mineral belt, relations: Gabelman, J. W., 2.
 Refractory clay: Waagé, K. M., 2.
 Uravan mineral belt, carnotite: Fischer, R. P.
 Wet Mts., thorium: Christman, R. A., 1.
 Colorado Plateau, Shinarump conglomerate, uranium: Finch, W. I.
 Uranium-vanadium: Kelly, S. F., 3; Waters, A. C.
 Copper, North America: U. S. Bur. Mines, 4.
 Cross sections of mountains, exploration value: Reinhardt, E. V.
 Cuba, manganese: Park, R. D., 2.
 Dominican Republic, Duarte Province, iron: Zoppis, R.
 Exploration, popular account: Storm, B.
 Florida, land-pebble phosphate: Cathcart, J. B., Jr.
 Georgia, Dahlonega Special quadrangle, iron: Brown, W. Robert.
 Gold: Park, C. F., Jr.
 Hartwell district, mica: Griffiths, W. R., 4.
 Kaolin: Kesler, T. L.
 Northwestern, bauxite: White, W. S., 1.
 Thomaston-Barnesville district and outlying areas, mica: Heinrich, E. W., 1.
 Greenland: Bøggild, O. B.
 Idaho, Blackbird cobalt-copper deposits: Vhay, J. S.
 Canyon-Nine Mile Creeks area, metallic minerals: Griggs, A. B.
 East-central, uranium and thorium: Trites, A. F., Jr.

Mineral deposits—Continued

Idaho—Continued

- Fall Creek area, uraniferous coal: Vine, J. D., 3.
 Hermada deposit, antimony: Popoff, C. C., 1.
 Industrial minerals: Kauffman, A. J., Jr.
 Iron Mtn. district, iron: Mackin, J. H., 1.
 Mineral district, metallic minerals: Anderson, A. L., 4.
 Pend d'Oreille - Salmo area: Thompson, W. H.
 Sunshine mine, uranium: Kerr, P. F., 2.
 Valley County, radioactive minerals, placers: Mackin, J. H., 4.
 Washington County, gypsum: McDivitt, J. F.
 Yellowjacket district, gold-copper-lead: Anderson, A. L., 5.
 Idaho-Montana, Lemhi Pass district, thorium: Sharp, W. N., 2.
 Illinois, fluorspar: Weller, J. M., 1.
 Knox-Yingling mines, fluorite: Burmeister, H. L.
 Southern, siliceous materials: Lamar, J. E., 2.
 Indiana, Jasonville quadrangle: Wier, C. E., 1.
 Jamaica: Zans, V. A., 4.
 Marshall's Hall area, manganese: Zans, V. A., 3.
 Kansas, central, Cretaceous lignites: Schoewe, W. H., 1.
 Volcanic ash: Carey, J. S.
 Kentucky, Salem area, zinc, relation to fluorspar: Oesterling, W. A.
 Labrador: Snelgrove, A. K.
 Coastal areas: Douglas, G. V., 1.
 Northern coast: Christie, A. M., 1.
 Seal Lake area, copper: Evans, E. L.
 Labrador-Quebec, Labrador trough, iron: Harrison, J. M., 1; Moss, A. E.
 Ungava Peninsula: Buisson, A.
 Maine, Aroostook County, manganese: Eilertsen, N. A.
 Blue Hill area, manganese: Forsyth, W. T.
 Bumpus quarry, pegmatite: Neumann, G. L., 1.
 Manitoba, Batty Lake area: Robertson, D. S.
 Lasthope Lake area, gold: Fawley, A. P.
 Lily Lake - Kickley Lake area: Russell, G. A., 2.
 Long Lake - Halfway Lake area, gold: Russell, G. A., 1.
 Oiseau (Bird) River area, chromite: Davies, J. F., 1.
 Partridge Crop Lake area, copper-nickel, possibilities: Dawson, A. S., 1.
 Rice Lake area, gold: Davies, J. F., 2.
 Massachusetts, Betts mines area: Franks, P. C., 2.
 Mexico, Avalos-Providencia district, silver-lead-zinc: Triplett, W. H.
 Canoas district, mercury: Gallagher, D.

Mineral deposits—Continued

Mexico—Continued

- Coahuila, fluorite: Schulze, G., 4.
 Cobalt: Vhay, J. S., 1.
 Concepción del Oro district, Zacatecas, phosphate: Rogers, C. L.
 El Nacimiento deposit, Sonora, tungsten: Rocha, V. S., 2.
 Filadelfia deposit, Sonora, copper: Rocha, V. S., 1.
 Guadalupe silver mine, Durango, structure: Henshaw, P. C.
 Guanajuato area, alunite: Larios Torres, H.
 Gold-silver: Milton, C., 2.
 Guerrero and Oaxaca, titanium: Sánchez Mejorada, P.
 Hidalgo deposit, Chihuahua, molybdenite: Schulze, G., 6.
 Iron: González Reyna, J., 3.
 Manganese: Park, R. D., 2.
 Manuel mine, Guerrero, silver-lead-copper: Pérez Martínez, J. J., 2.
 Mercedes mine, Nuevo León, phosphate: Cady, J. G.
 Morelos area, Chihuahua, tungsten: Schulze, G., 5.
 Nonmetallic minerals: Flores Reyes, T., 1.
 Nuevo León, phosphorite deposits: Pérez Martínez, J. J., 1.
 Pachuca district, silver: Thornburg, C. L.
 Phosphate: Flores Reyes, T., 2.
 Radioactive minerals: González Reyna, J., 2.
 Reyes area, Durango, copper: Schulze, G., 3.
 San Antonio mine, tin, vanadium, lead-zinc: Signer, C. M.
 San José mine, San Luis Potosí, antimony: Archibald, J. C., Jr.
 San Rafael mine, San Luis Potosí, sulfur: González Reyna, J., 1.
 Mexico and Central America, symposium: Conv. Interam. Recursos Min.
 Michigan, copper shales, cf. Germany: White, W. S., 5.
 Crystal Falls area, iron: Pettijohn, F. J., 1.
 Iron River - Crystal Falls district, iron: Bacon, L. O.
 Minnesota, Aitkin County, iron and manganese: Grosh, W. A.
 Aitkin-Carlton Counties, iron sulfides: Pennington, J. W.
 Duluth gabbro, near Ely, copper-nickel: Schwartz, G. M., 2.
 Lake County, copper-nickel: Schwartz, G. M., 4.
 Mississippi, Lafayette County, iron ore: Attaya, J. S.
 Northeastern, high-alumina clays and bauxite: Reed, D. F.

Mineral deposits—Continued

- Missouri, Hayden Creek mine, lead ore in conglomerate: Ohle, E. L., Jr., 1.
 Iron Mtn. alteration sequence: Allen, V. T., 2.
 Southeastern, environments of precipitation, lead: James, J. A.
 Montana, Boulder batholith, uranium: Becraft, G. E., 3.
 Clancey area, uranium: Roberts, W. A., 1.
 Comet area, uranium: Becraft, G. E., 1.
 Corundum: Clabaugh, S. E., 1.
 Crystal Mtn., fluorite: Taber, J. W.
 Dunkleberg district, lead-zinc: Popoff, C. C., 2.
 Elliston mining district, lead, zinc, silver, gold: Robertson, F. S., 7.
 Free Enterprise mine, uranium: Roberts, W. A., 2.
 Granite County, tungsten-silver: Volin, M. E.
 Industrial minerals: Kauffman, A. J., Jr.
 Little Rocky Mts., Ruby Gulch, gold: Dyson, J. L., 5.
 Phosphoria formation, phosphates: Swanson, R. W., 4.
 Southwestern, uranium and thorium: Trites, A. F., Jr.
 Yellowtail district, bentonite: Knechtel, M. M., 1.
 Zosell (Emery) mining district, gold, sulfides: Robertson, F. S., 3.
 Nevada, Coaldale area, uranium-bearing rhyolitic tuff: Duncan, D. C., 2.
 Coaldale quadrangle: Ferguson, H. G., 3.
 East Walker River area, uranium: Staats, M. H., 1.
 MacArthur deposit, Lyon County, copper: Matson, E. J.
 Pilot Mts. district, mercury: Phoenix, D. A.
 Reese River district: Ross, C. P., 2.
 New Brunswick, northern, base metals: MacKenzie, G. S.
 New Jersey, Andover mining district, iron: Sims, P. K., 1.
 Andover-Sulphur Hill iron mines, zinc: Neumann, G. L., 4.
 Dover district, magnetite: Sims, P. K., 2.
 Franklin-Sterling mine, zinc: Baum, J. L.
 Ringwood area, magnetite: Hotz, P. E., 3.
 New Mexico, Black Hawk district, uranium: Gillerman, E., 4.
 Burro Mts. area, fluorspar: Gillerman, E., 1.
 Capitan iron deposit: Kelley, V. C., 3.
 Central mining district, Hanover mine, zinc: Horton, J. S.
 Clay: Weber, R. H.
 Grants district, uranium: Towle, C. C.
 Gypsum: Jicha, H. L., Jr., 1.

Mineral deposits—Continued

- New Mexico—Continued
 Hansonburg district, barite-fluorite-galena: Kottlowski, F. E., 1.
 Merry Widow claim, White Signal district, uranium: Granger, H. C.
 Molybdenum: Kelley, V. C., 5.
 Questa molybdenum mine, molybdenite: Schilling, J. H.
 Santa Rita area: Ballmer, G. J.
 Santa Rita quadrangle: Hemon, R. M.
 Sierra-Dona Ana-Hidalgo Counties, radioactive: Boyd, F. S., Jr.
 Silver City region: Hernon, R. M.
 White Signal district, uranium: Gillerman, E., 3.
 New York, Adirondacks, hematites: Balsley, J. R., Jr., 4.
 Brandy Brook - Silver Pond belts, magnetite: Leonard, B. F., 3d, 1.
 Clinton County, magnetite: Postel, A. W.
 Gouverneur area, dolomite marble: Prucha, J. J., 2.
 Guymard mine, lead-zinc: Neumann, G. L., 2.
 Jefferson-St. Lawrence Counties, pyrite: Prucha, J. J., 1.
 St. Lawrence County, lead-zinc: Neumann, G. L., 3.
 Spruce Mtn. tract, magnetite: Leonard, B. F., 3d, 2.
 Sterling Lake area, magnetite: Hotz, P. E., 3.
 Newfoundland: Snelgrove, A. K.
 Fortune Bay, Long Harbour, fluorite: Smith, B. L.
 Torbay area: Rose, E. R.
 Nicaragua, La Luz mine, mineralization: Nelson, G. A.
 North America, cobalt: Vhay, J. S., 1.
 General: Wang, C. Y., 2.
 Manganese: Park, R. D., 2.
 Tin: Ridge, J. D., 2.
 Uranium: Dake, H. C., 2.
 North Carolina, Blue Ridge - Piedmont, copper-zinc: Kendall, H. F.
 Cashiers and Zirconia districts, pegmatites: Olson, J. C., 1.
 Eastern Piedmont, high-alumina minerals: Broadhurst, S. D., 2.
 Pegmatite district: Steel, W. G.
 Ridgeway - Sandy Ridge district, mica: Griffiths, W. R., 2.
 Shelby-Hickory district and outlying areas, mica: Griffiths, W. R., 3.
 North Dakota, sodium sulfate: Binyon, E. O.
 Northwest Territories, Coppermine River area, copper: Jenney, C. P.
 Giant Yellowknife mine: Brown, C. E. G.
 Gold: Bateman, J. D.
 Giauque Lake area, gold: Tremblay, L. P.
 Keewatin District: Lord, C. S., 1.

Mineral deposits—Continued

- Northwest Territories—Continued
 Rankin Inlet, nickel-copper: Cole, G. E.
 Yellowknife Bay area, gold-antimony ores: Coleman, L. C.
 Nova Scotia, gypsum and anhydrite: Goodman, N. R.
 Mindamar mine: Richardson, P. W.
 Wolfville area, barite: Crosby, D. G., Jr., 2.
 Oklahoma, Lake Lawtonka area, ilmenite, alluvial sands: Chase, G. W., 1.
 Wichita Mts., titanium black sands: Chase, G. W., 3.
 Ontario, Algoma district, pyritic ore bodies: Douglas, G. V., 2.
 Chibougamau area, copper-gold-zinc: Al-lard, G.
 Copper, nickel, lead, zinc: Thomson, J. E., 1.
 Craigmont corundum mine: Carlson, H. D., 1.
 Errington Township: Pye, E. G.
 Falconbridge ore deposit: Lockhead, D. R.
 Feldspar: Hewitt, D. F., 1.
 Guibord Township, gold: Prest, V. K., 3.
 Harker Township: Satterly, J., 1.
 Kirkland Lake area: Savage, W. S.
 Kyanite: Hewitt, D. F., 2.
 Long-Spragge Townships, uranium: Abraham, E. M.
 Munro Township: Satterly, J., 2.
 Munro-Beatty Townships, asbestos: Jones, W. A.
 Porcupine area, gold: Jones, W. A.
 Renfrew area: Quinn, H. A.
 Richardson radioactive deposit, Wilberforce area: Rowe, R. B., 2.
 Sillimanite: Hewitt, D. F., 2.
 Silver Islet mine, Thunder Bay, native silver: Fleener, F. L., 2.
 Sudbury area: Sudbury Geologists' Comm.
 Sudbury basin, nickel: LeBourdais, D. M.; Mutz, H. J.
 Wilberforce, Bancroft, and Craigmont-Lake Clear areas: Meen, V. B., 3.
 Oregon, industrial minerals: Kauffman, A. J., Jr.
 Jackson County, copper-nickel: Hundhausen, R. J.
 Scappoose area, limonite: Hotz, P. E., 2.
 Southeastern, mercury: Williams, H., 6.
 Pegmatite, evaluation: Rowe, R. B., 4.
 Pennsylvania, Boyertown, magnetite: Hawkes, H. E., Jr., 2.
 Friedensville mine, zinc: Hoy, R. B.
 South Mtn., iron-manganese: Foose, R. M., 2.
 Phosphate, symposium: Saint Guilhem, P. L. R.
 Pitchblende veins, features: Everhart, D. L., 2.

Mineral deposits—Continued

- Puerto Rico, Comerio-Aguas Buenas area, alunite-pyrophyllite: Smith, R. J.
 Iron: Killeen, P. L.
 Quebec, Abitibi-East, Abitibi-West, and Rouyn-Noranda Counties: Graham, R. B., 1.
 Belleterre area, gold: Auger, P. E., 1.
 Brongniart-Lescure area: Lyall, H. B.
 Chibougamau region: Graham, R. B., 2.
 Decoeur-Garon properties, copper-zinc sulfides: Hogg, G. M.
 Eastern townships, base metals: Hall, F. E.
 McKenzie Township: Smith, J. R.
 Northwestern: Gilbert, J. E. J., 2.
 Pontgravé-Bergeronnes area, mica: Greig, E. W.
 Preissac-Lacorne region, beryl-spodumene pegmatites: Rowe, R. B., 3.
 St. Magloire area, gold, nickel-copper-zinc: Béland, J.
 St. Urbain area, ilmenite: Karpoff, D.
 Ungava Bay, iron formations: Auger, P. E., 3.
 Wacouno River area, metallic minerals: Blais, R. A., 1.
 St. Pierre and Miquelon, Grand Columbi-er Islet, iron: Blondel, F., 2.
 Saskatchewan, Black Bay area, pitchblende: Hale, W. E.
 Charlebois Lake area, uraninite: Mawdsley, J. B., 1, 3.
 Goldfields area, uranium: Macdonald, J. Randal.
 Goldfields-Martin Lake area, uranium, gold: Christie, A. M., 2.
 Lake Athabasca, uranium: Robinson, S. C., 1.
 South Carolina, Chesterfield County, topaz: Peyton, A. L.
 Hartwell district and outlying areas, mica: Griffiths, W. R., 4.
 South Dakota: S. Dak. Nat. Res. Comm.
 Bald Mtn. mining district, gold: Hummel, C. L.
 Black Hills, beryl: Tullis, E. L., 3.
 Pegmatitic: Page, L. R., 2; Runke, S. M.
 Craven Canyon area, carnotite: Page, L. R., 1.
 Edgemont area, uranium-vanadium: Bales, W. E.
 Lawrence County, autunite: Vickers, R. C.
 Tennessee, Blue Ridge-Piedmont, copper-zinc: Kendall, H. F.
 Texas, Hazel mine, copper-silver: Flawn, P. T., 2.
 Trans-Pecos, Eagle Mts., fluorspar: Giller-man, E., 2.
 Van Horn area, copper, silver: King, P. B., 3.
 Titanium: Barksdale, J.

Mineral deposits—Continued

- United States, bauxite and high alumina clays: Allen, V. T., 1.
 Bentonite: Reynolds, D. H.
 Cobalt: Vhay, J. S., 1.
 Columbia basin, alumina: Sohn, I. G., 1.
 Iron, types: Dutton, C. E.
 Lithium-bearing: Chapman, E. P., Jr.
 Manganese: Park, R. D., 1.
 Megashear zone, Virginia to California: Keith, B. A., 2.
 Molybdenum: Kelley, V. C., 5.
 Pitchblende: King, R. U., 1.
 Secondary uranium: Stugard, F., Jr., 1.
 Southeastern, kyanite quartzite: Espenshade, G. H., 3.
 Monazite: Mertie, J. B., Jr., 1.
 Relation to metamorphic rocks: Stuckey, J. L., 4.
 Southeastern Piedmont, mica: Jahns, R. H., 1.
 Uraniferous fluorite: Wilmarth, V. R., 1.
 Uranium: Kaiser, E. P., 1; McKelvey, V. E., 6; Merritt, P. L.
 Sandstones: Wyant, D. G.
 Shales, lignites, limestones: Gott, G. B., 2.
 Vermiculite: North, O. S.
 Western, aggregates: Holland, W. Y.
 Uranium-copper reconnaissance: Gott, G. B., 1.
 Utah, Big Indian district, San Juan County, uranium: Steen, C. A.
 Bingham mine, copper: Stringham, B. F., 2, 4.
 Bull Valley, iron: Zoldok, S. W.
 Bulloch claims, Kane County, uranium: Beroni, E. P.
 Great Western mine, Piute County, sequence: Evans, M. T.
 Harrington-Hickory mine, lead-zinc: Townsend, J. W.
 Henry deposits, gypsum: Christiansen, F. W., 2.
 Little Grand district, manganese: Baker, A. A., 1.
 San Juan County, uranium: Rasor, C. A., 1.
 Silver Reef district, silver-copper-vanadium-uranium: Proctor, P. D., 1, 2.
 Southeastern, manganese: Baker, A. A., 1.
 Thomas Range, uraniferous fluorspar: Staatz, M. H., 2.
 Thompsons area, uranium-vanadium, carnotite: Stokes, W. L., 2.
 Washington and Kane Counties, uranium in sandstone: Stugard, F., Jr., 2.
 White Canyon area, uranium: Benson, W. E. B.
 White Pine Canyon, molybdenum: Buranek, A. M., 2.
 Yellow Canary deposit, uranium: Wilmarth, V. R., 2.

Mineral deposits—Continued

- Vermont, Elizabeth copper deposit: Mikola, A. K.
 Orange County, copper: White, W. S., 4.
 Virginia, Amelia district, mica: Lemke, R. W., 1.
 Austinville basin, zinc: Brown, W. H.
 James River - Roanoke River district, manganese-iron-barite: Espenshade, G. H., 2.
 Morefield mine, pegmatitic: Geehan, R. W.
 Ridgeway-Sandy Ridge district and outlying areas, mica: Griffiths, W. R., 2.
 Washington, Bead Lake district: Schroeder, M. C., 1.
 Cle Elum River nickeliferous iron: Lamey, C. A.
 Holden mine, gold-copper-zinc: Youngberg, E. A.
 Industrial minerals: Kauffman, A. J., Jr.
 Metaline mining district, lead-zinc: Albrethsen, A.
 Snohomish County, copper: Toepfer, P. H.
 West Indies, St. Martin Island, manganese-iron: Staargaard, J. A.
 Wisconsin, Beetown area, lead-zinc: Heyl, A. V., Jr.
 Wyoming: Osterwald, F. W.
 Albany County, magnetite-ilmenite: Hild, J. H.
 Carbon County, vermiculite: Young, W. A., Jr.
 Laramie area: Wilson, W. H.
 Laramie Range: Hagner, A. F.
 Miller Hill area, Carbon County, uranium: Love, J. D., 3.
 Pumpkin Buttes area, uranium: Love, J. D., 2.
 Southwestern, trona: Romano, C. A.
 Yukon, Dezadeash area, gold: Kindie, E. D.
 Whitehorse area, gold, sulfides: Wheeler, J. O.
 Mineral deposits, origin.
 Alabama, Birmingham area, iron: Thoenen, J. R.
 Alaska, Brooks Mtn. area, zeunerite: West, W. S., 6.
 Jumbo Basin, magnetite: Kennedy, G. C.
 Sheep Mtn., gypsum: Eckhart, R. A.
 Southeastern, Chichagof Island, gypsum: Flint, G. M., Jr.
 Antimony: Wang, C. Y., 1.
 Appalachians, hoegbomite in emery deposits: Friedman, G. M., 2.
 Arizona, Cochise County, Johnson camp, copper-zinc: Baker, A., 3d.
 Copper Giant claims, copper: Romslo, T. M.
 Iron King mine, metallic minerals: Creasey, S. C., 1.
 Ray area, copper: Clarke, O. M., Jr., 1.
 San Manuel copper deposit: Schwartz, G. M., 5.

Mineral deposits, origin—Continued

Arizona—Continued

- White Picacho district, pegmatites: Jahns, R. H., 2.
- Arizona-Nevada, Lake Mead region, manganese: McKelvey, V. E., 1.
- Arkansas, bauxite: Gordon, M., Jr., 1.
- Western, quartz crystals: Engel, A. E. J., 1.
- Bauxite, North America: Fischer, E. C.
- Variations in origin, examples: Harder, E. C.
- Bentonite, origin, early ideas: Knechtel, M. M., 2.
- British Columbia, Omineca batholith, copper: Noel, G. A.
- Salmo area, lead-zinc: Wishaw, Q. G.
- Sheep Creek mining camp, gold: Mathews, W. H., 3.
- South Tetsa River area, copper: Menzies, M. M.
- Southern, Tertiary orogeny: White, W. Harrison.
- Spillamacheen River headwaters, replacement sequence: Simpson, D. H.
- Violamac mine, silver-lead-zinc, structural control: Ambrose, J. W.
- California, Afterthought mine, copper-zinc: Albers, J. P., 1.
- Gypsum: Ver Planck, W. E., Jr.
- Madera-Fresno-Tulare Counties, tungsten: Krauskopf, K. B., 2.
- Mammoth mine, copper-zinc: Kinkel, A. R., Jr.
- Mountain Pass area, rare earths: Olson, J. C., 2.
- Southern, strontium: Durrell, C.
- Canada, iron, types: Tanton, T. L., 1.
- Uranium and thorium: Lang, A. H.
- Canadian Shield, uranium age, relation to origin: Collins, C. B., 1.
- Carbonate rocks, permeability on heating: Maxwell, J. C., 2.
- Colorado, Battle Mtn. district, Eagle mine, zinc: Radabaugh, R. E.
- Boulder Creek tungsten district: Lovering, T. S., 1.
- Climax molybdenum deposit: Sears, C. E., Jr.
- Freeland-Lamartine district, sulfides: Harrison, J. E., 2.
- Front Range belt, pitchblende: Leonard, B. F., 3d, 3.
- Jamestown, Blue Jay mine, uranorthorite in fluorite breccia: Phair, G., 1.
- Leadville-Mosquito Range district: Behre, C. H., Jr., 2.
- San Juan Mts., uranium-bearing: Burbank, W. S., 1.
- South-central, mineral belt, relations: Gabelman, J. W., 2.
- Refractory clay: Waagé, K. M., 2.
- Colorado Plateau, pitchblende in sedimentary rocks: Rosenzweig, A.

Mineral deposits, origin—Continued

Colorado Plateau—Continued

- Salt Wash sandstone, uranium: Stokes, W. L., 10.
- Uraninite: Miller, L. J., 2; Stieff, L. R., 4.
- Uranium: Rasor, C. A., 2; Weeks, A. D., 2.
- Carnotite and blue-black ores: Garrels, R. M., 4.
- Sandstone: Wright, R. J., 2.
- Uranium-vanadium: Waters, A. C.
- Copper deposits, porphyry: Schmitt, H. A., 1.
- Cosmic collision, thermal effects: Kelly, A. O., 2.
- Cuba, nickel: U. S. Bur. Mines, 3.
- Dominican Republic, Duarte Province, iron: Zoppis, R.
- Florida, land-pebble phosphate: Cathcart, J. B., Jr.
- Fluid inclusions, significance: Roedder, E. W., 2.
- Georgia, kaolin: Kesler, T. L.
- Northwestern, bauxite: White, W. S., 1.
- Gulf Coastal Plain, sulfur, isotopic abundance: Feely, H. W.
- Idaho, Coeur d'Alene silver belt, ore-indicator minerals: Mitcham, T. W.
- Fall Creek area, uraniferous coal: Vine, J. D., 3.
- Mineral district, metallic minerals: Anderson, A. L., 4.
- Ores, deep basic magma source: Anderson, A. L., 3.
- Seafoam mining district, gold-silver-lead-zinc: Treves, S. B.
- Sunshine mine, uranium: Kerr, P. F., 2.
- Volcano district, gold-silver, base-metal lodes: Allen, R. M., Jr.
- Washington County, gypsum: McDivitt, J. F.
- Yellowjacket district, gold-copper-lead: Anderson, A. L., 5.
- Igneous rocks, base metals, geochemistry: Wilson, H. D. B., 2.
- Illinois, southern, siliceous materials: Lamar, J. E., 2.
- Iron, sedimentary, relation of Eh and pH: Huber, N. K., 2.
- Symposium: Blondel, F., 3.
- Jamaica, Marshall's Hall area, manganese: Zans, V. A., 3.
- Kentucky, Salem area, zinc: Oesterling, W. A.
- Western, limonite: Nelson, V. E.
- Labrador-Quebec, Burnt Creek - Goodwood area, iron: Dufresne, C.
- Labrador trough, pre-Cambrian iron formations: Harrison, J. M., 3.
- Lake Superior region, iron, popular account: Pfeiffer, J.
- Louisiana-Texas, sulfur, isotope studies: Thode, H. G., 2.

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- Manitoba, Lynn Lake deposit, nickel: U. S. Bur. Mines, 3.
- Rice Lake area, gold: Davies, J. F., 2.
- Massachusetts, Betts mines area: Franks, P. C., 2.
- Metallic minerals in limestone, synthetic replacement: Garrels, R. M., 2.
- Mexico, Avalos-Providencia district, silver-lead-zinc: Triplett, W. H.
- Canoas district, mercury: Gallagher, D.
- Guadalupe mine, Nuevo León: Whiting, F. B.
- Guanajuato area, alunite: Larios Torres, H.
- Gold-silver: Milton, C., 2.
- Huahuastla mercury district, Guerrero, mosessite: Switzer, G. S., 3.
- Iron: González Reyna, J., 3.
- Lead-zinc, relation to fossils, strata, lithology: Mullerried, F. K. G., 3.
- Mercedes mine, Nuevo León, phosphate: Cady, J. G.
- Nuevo León, phosphorites: Pérez Martínez, J. J., 1.
- Pachuca district, silver-bearing veins, hydrothermal alteration: Thornburg, C. L.
- Pachuca-Real del Monte district, silver, relation of dikes: Geyne, A. R.
- Radioactive minerals: González Reyna, J., 2.
- Reyes area, Durango, copper: Schulze, G., 3.
- San José mine, San Luis Potosí, antimony: Archibald, J. C., Jr.
- San Rafael mine, San Luis Potosí, sulfur: González Reyna, J., 1.
- Michigan, copper: Broderick, T. M.
- Soft iron ore, relation to oxidation: Mann, V. I.
- Mineralized veins, relation to sills in volcanic formations: Schulze, G., 1.
- Minnesota, Duluth gabbro, near Ely, copper-nickel: Schwartz, G. M., 2.
- Spring Valley area, sedimentary iron: Thiel, G. A., 3.
- Missouri, Hayden Creek mine, lead ore in conglomerate: Ohle, E. L., Jr., 1.
- High-alumina clays: Keller, W. D., 1.
- Iron Mtn. alteration sequence: Allen, V. T., 2.
- Southeastern, lead, structural environments: James, J. A.
- Torbernite: Keller, W. D., 2.
- Molybdenum: Kelley, V. C., 5.
- Montana, Butte area, zinc, zonal arrangement: Linforth, F. A.
- Jorundum: Clabaugh, S. E., 1.
- Elliston mining district, lead, zinc, silver, gold: Robertson, F. S., 7.
- Little Rocky Mts., Ruby Gulch, gold: Dyson, J. L., 5.

Mineral deposits, origin—Continued

- Montana—Continued
- Zosell (Emery) mining district, gold, sulfides: Robertson, F. S., 3.
- Montana-North Dakota, sodium sulfate: Witkind, I. J.
- Nevada, Currant Creek, magnesite district: Faust, G. T., 1.
- Reese River district: Ross, C. P., 2.
- Sloan area, dolomite: Deiss, C. F., 1.
- New Jersey, Andover mining district, iron: Sims, P. K., 1.
- Dover district, magnetite: Sims, P. K., 2.
- Franklin area, geochemical control: Ridge, J. D., 1.
- Ringwood area, magnetite: Hotz, P. E., 3.
- New Mexico, Burro Mts. area, fluorspar: Gillerman, E., 1.
- Caballo Mts.: Kelley, V. C., 1.
- Capitan iron deposit: Kelley, V. C., 3.
- Central mining district, Hanover mine, zinc: Horton, J. S.
- Grants district, uranium: Towle, C. C.
- Hansonburg district, barite-fluorite-galena: Kottowski, F. E., 1.
- Mora County, Pidlite pegmatites, lithium-bearing: Jahns, R. H., 4.
- Palomas district, lead-zinc-silver: Jicha, H. L., Jr., 3.
- Questa molybdenum mine, molybdenite: Schilling, J. H.
- Vanadium area zinc mines, rhodonite: Allen, V. T., 5.
- Victorio Mts., beryllium minerals: Holsen, W. T., 1.
- White Signal district, Merry Widow claim, uranium: Granger, H. C.
- New York, Clinton County, magnetite: Postel, A. W.
- Cortlandt complex, emery: Steenland, N. C., 1.
- Cortlandt Township, sapphirine in emery: Friedman, G. M., 1.
- Mohawk Valley, carbonaceous substance: Dunn, J. R., 3.
- Oriskany (Rome) quadrangle, Clinton iron ores: Dale, N. C.
- Sterling Lake area, magnetite: Hotz, P. E., 3.
- Newfoundland, Bay of Islands igneous complex, chromite: Smith, Charles H.
- Fortune Bay, Long Harbour, fluorite: Smith, B. L.
- Wabana iron: Rose, E. R.
- Nicaragua, La Luz mine, mineralization: Nelson, G. A.
- Nickel minerals from melts: Haw, V. A.
- North Carolina, eastern Piedmont, high-alumina minerals: Broadhurst, S. D., 2.
- North Dakota, sodium sulfate: Binyon, E. O.
- Northwest Territories, Giant Yellowknife mine: Brown, C. E. G.

Mineral deposits, origin—Continued

Northwest Territories—Continued

Giant Yellowknife mine, austrobitite:

Graham, A. R., 1.

Gold: Bateman, J. D.

Giauque Lake area, gold: Tremblay, L. P.

Yellowknife area, gold: Boyle, R. W., 2;

Sproule, W. R.

Gold-antimony ores: Coleman, L. C.

Yellowknife-Beaulieu region, pegmatites:

Rowe, R. B., 1.

Nova Scotia, gypsum and anhydrite: Goodman, N. R.

Mindamar mine, zinc-lead-copper: Watson, K. D., 2.

Wolfville area, barite: Crosby, D. G., Jr., 2.

Ontario, Algoma district, pyritic ore bodies: Douglas, G. V., 2.

Chesterville mine, austrobitite: Graham, A. R., 1.

Chibougamau area, copper-gold-zinc: Allard, G.

Cobalt area, cobalt-arsenic: Sampson, E. Spectrographic evidence: Hriskevich, M. E.

Craigmont corundum mine: Carlson, H. D., 1.

Errington township: Pye, E. G.

Munro township: Satterly, J., 2.

Richardson radioactive deposit, Wilberforce area: Rowe, R. B., 2.

Sudbury area, nickel: Mutz, H. J.; U. S. Bur. Mines, 3.

Ore deposition, contrasting permeability, major cause: Mackay, R. A.

Relation to present topography, examples: Reid, J. A.

Oregon, Scappoose area, limonite: Hotz, P. E., 2.

Southeastern, mercury: Williams, H., 6.

Oxide ores, late magmatic: White, C. H.

Pegmatite districts, zoning: Heinrich, E. W., 4.

Pegmatite minerals, giant crystals: Jahns, R. H., 4.

Pennsylvania, Mercer fire clay: Bolger, R. C., 2.

South Mtn., iron-manganese: Foote, R. M., 2.

Phosphate, symposium: Saint Guilhem, P. L. R.

Pitchblende veins, features: Everhart, D. L., 2.

Pressure effects: Mutch, A. D., 2.

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Attikamagen Lake area, iron: Kirkland, R. W.

Bellevue area, gold: Auger, P. E., 1.

Connelly Lake area, jasper: Osborne, F. F., 3.

Malartic gold deposits: Eakins, P.

Mineral deposits, origin—Continued

Quebec—Continued

Northwestern: Gilbert, J. E. J., 2.

O'Brien mine, gold: Blais, R. A., 2.

Preissac-Lacorne region, beryl-spodumene pegmatites: Rowe, R. B., 3.

Saguenay county, titanomagnetite, spinel-group phases, intergrowth:

Girault, J. P., 2.

Ungava Bay, iron formations: Auger, P. E., 3.

West Portland township, apatite and mica: Robinson, E. G.

Relation to dolomite: Heddl, D. W.

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Saskatchewan, Birch Lake deposit, copper: MacDougall, J. F.

Charlebois Lake area, uraninite: Mawdsley, J. B., 1, 3.

Goldfields area, uranium: Macdonald, J. Ranald.

Goldfields-Martin Lake area, uranium, gold: Christie, A. M., 2.

Lake Athabasca, uranium: Robinson, S. C., 1.

MacLeod-Cockshutt mine, gold: Morrow, H. F.

Sillimanite-group minerals, veins, paragenesis: Heinrich, E. W., 5.

South Dakota, Black Hills, pegmatitic: Page, L. R., 2.

Black Hills, perthite pegmatites, metasomatism: Higazy, R. A.

Lawrence County, autunite: Vickers, R. C.

Sulfur, native: Macnamara, J.

Temperature-pressure data, possible uses: Smith, F. G., 2.

Texas, Hazel mine, copper-silver: Flawn, P. T., 2.

Presidio County, native lead: Lonsdale, J. T., 2.

Trans-Pecos, Eagle Mts., fluor spar: Gillerman, E., 2.

Van Horn area, copper, silver: King, P. B., 3.

United States, bauxite and high alumina clays: Allen, V. T., 1.

Eastern, magnetite: Friedman, G. M., 4. Iron, types: Dutton, C. E.

Southeastern, kyanite quartzite: Espenshade, G. H., 3.

Southeastern Piedmont, pegmatitic: Jahns, R. H., 1.

Southern, bauxite: U. S. Bur. Mines, 5. Uranium, general: Burwell, B.

Western, aggregates: Holland, W. Y.

Phosphoria formation, phosphorite: McKelvey, V. E., 2.

Uranium: Everhart, D. L., 1.

Utah, Big Indian district, San Juan County, uranium: Steen, C. A.

Bingham copper mine, mineralization: Stringham, B. F., 2.

Mineral deposits, origin—Continued

Utah—Continued

- Henry deposits, gypsum: Christiansen, F. W., 2.
 Pelican Hills, calcite-aragonite: Bullock, K. C., 3.
 San Juan County, uranium: Rasor, C. A., 1.
 San Rafael swell area, celestite: Crawford, A. L., 3.
 Silver Reef area, silver-copper-vanadium-uranium: Proctor, P. D., 1, 2.
 Southeastern, manganese: Baker, A. A., 1.
 Thompsons area, carnotite: Stokes, W. L., 2.
 White Canyon area, uranium: Benson, W. E. B.; Miller, L. J., 1.
 Vermont, Orange County, copper: White, W. S., 4.
 Sterling Pond area, talc: Chidester, A. H., 3.
 Virginia, Riverside mine, magnetic hematite: Cooper, B. N., 4.
 Washington, Cle Elum River nickeliferous iron: Lamey, C. A.
 Holden mine, gold-copper-zinc: Youngberg, E. A.
 West Indies, St. Martin Island, manganese-iron: Staargaard, J. A.
 Wyoming, Laramie Range: Hagner, A. F.
 Miller Hill area, Carbon County, uranium: Love, J. D., 3.
 Pumpkin Buttes area, uranium: Love, J. D., 2.
 Southwestern, trona: Romano, C. A.

Mineral descriptions. *See also* Mineralogy.

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 Allophanes, Indiana: White, W. Arthur.
 Analcime, Utah: Keller, W. D., 7.
 Wyoming: Keller, W. D., 3.
 Augelite, New Hampshire: Seaman, D. M., 2.
 Aurostibite, new: Graham, A. R., 1.
 Axinite, manganoan, New Jersey: Milton, C., 1.
 Barite, Illinois: Shrode, R. S., 1.
 Bassanite, California: Allen, R. D., 2.
 Bavenite: Fleischer, M., 7.
 Bayleyite, Utah: Stern, T. W.
 Becquerelite: Frondel, J. W., 2.
 Belyankite, discredited (?): Fleischer, M., 4.
 Benjaminite, Nevada: Nuffield, E. W., 3.
 Berthierite, crystal structure: Buerger, M. J., 1.
 Billietite: Frondel, J. W., 2.
 Bindheimite: Mason, B. H., 4.
 Biotite, Montana, unusual: Robertson, F. S., 1.
 Brucite, crystal structure: Brindley, G. W., 1.
 Burbankite, Montana, new: Pecora, W. T., 1.

Mineral descriptions—Continued

- Bystromite, Mexico, new: Mason, B. H., 2.
 California minerals: Murdoch, J., 1.
 Calkinsite, Montana, new: Pecora, W. T., 1.
 Callaghanite, Nevada, new: Beck, C. W., 4.
 Canada, western, ore minerals: Thompson, Robert M.
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 Carbonate-fluorapatite, new variety, structure: Altschuler, Z. S.
 Carnotite, crystal structure: Donnay, G., 6.
 Celestite, Utah: Crawford, A. L., 3.
 Cervantite, discredited (?): Vitaliano, C. J.
 Chalcedony, iris agate, diffraction grating structure: Jones, F. T.
 Chialstolite, Massachusetts: Shaub, B. M., 1.
 Chinoite, New Mexico: Beck, C. W., 1.
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 Clay mineral, aluminous, British Columbia, new: Hauser, E. A., 2.
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 Clintonite, Montana: Knopf, A., 3.
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 Colemanite, crystal structure: Christ, C. L., 1.
 Colusite, Montana, cf. germanite, renierite: Murdoch, J., 2.
 Conichalcite, space group, Arizona-Utah: Qurashi, M. M., 4.
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 California: Pabst, A., 1.
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 Cuprobismuthite, Colorado, valid: Nuffield, E. W., 1.
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 Dewindtite: Hogarth, D. D.
 Dumortierite: Douglass, R. M.
 Montana: Graham, C. E.
 Duplexite: Fleischer, M., 7.
 Ekmanite, crystal structure: Nagy, B., 4.
 Endellite: Sand, L. B., 1.
 Eucryptite, alpha: Mrose, M. E., 3.
 Faustite, Nevada, new: Erd, R. C.
 Fergusonite, dimorphic: Berman, J., 1.
 Fluorapatite, luminescent, Georgia: Cofer, H. E., 3.
 Fluorite: Allen, R. D., 1.
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 Gahnite, Georgia: Cofer, H. E., 2.
 Garnet minerals, crystals and inclusions: Smith, F. G., 1.
 Genthelvite, Colorado: Glass, J. J.
 Glaucophane, California and Cuba: Schürmann, H. M. E.
 Goyazite, New Hampshire: Mrose, M. E., 4.
 Greenland, minerals: Boggild, O. B.
 Guadarramite, discredited: Switzer, G. S., 1.
 Gummite: Frondel, C., 6.

Mineral descriptions—Continued

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 Hidalgoite, Mexico, new: Smith, R. L.
 Hoegbomite, North Carolina: Friedman, G. M., 2.
 Hornblendes, New York: Buddington, A. F., 3.
 Huntite, Nevada, new: Faust, G. T., 1.
 Hurlbutite, New Hampshire, new: Mrose, M. E., 1.
 Hyalite, Texas: Hutchinson, R. M., 2.
 Hydrohausmannite, New Jersey, new: Frondel, C., 4.
 Inyoite, meyerhofferite, crystal structure: Christ, C. L., 1.
 Iron vanadate, Saskatchewan, new: Barnes, W. H.
 Jacobsite, cell edge: McAndrew, J.
 Johannsenite, New Mexico: Allen, V. T., 3.
 Kamaelite: Buddhue, J. D.
 Kaolinite, Sand, L. B., 1.
 Kornerupine, Quebec: Girault, J. P., 1.
 Leucospheerite, Utah, revised formula: Milton, C., 3.
 Lindgrenite, Idaho: Cannon, R. S., Jr.
 Lipscombite, synthetic: Gheith, M. A., 3.
 Livingstonite, crystal structure: Buerger, M. J., 2.
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 Mica, rose muscovite: Heinrich, E. W., 3.
 Monticellite, California: Kouvo, J. A. O.
 Montmorillonite: Earley, J. W., 1.
 Montroseite, Colorado: Evans, H. T., Jr., 1.
 Colorado-Utah, new: Weeks, A. D., 1.
 Crystal structure: Evans, H. T., Jr., 2.
 Moonstone, New York: Schaub, B. M., 3.
 Mosesite, Mexico: Switzer, G. S., 3.
 Murdochite, Arizona, new: Fahey, J. J.
 Crystal structure: Christ, C. L., 3.
 Muscovite, southeastern Piedmont: Jahns, R. H., 1.
 Nasonite, California: Murdoch, J., 4.
 Nephrite, California: Chesterman, C. W., 2.
 North Carolina minerals, identification chart: Stuckey, J. L., 1.
 Ordoñezite, Mexico, new: Switzer, G. S., 5.
 Palermoite, New Hampshire, new: Mrose, M. E., 4.
 Paracelsian, crystal structure: Smith, J. V., 3.
 Single-crystal measurements: Smith, J. V., 1.
 Partzite: Mason, B. H., 4.
 Pavonite, new: Nuffield, E. W., 4.
 Pegmatite minerals, giant crystals: Jahns, R. H., 4.
 Phosphate, beta tricalcium, Mexico: Cady, J. G.
 Phosphuranylite: Hogarth, D. D.

Mineral descriptions—Continued

- Pisanite, Manitoba: Keating, L. F., 1, 2.
 Pleonaste, New Mexico: Beck, C. W., 3.
 Polyhalite, Kansas: Swineford, A.
 Powellite and pseudomorphs, Nevada: Goudy, H.
 Pucherite, crystal structure: Qurashi, M. M., 1, 2.
 Rhodonite, New Mexico: Allen, V. T., 3.
 Riversideite: Taylor, H. F. W.
 Robinsonite, Nevada, new: Berry, L. G.
 Roentgenite, Greenland, new: Donnay, G., 3.
 Sahamallite, California, new: Jaffe, H. W., 1.
 Salite, Missouri: Allen, V. T., 2.
 Saponite, Utah: Cahoon, H. P.
 Sapphirine, New York: Friedman, G. M., 1.
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 Serpentine, textural pattern: Nagy, B., 2.
 Shortite, Utah: Crawford, A. L., 1; Erickson, M. P.
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 Soddyite: Gorman, D. H.
 Spinel, red, synthetic: Gubelin, E. J., 1.
 Spodumene minerals: Claffy, E. W.
 Stetefeldite: Mason, B. H., 4.
 Stevensite, New Jersey, redefined: Faust, G. T., 3.
 Stibiconite: Vitaliano, C. J.
 Strontianite apatite, Montana: Larsen, E. S., Jr., 1.
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 Taenite: Buddhue, J. D.
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 Thucholite, Ontario: Barthauer, G. L.
 Tilleyite, crystal structure: Smith, J. V., 2.
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 Titanite, Georgia, crystals: Rogers, W. S.
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 Tridymite, Mexico: Mason, B. H., 5.
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 Uraninite, Utah: Rasor, C. A., 1.
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 Viséite, analcime structure: McConnell, D., 2.
 Wardite, New Hampshire: Hurlbut, C. S., Jr., 3.
 Woodruffite, New Jersey, new: Frondel, C., 4.
 Xonotlite, Puerto Rico: Kaye, C. A., 2.
 Zippeite, synthetic: Traill, R. J.
 Zircon, weatherability: Carroll, D., 3.
 Zoned, Oklahoma: Larsen, E. S., Jr., 3.
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 Lyon County: O'Connor, H. G., 3.
 Volcanic ash: Carey, J. S.
 Kentucky, Paintsville quadrangle: Hauser, R. E.
 Labrador-Quebec, Ungava Peninsula: Buisson, A.
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 New Mexico: Stubbs, M. F.
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Appalachians, trilobite faunas, central: Wilson, J. L., 2.

Archaeocyatha: Okulitch, V. J., 1.

British Columbia, trilobites, Eager formation: Best, R. V.

California, Archaeocyatha, Bishop quadrangle: Okulitch, V. J., 2.

Trilobites, Marble Mts.: Riccio, J. F.

Mexico, Caborca area, Sonora: Cooper, G. A., 5.

Minnesota, trilobites, Franconia formation: Bell, W. C.; Berg, R. R., 2.

Missouri, trilobites, Eminence dolomite: Rasetti, F. R. D., 2.

North America, trilobites, Eodiscidae: Rasetti, F. R. D., 1.

Nova Scotia, trilobites, Cape Breton Island: Hutchinson, R. D., 1.

Quebec, trilobite, Gaspé area: Hutchinson, R. D., 2.

Texas, Marathon region: Wilson, J. L., 1.

Trilobites, Atlantic fauna, Marathon uplift: Wilson, J. L., 3.

Trilobites, *Aculeodiscus* and *Dawsonia*, validity: Sinclair, G. W., 3.

Cephalic sutures, taxonomy: Rasetti, F. R. D., 3.

Classification, families: Lochman, C., 2.

New names for homonyms: Lochman, C., 1.

Dikelocephalids, taxonomy and nomenclature, revision: Raasch, G. O., 1.

Paleontology—Continued

Cambrian—Continued

Trilobites—Continued

Eyeline evolution: Tasch, P., 1.

Pagetia, nomenclature: Öpik, A. A.

Utah, trilobites, northern, Late: Hanson, A. M., 3.

Vermont, invertebrates, Gorge formation: Shaw, A. B., 3.

Trilobites and gastropods, Rockledge conglomerate: Shaw, A. B., 1.

Wisconsin, trilobites, Franconia formation, zonation: Berg, R. R., 2.

Carboniferous.

Alberta, brachiopods, Mt. Greenock area: Brown, R. A. C.

Appalachian basin, microfossil floras in coals: Cross, A. T., 3.

Arkansas, goniatites: Gordon, M., Jr., 3.

Problematic fossils, origin: Henbest, L. G., 6.

British Columbia, echinoid, early: Kier, P. M., 2.

Canada, Rocky Mts., age relations: Harker, P., 3.

Greenland, flora, eastern: Halle, T. G.

Indiana, spore analyses, coal seams, Allegheny series: Guennel, G. K., 1.

Kansas, fish: Rayner, D. H.

North America, sharks: Hotton, N., 3d.

United States, calamitean stems, central: Andrews, H. N., Jr., 3.

Utah, Paradox Basin: Heylman, E. B., Jr.

Cenozoic.

Atlantic Ocean, northern, Foraminifera: Phleger, F. B., Jr., 1.

California, insect remains in asphalt deposits: Pierce, W. D.

Canada, mollusks, catalog: La Rocque, J. A. A., 2.

Central America, mammals, development: Simpson, G. G., 2.

Cuba, fauna origins: Aguayo, C. G.

Florida, Foraminifera, southern: Schroeder, M. C., 3.

Mammals, list and bibliography: Sherman, H. B.

Honduras, fossil lists: Flores, G.

Mexico, Guanajuato area, mammals: Arelano, A. R. V., 2.

Tuxtla region, faunal lists: Ríos Macbeth, F.

Nicaragua, human footprints, Managua region: Williams, H., 1.

North America, mammals, development of faunas: Simpson, G. G., 6.

Plants, catalog, bibliography: Lamotte, R. S.

Cretaceous.

Alabama, turtles, Selma formation: Zangerl, R.

Alaska, plants, Petroleum Reserve No. 4: Arnold, C. A., 4.

Silicified woods, northern: Arnold, C. A., 8.

Paleontology—Continued

Cretaceous—Continued

- Alberta, hadrosaur, Oldman formation: Sternberg, C. M., 1.
 Mollusks, nonmarine, southwestern: Tozer, E. T., 3.
 Southwestern: Thompson, R. L.
 Ammonoids, classification: Wright, C. W.
 Atlantic Coastal Plain, floral lists: Dorf, E., 1.
 Birds, *Hesperornis*, *Ichthyornis*, jaws: Gregory, J. T., 1.
 British Columbia, ammonites, Vancouver Island: Usher, J. L., 1.
 California, Foraminifera, Calera limestone: Church, C. C., 1.
 Foraminifera, guide fossils: Edgell, S.
 Rudistid fauna, Pacific Coast, Late: Bandy, O. L., 3.
 Canada, hadrosaurs, classification: Sternberg, C. M., 2.
 Pelecypods, Unionidae, classification: Liberty, B. A., 9.
 Colorado, horseshoe crab: Reeside, J. B., Jr.
 Cuba, echinoderms: Sánchez Roig, M., 1.
 Echinoids: Sánchez Roig, M., 5.
 Cassiduloida, revision: Sánchez Roig, M., 2.
 Foraminifera: heterohelcid: Bronnemann, P., 7.
 Pachydont pelecypods: Mullerried, F. K. G., 1.
 Greenland, ammonites, Lindemans Fjord: Spath, L. F.
 Brachiopods, Traill Island: Muir-Wood, H. M.
 Traill Island: Donovan, D. T.
 Gulf Coastal Plain, crinoid, Taylor and Navarro age: Peck, R. E., 2.
 Foraminifera, *Choffatella*: Jordan, L., 2.
 Kansas, ammonoid opercula: Fischer, A. G., 2.
 Mexico, Foraminifera, Mendez formation: Ayala Castañares, A.
 Invertebrates, Chiapas: Maldonado-Koerdell, M., 1.
 Rudistid, Coahuila: Mullerried, F. K. G., 4.
 Sierra Madre Oriental, caves: Bonet, F., 2.
 Mississippi, ostracode, Prairie Bluff chalk, ontogeny: Shaver, R. H.
 Montana, ammonites, Mosby sandstone: Cobban, W. A., 6.
 North America, echinoids, Late: Cooke, C. W., 3.
 Elasmosaurs, descriptions: Welles, S. P., 1.
 Ostracodes: Sexton, J. V.
 Pacific Ocean, Foraminifera from seamounts: Hamilton, E. L., 1.
 South Dakota, Foraminifera and ostracodes, Niobrara formation: Bolin, E. J., 4.

Paleontology—Continued

Cretaceous—Continued

- Texas, Austin group, Williamson County, faunal zones: Young, K. P., 1.
 Foraminifera, Comanchean, northeastern: Albritton, C. C., Jr., 2.
 Del Rio shale: Bullard, F. J.
 Glen Rose formation: Stead, F. L., 1.
 Gastropods, Caprina limestone: Young, K. P., 2.
 Invertebrates, Woodbine formation: Stephenson, L. W., 1.
 Llano Estacado, faunal zones: Brand, J. P.
 Mollusks, Glen Rose formation: Whitney, M. I., 1.
 Pepper shale: Stephenson, L. W., 3.
 Nautiloids, Early: Kummel, B., Jr., 5.
 Pelecypods, Glen Rose formation: Whitney, M. I., 2.
 Trinidad, ammonites: Barr, K. W., 1.
 Foraminifera, Globigerinidae: Bronnemann, P., 3.
 United States, turtles, Protostegidae and Toxochelyidae: Zangerl, R.
 Western interior, faunal zones: Cobban, W. A., 3.
 Utah, ammonite, Mancos shale: Cobban, W. A., 2.
 Fern, Castle Dale area: Katich, P. J., Jr., 1.
 Microfossils, Coalville area: Peterson, R. H.
 West Indies, Foraminifera, Curaçao: Drooger, C. W., 2.
 Wyoming, ammonoid, Carlile shale: Cobban, W. A., 7.
 Ammonoid, Cody shale: Cobban, W. A., 2.
 Gastropods, Bear River formation: Yen, T.-C., 3.
 Microfossils, Evanston area: Peterson, R. H.
 Mollusks, Cokeville area, nonmarine: Yen, T.-C., 7.
 Porcellanite formation, nonmarine: Yen, T.-C., 2.
 Sage Junction area, ecology: Yen, T.-C., 6.
- Devonian.**
 Alberta, brachiopods: Crickmay, C. H., 2.
 Bryozoa, Hamilton formation: Perry, T. G., 2.
 Canada, corals, Mackenzie River basin: Smith, S.
 Cephalopods, *Centroceras*, ontogeny: Flower, R. H., 3.
 Corals, *Billingsastraea*, revision: Ehlers, G. M., 5.
 Greenland, stegocephalians and crossopterygians, eastern: Jarvik, E.
 Illinois, coral, Lingle limestone: Stauffer, C. R.

Paleontology—Continued

Devonian—Continued

- Iowa, holothuroid, Cedar Valley formation: Martin, W. R.
- Maryland, crinoid, New Scotland formation: Bowsher, A. L.
- Michigan, brachiopods, Traverse group, population: Imbrie, J.
- Echinoderms, Silica formation: Kier, P. M., 1.
- Hydrozoan, Sylvania sandstone: Decker, C. E., 4.
- Ostracodes, Bell shale: Kesling, R. V., 6.
- Ferron Point formation: Kesling, R. V., 7.
- Genshaw formation: Kesling, R. V., 2, 5, 9.
- Norway Point formation: Kesling, R. V., 1, 14.
- Rockport Quarry limestone: Kesling, R. V., 12.
- Trilobites, proetid, early Middle: Stumm, E. C., 4.
- Traverse group: Stumm, E. C., 3.
- Missouri, ammonoid, Snyder Creek shale: Unklesbay, A. G., 2.
- Coral, Callaway limestone: Ehlers, G. M., 3.
- Nevada, ostracodes, Mt. Lewis quadrangle: Berdan, J. M.
- New York, *Callizylon* root: Beck, C. B.
- Cayuga Lake area: Winder, C. G., 1.
- Cephalopods, Cherry Valley limestone: Rickard, L. V.
- Coral bioherms and biostromes, Onondaga limestone: Oliver, W. A., Jr.
- Corals, Hamilton group: Ross, M. H., 1.
- Ophiuroid, Enfield formation: Wells, J. W., 2.
- Ostracode, Wanakah shale: Kesling, R. V., 8.
- Plant, Hamilton group: Arnold, C. A., 3.
- Prosseria*: Read, C. B.
- Trilobite, Onondaga limestone, Buffalo: Sargent, J. D.
- Williamsville area: Stumm, E. C., 6.
- North America, brachiopods, guide fossils, western: Crickmay, C. H., 1.
- Ostracodes, hollinid, dimorphism: Kesling, R. V., 3.
- Tetracorals, types: Stumm, E. C., 2.
- Ohio, trilobites, proetid, early Middle: Stumm, E. C., 4.
- Ontario, coral, Arkona shale: Stauffer, C. R.
- James Bay lowland, faunal lists: Wilson, A. E.
- Ostracodes, Arkona shale: Kesling, R. V., 10, 11, 13.
- Plant, Kettle Point shale: Arnold, C. A., 5.
- Trilobites, proetid, early Middle: Stumm, E. C., 4.
- Pennsylvania, *Archaeopteris* spores: Arnold, C. A., 9.

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Devonian—Continued

- Quebec, eurypterid, Gaspé Peninsula: Russell, L. S., 4.
- Montreal area, faunal lists: Clark, T. H., 1.
- Tennessee, ostracodes, Camden chert: Swain, F. M., Jr., 4.
- Texas, conodonts, Caballos novaculite: Graves, R. W., Jr.
- Fish remains, central, Late: Dunkle, D. H., 1.
- United States, black-shale flora, eastern interior: Hoskins, J. H.
- New Albany shale flora, east-central: Cross, A. T., 2.
- Utah, fishes, Water Canyon formation: Denison, R. H., 1.
- Wyoming, eurypterid, Early: Kjellesvig-Waering, E. N., 2.

Jurassic.

- Alaska Peninsula and Cook Inlet, ammonoids: Imlay, R. W., 4.
- Ammonoids, Berraisellidae, revision: Arkell, W. J.
- California, plesiosaur, Franciscan shale: Welles, S. P., 2.
- Canada, faunal correlation: Frebold, H.
- Greenland, ammonoids, Lindemans Fjord: Spath, L. F.
- Brachiopods, Traill Island: Muir-Wood, H. M.
- Traill Island: Donovan, D. T.
- Honduras, plants, San Juancito area, Rhaetic-Liassic: Maldonado-Koerdell, M., 5.
- Idaho-Wyoming-Utah, Twin Creek limestone, invertebrates: Imlay, R. W., 5.
- Ostracodes, Sundance formation, South Dakota-Wyoming-Montana: Swain, F. M., Jr., 3.
- Trinidad, ammonoids: Barr, K. W., 1.
- United States, ammonoids, western interior: Imlay, R. W., 4.
- Mollusks, Morrison formation, western: Yen, T.-C., 1.
- Wyoming, dinosaur bones, radioactive, western: Smith, K. G., 1.

Mesozoic.

- Alaska, Foraminifera, index species: Tappan, H. N.
- Central America, northeastern, faunal and floral facies: Mullerried, F. K. G., 5.
- Foraminifera, *Tristix*, morphology: Loeblich, A. R., Jr., 3.
- Mexico, echinoderms, description, distribution: Maldonado-Koerdell, M., 10.
- Faunal and floral facies, correlation zones: Mullerried, F. K. G., 2.
- Fish remains, Tamán area: Dunkle, D. H., 2.
- North America, silicified plants, western: Arnold, C. A., 7.
- North Carolina, Foraminifera, *Anchispiracyclina*: Jordan, L., 2.

Paleontology—Continued

Mesozoic—Continued

North Carolina—Continued

Ostracodes from wells: Swain, F. M., Jr., 2.

Oklahoma, dinosaurs, popular account: Stovall, J. W.

South Dakota, vertebrates, faunal lists: Macdonald, J. Reid, 2.

Mississippian.

Alberta, crinoids, Banff formation: Laudon, L. R., 1.

Edrioasteroid, Banff formation: Harker, P., 2.

Arizona, corals, Redwall limestone: Easton, W. H., 2.

Georgia, blastoids, giant, Ringgold area: Allen, A. T., Jr., 2.

Indiana, goniatite, Salem limestone: Miller, A. K., 7.

Illinois, fluorspar district: Weller, J. M., 1.

Foraminifera, endothyroid, Chesteran: Zeller, D. E. N.

Kentucky, coral, *Palaeostraea*: Ehlers, G. M., 4.

Foraminifera, endothyroid, Chesteran: Zeller, D. E. N.

Michigan, nautiloids, Kinderhook group: Miller, A. K., 6.

Missouri, nautiloids, Sedalia and St. Joe limestones: Miller, A. K., 3.

Ostracodes, Salem limestone: Brayer, R. C.

Pierson formation, west-central: Spreng, A. C., 1.

Serpulid worm, Chouteau formation: Howell, B. F., 3.

Springfield area, S. Weller's faunal zones and collecting localities: Clark, E. L.

Montana, conodonts, Little Rocky Mts., Kinderhook: Knechtel, M. M., 4.

Crinoids, Lodgepole formation: Laudon, L. R., 2.

Nova Scotia, Cape Breton Island, Windsor group: Stacy, M. C.

Ohio, descriptions: Hyde, J. E.

Logan formation: Fagadau, S. P.

Oklahoma, cystoid: Strimple, H. L., 11.

Texas, conodonts, Barnett formation, new: Hass, W. H., 1.

Ostracodes: Sohn, I. G., 5.

United States, black-shale flora, eastern interior: Hoskins, J. H.

New Albany shale flora, east-central: Cross, A. T., 2.

Utah, cephalopods, western: Miller, A. K., 1.

West Virginia, Foraminifera, Greenbrier series: Wray, J. L.

Ordovician.

Algae, rock-building: Johnson, J. Harlan, 2.

Appalachian Valley, trilobites, Champlainian: Cooper, B. N., 2.

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Ordovician—Continued

Arkansas, ostracode: Howell, B. F., 6.

Colorado, cephalopods Harding and Manitou formations: Flower, R. H., 2.

Trilobites, Harding formation: Frederickson, E. A., Jr.

Echinodermata, *Enoploura*, and proposed revision of Carpoidea: Caster, K. E., 3.

Florida, trilobite, calymenid: Whittington, H. B., 3.

Georgia, tracks, Ringgold area: Allen, A. T., Jr., 3.

Graptolites, Athens fauna: Decker, C. E., 1.

Greenland, Danmarks Fjord, faunas: Adams, P. J.

Kentucky, graptolites, Ambrose and Covington areas: Decker, C. E., 2.

Sponge, Eden shale: Jillson, W. R., 8.

Manitoba, corals, Stony Mtn. and Red River formations: Leith, E. I.

Lake Winnipeg area, fossil lists: Baillie, A. D., 1.

Michigan, Middle and Late: Hussey, R. C.

Ostracodes, Bill's Creek shale: Kesling, R. V., 16.

Missouri, trilobite, Kimmswick formation: Howell, B. F., 5.

Nevada, Pogonip group, faunal zones: Hintze, L. F., 1.

Trilobites, Pogonip group: Hintze, L. F., 1.

Nevada-Utah, silicification of fossils: Hintze, L. F., 3.

New Mexico, Sacramento Mts.: Pray, L. C., 1.

New York, Black River Valley, middle Trentonian: Chenoweth, P. A.

Trilobites, *Ceraurus*, ontogeny, Trentonian: Evitt, W. R., 2d, 1.

Color, Trenton limestone: Garretson, M. W.

Ventral cephalic structures, Trenton limestone: Stormer, L., 1.

North America, cephalopods, eastern: Flower, R. H., 1.

Trilobites, Bathyruridae and Leiostegiidae, classification: Whittington, H. B., 4.

Ohio, echinoderms, *Enoploura*: Caster, K. E., 1.

Merostome, Corryville limestone: Caster, K. E., 2.

Oklahoma, brachiopods, Arbuckle group: Cooper, G. A., 3.

Crinoid, Bromide formation: Strimple, H. L., 10.

Cystoids: Strimple, H. L., 4.

Echinoderm, carpoid: Strimple, H. L., 9.

Graptolites, Joins formation: Decker, C. E., 3.

Sylvan shale: Decker, C. E., 7.

Viola limestone: Decker, C. E., 5; Whittington, H. B., 5.

Ontario, Dundas formation, Toronto, fossil lists: Gorrell, H. A.

Paleontology—Continued

Ordovician—Continued

Quebec, Montreal area, faunal lists: Clark, T. H., 1.

Trilobites, cryptolithid: Stäuble, A., 2.

Portneuf area: Stäuble, A., 3.

Quebec City: Stäuble, A., 1.

Trentonian: Laverdière, J. W.

Waswanipi Lake: Clark, T. H., 2.

Texas, Burnam limestone, Llano uplift, faunal list: Barnes, V. E., 17.

Marathon region: Wilson, J. L., 1.

Trilobites, Atlantic fauna, Marathon uplift: Wilson, J. L., 3.

Trilobites, *Flexicalymene*, Trentonian, exoskeletal features: Evitt, W. R., 2d, 2.

Remopleuridid: Whittington, H. B., 2.

Utah, Pogonip group, faunal zones: Hintze, L. F., 1.

Trilobites, Garden City formation: Ross, R. J., Jr., 1, 3.

Pogonip group: Hintze, L. F., 1.

Virginia, bryozoans, Tyrone formation: Ross, M. H., 2.

Foraminifera, Catawba Mtn.: Moore, W. E., 1.

Trilobite protaspids, Shenandoah Valley: Evitt, W. R., 2d, 3.

Wisconsin, graptolites, Platteville limestone, growth stages: Walker, M.

Graptolites, Kaukauna area: Decker, C. E., 2.

Paleozoic.

Afro-American linkage: Caster, K. E., 4.

Ammonoids as index fossils, American-African: Miller, A. K., 4.

Colorado, White River plateau, Dotsero and Manitou faunal lists, Cambrian-Ordovician: Bass, N. W.

Gastropod, *Naticopsis*: Yochelson, E. L.

Mexico, invertebrates: Mullerried, F. K. G., 6.

North America, faunal correlations with Australia: Teichert, C.

Ostracoda, catalog: Ellis, B. F., 2.

Pteridosperms, male fructifications: Schopf, J. M., 2.

South Dakota, vertebrates, faunal lists: Macdonald, J. Reid, 2.

Wyoming, fusulinid zones, Hartville area: Love, J. D., 4.

Pennsylvanian.

Amphibian tracks, revision: Baird, D.

Appalachian basin, vertebrates: Romer, A. S.

Vertebrates, localities: Moran, W. E.

Arthroxydon, calamitean stem: Reed, F. D.

British Columbia, fusulinids, Cache Creek limestone: Thompson, M. L., 3.

Cardiocarpus spinatus, gametophyte: Andrews, H. N., Jr., 2.

Colorado, conodonts, Glen Eyrie formation: McLaughlin, K. P., 1.

Foraminifera, Glen Eyrie shale: Lehmann, E. P.

Paleontology—Continued

Pennsylvanian—Continued

Colorado—Continued

Ostracodes, Glen Eyrie formation: McLaughlin, K. P., 1.

Colorado-New Mexico, Pennsylvanian-Permian zeugogeosyncline: Brill, K. G., Jr., 1.

Illinois, conodont assemblages: Rhodes, F. H. T., 1.

Fern rachis, Berryville area: Morgan, J., 2.

Insects: Richardson, E. S., Jr., 1.

Indiana, fern rachis, St. Wendel area: Morgan, J., 1, 2.

Kansas, cephalopods, dwarfed, Dry shale: Tasch, P., 5.

Coal-ball flora, Fleming coal: Baxter, R. W.

Mineral area: Andrews, H. N., Jr., 1.

Cordaianthus: Delevoryas, T.

Dwarfed faunas, Dry shale: Tasch, P., 4.

Lycopods, Fleming coal: Felix, C. J.

Medullosa, Fleming coal: Stewart, W. N.

Organic limestones: Lebsack, W.

Reptile, late: Peabody, F. E.

Kentucky, conodont assemblages: Rhodes, F. H. T., 1.

Mexico, fusulinids: Maldonado-Koerdell, M., 3.

Missouri, fusulinids: Thompson, M. L., 2.

Ostracodes, late: Cordell, R. J.

New Mexico, pelecypods, color marking: Brill, K. G., Jr., 2.

Ohio, ostracodes, Pottsville series: Marple, M. F.

Oklahoma, crinoids: Strimple, H. L., 5-7.

Crinoids, Ochelata area: Strimple, H. L., 1.

Goniatites, Goddard shale: Elias, M. K., 1.

Oregon, Spotted Ridge flora: Arnold, C. A., 6.

Texas, brachiopods: Cooper, G. A., 1.

Terebellid worm, Finis shale: Howell, B. F., 4.

United States, coal balls, *Medullosa*, central: Andrews, H. N., Jr., 5.

Plants, central: Andrews, H. N., Jr., 6.

West Virginia, Birmingham shale: Stewart, J. C.

Wyoming, fusulinids, Casper formation: Thompson, M. L., 1.

Permian.

Amphibians, mass death: Moustafa, Y. S., 2.

Tracks, revision: Baird, D.

Appalachian basin, microfossil floras in coals: Cross, A. T., 3.

Vertebrates: Romer, A. S.

Localities: Moran, W. E.

Arizona, mollusks, Kaibab formation, Walnut Canyon: Chronic, H.

Terebellid worm tubes: Howell, B. F., 7.

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Permian—Continued

Colorado-New Mexico, Pennsylvanian-Permian zeugogeosyncline: Brill, K. G., Jr., 1.

Greenland, edestid fishes, eastern: Nielsen, E., 1.

Mexico, El Antimonio area, Sonora: Cooper, G. A., 6.

Fusulinids: Maldonado-Koerdell, M., 3.
New Mexico, amphibians: Langston, W., Jr., 1.

Amphibians, Abo formation: Langston, W., Jr., 2.

Guadalupe Mts. area, reef complex: Newell, N. D., 2.

North America, sharks: Hotton, N., 3d.

Texas, ammonoid zones, western: Miller, A. K., 5.

Amphibians, Belle Plains formation: Moustafa, Y. S., 1.

Vale formation: Olson, E. C., 3.

Brachiopods, Glass Mts.: Cooper, G. A., 4.

Fish, Vale formation: Wilson, J. A., 2.
Fusulinids, Bone Spring formation: Dunbar, C. O.

Scurry reef: Heck, W. A., 1.
Guadalupe Mts. area, reef complex: Newell, N. D., 2.

Invertebrates, western: Williams, H. L.
Rustler formation: Walter, J. C., Jr.
Seed fern, Moran formation: Roberts, David C.

Vertebrates, San Angelo formation: Olson, E. C., 1, 4.

Vale formation: Wilson, J. A., 2.
Vertebrates, chronofauna, evolution: Olson, E. C., 2.

Wyoming, fusulinids, Casper formation: Thompson, M. L., 1.

Pre-Cambrian.

Montana, algal zones, Glacier National Park, Belt series: Rezak, R.

Quaternary.

Alaska, Foraminifera, index species: Tappan, H. N.

Seward Peninsula, Pleistocene floras, interglacial: Hopkins, D. M., 3.

Alaska-Yukon, pollen analyses, postglacial forests: Hansen, H. P., 2.

Alberta, pollen analyses, postglacial forests: Hansen, H. P., 1.

Arizona, artifacts with Naco mammoth, age: Antevs, E. V., 3; Haury, E. W.

Mammals, Tucson area, late: Lance, J. F., 2.

Mammoth, Naco area: Lance, J. F., 1.

Atlantic and Gulf Coastal Plain, Pleistocene flora, localities: Berry, E. W., 1.

Atlantic Ocean, northern, Pleistocene deep-sea cores, foraminiferal zones: Ericson, D. B., 3.

Bermuda, temperature-shell growth relations, shoal-water biota: Epstein, S., 1.

Paleontology—Continued

Quaternary—Continued

California, amphibians, Rancho La Brea, Pleistocene: Brattstrom, B. H., 1.

Foraminifera, Pleistocene: Emiliani, C., 1.

Recent, temperature relations to Los Angeles basin, Pliocene: Crouch, R. W.

Gastropod, limpet, Palos Verdes sand, Wilmington: Kanakoff, G. P.

Pliocene-Pleistocene boundary, faunal discontinuity: Woodring, W. P., 2.

Reptiles, Pleistocene: Brattstrom, B. H., 2.

Rancho La Brea, Pleistocene: Brattstrom, B. H., 1.

San Diego County, Pleistocene invertebrate list: Emerson, W. K., 2.

Vertebrates, Rancho La Brea, Pleistocene: Stock, C.

Central America, pelecypods, *Echinochama*, revision: Nicol, D., 2.

El Salvador, ostracodes: Triebel, E., 1.
Ostracodes, fresh-water, shell characteristics: Triebel, E., 2.

Felidae, auditory region, phylogenetic significance: Hough, M. J.

Florida, corals, Lake Worth, Pleistocene: Cooke, C. W., 4.

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Iowa, Aftonian interglacial flora, Lee County: Wilson, L. R., 2.

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- Maryland, vertebrates, Cumberland Bone Cave, list, Pleistocene: Nicholas, G. Wailes and Langley Bluffs, Pleistocene: Blake, S. F.
- Mexico, artifacts with mammoth, Valley of Mexico, Pleistocene: Aveleyra Arroyo de Anda, L.
- Basin of Mexico, Pleistocene: de Terra, H.
- Mammals, late Pleistocene cf. contemporary: Maldonado-Koerdell, M., 6.
- Vertebrates and artifacts, Yucatán, cave deposits: Hatt, R. T.
- Michigan, caribou remains, Pleistocene: Hibbard, C. W., 2.
- Marine mammals, Pleistocene beaches: Handley, C. O., Jr.
- Mississippi Valley, gastropod eggs in loess: Hubricht, L.
- Montana, mastodon, Deer Lodge area, Pleistocene: McLaughlin, K. P., 2.
- Nevada, birds, Smith Creek Cave: Howard, H., 1.
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- New Mexico, charophytes, Pleistocene: Horn af Rantzien, H.
- New York, caribou antler, Lake Albany sediments, Pleistocene: Fisher, D. W., 1.
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- Pollen studies, southeastern, Pleistocene: Frey, D. G., 2.
- North Dakota, mammoth, Pleistocene: Haraldson, H. C., 1.
- Ohio, gastropods, Cleveland area, Pleistocene: Leonard, A. B., 3.
- Mastodon, Madison County, Pleistocene: Thomas, E. S.; Wood, A. E.
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- Madison County, mastodon site, Pleistocene: Sears, P. B., 2.
- Oklahoma, beaver, Beaver County, Pleistocene: Rinker, G. C.
- Duck, Pleistocene: Lunk, W. A.
- Mammals, Pleistocene: Meade, G. E., 2.
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- Pacific Ocean, Foraminifera from sea-mounts: Hamilton, E. L., 1.
- Puerto Rico, mammals, Mayagüez district, Monte Grande cave faunule: Reynolds, T. E.
- Quebec, mollusks, Seven Islands area, Pleistocene: Laverdière, C.

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- South Carolina, pollen analysis, Myrtle Beach area: Frey, D. G., 1.
- South Dakota, vertebrates, faunal lists: Macdonald, J. Reid, 2.
- Texas, mammals, Wheeler site, Pleistocene: Crook, W. W., Jr.
- Snake, Denton County, Pleistocene: Harrington, J. W., 1.
- Water rat, Pleistocene: Meade, G. E., 1.
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- Washington, bison skull, Prescott, Pleistocene: Pope, P. H.
- Mammals, Ringold formation, Pleistocene age: Strand, J. R.
- West Indies, Foraminifera, Aruba Island, Pleistocene: Drooger, C. W., 6.
- Monkeys: Williams, E. E., 3.
- Tortoises, Mona Island: Williams, E. E., 1.
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- Alaska, brachiopods, southeastern: Kirk, E.
- Greenland, Danmarks Fjord: Adams, P. J.
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- New Mexico, Sacramento Mts.: Pray, L. C., 1.
- New York, fishes, Vernon shale: Flower, R. H., 4.
- Maplewood and Neahga shales, faunules: Fisher, D. W., 3.
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- North America, corals, *Tryplasma*: Stumm, E. C., 1.
- Oklahoma, crinoids: Strimple, H. L., 8.
- Crinoids, Henryhouse formation: Strimple, H. L., 3.
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- Pennsylvania, *Arthropycus*, Tuscarora sandstone, Blair County: Becker, H. F.
- Quebec, graptolites, Anticosti Island: Barrass, R.
- Graptolites, Gaspé: Cumming, L. M.
- Tennessee, cystoid, Dixon formation: Strimple, H. L., 2.
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- Texas, graptolites, Crane County: Decker, C. E., 6.
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- Alabama, ostracodes, Naheola formation, Paleocene: Munsey, G. C., Jr.
- Alaska, Foraminifera, Amchitka Island: Todd, M. R., 3.
- Alberta, mollusks, nonmarine, southwestern: Tozer, E. T., 3.
- Algae, *Discoaster*, stratigraphic value: Bramlette, M. N.
- Arkansas, Foraminifera and ostracodes, Hope area, Paleocene: Harris, R. W.

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- White Bluff invertebrate fauna, Eocene: Wilbert, L. J., Jr.
- Artiodactyla, Oligocene, cranial morphology: Whitmore, F. C., Jr., 1.
- Atlantic Coast, pelecypods, period of existence: Nicol, D., 7.
- British Columbia, Kishenehn formation, Eocene: Russell, L. S., 5.
- Mollusks, Kishenehn formation: Russell, L. S., 1.
- California, algae, Eocene: Johnson, J. Harlan, 3.
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- Foraminifera, Eocene: Graham, J. J., 2.
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- Los Angeles basin, Pliocene: Crouch, R. W.; Martin, L.
- Portola area, Oligocene: Graham, J. J., 1.
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- Martinez area, Paleocene-Miocene, faunal lists: Weaver, C. Edwin.
- Mollusks, Pliocene-Pleistocene boundary, faunal discontinuity: Woodring, W. P., 2.
- Topanga formation, Miocene: Susuki, T.
- Pine cone, Point Fermin, Miocene: Templeton, B. C.
- Radiolaria, Kreyenhagen formation, Eocene: Riedel, W. R.
- Seal mandible, Kern River area, Miocene: Downs, T., 2.
- Sespe formation, Ventura County: VanderHoof, V. L.
- Silicoflagellates, upper Eocene, potential zoning value: Mandra, Y. T.
- Central America, pelecypods, *Echinochama*, revision: Nicol, D., 2.
- Colorado, Florissant flora, Oligocene: MacGinitie, H. D.
- Mammals, descriptions, northeastern: Galbreath, E. C.
- Petrified forest, Florissant area, popular account: Pearl, R. M.
- Tillodonts: Gazin, C. L., 2.
- Costa Rica, Foraminifera, Eocene: Cole, W. S., 5.
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- Foraminifera, Loma Candela formation, Eocene: Cole, W. S., 3.
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- Gastropod, Charco Redondo formation, Eocene: Woodring, W. P., 1.
- Dominican Republic, coccoliths, Eocene: Wetzel, W.

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- Florida, crustacean, Moodys Branch formation, Eocene: Richards, H. G., 1.
- Flamingo, Bone Valley formation, Pliocene: Brodkorb, P., 2.
- Foraminifera, Eocene: Loeblich, A. R., Jr., 1.
- Panhandle, Miocene: Puri, H. S., 3.
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- Mollusks, Citrus-Levy Counties, Eocene: Richards, H. G., 1.
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- Snakes and lizard, Miocene: Vanzolini, P. E.
- Tortoise, Thomas Farm, Miocene: Williams, E. E., 5.
- Foraminifera, arenaceous, ecology: Stainforth, R. M., 1.
- Miogypsinidae: Drooger, C. W., 4.
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- Guam, Foraminifera, Eocene: Cloud, P. E., Jr., 2.
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- Ostracodes, Miocene: Puri, H. S., 2.
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- Jamaica, Foraminifera, Kingston district, White limestone, Eocene-Miocene: Davies, L. M.
- Pelecypod, *Pliocardia*, Miocene: Nicol, D., 6.
- Kansas, box turtle and mammals, Rexroad formation: Oelrich, T. M., 1.
- Carnivore, Pliocene: Hibbard, C. W., 4.
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- Insectivores, Rexroad formation, Pliocene: Hibbard, C. W., 7.
- Lizards, Pliocene: Twente, J. W., Jr.
- Mammals, Rexroad formation, Pliocene: Hibbard, C. W., 1; Oelrich, T. M., 3.
- Saw Rock Canyon, Pliocene: Hibbard, C. W., 6.
- Quail, Rexroad formation, Pliocene: Tordoff, H. B.
- Snake, Pliocene: Peters, J. A.
- Vertebrates, Pliocene, central: Hibbard, C. W., 3.
- Loons, Pliocene: Brodkorb, P., 3.
- Mammals, *Ellipsodon*, Paleocene, revision: Wilson, R. W.
- Marine faunas, relation to continental drift: Durham, J. W., 1.
- Maryland, fish otoliths, Miocene: Dante, J. H.

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- Ostracodes, Miocene, biostratigraphy: Malkin, D. S.
- Mexico, invertebrates, Chiapas, Paleocene-Eocene: Maldonado-Koerdell, M., 1.
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- Mississippi, Foraminifera, *Uvigerina*, two-necked specimen, Eocene: Ellison, S. P., Jr., 3.
- Foraminifera, Vicksburg group, Oligocene: Todd, M. R., 1.
- Vicksburg stage, Oligocene, oscillations: Hoppin, R. A.
- Montana, rodents, Madison Valley, Miocene: Dorr, J. A., Jr., 2.
- Nevada, frog, Kate Peak andesite, Pliocene: La Rivers, I. J.
- New Jersey, Foraminifera: McLean, J. D., Jr., 2.
- Foraminifera, Vincentown formation, Paleocene: McLean, J. D., Jr., 1.
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- North America, ostracodes: Puri, H. S., 1.
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- Paleogene correlation, southern: Stainforth, R. M., 4.
- Pelecypods, *Euloxa*, Miocene, taxonomy: Nicol, D., 4.
- Venericardia*, Paleocene-Eocene, western, systematic study: Verástegui, P.
- Plants, generic composition changes: Barghoorn, E. S., Jr., 2.
- Silicified, western: Arnold, C. A., 7.
- North Carolina, ostracodes from wells: Swain, F. M., Jr., 1.
- Oregon, Bridge Creek and Mascall floras: Chaney, R. W., 2.
- Crinoids, Keasey formation: Moore, R. C., 6.
- Ferns, Clarno formation, Eocene: Arnold, C. A., 2.
- Koelreuteria* fruit and floral list, Wheeler County, Oligocene: Arnold, C. A., 1.
- Mastodon, Baker area, Miocene: Downs, T., 1.
- Ostracodes, Tertiary-Recent, revision: Puri, H. S., 4.
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- Panama, Foraminifera, Eocene-Oligocene: Cole, W. S., 1.
- Foraminifera, Oligocene: Cole, W. S., 4.
- Pelecypods, *Glycymeris*, Atlantic Coast, mutant: Nicol, D., 5.
- South Carolina, pelecypod, glycymerid: Nicol, D., 3.

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- South Dakota, turtle, Oligocene: Williams, E. E., 2.
 - Vertebrates, faunal lists: Macdonald, J. Reid, 2.
 - Texas, Foraminifera, Hurricane lentil, Eocene: Gimbrede, L. de A.
 - Horses, gulf coast, Miocene: Quinn, J. H., 1, 2.
 - Vieja formation, Oligocene: McGrew, P. O., 2.
 - Nipa fruit, Weches greensand, Bastrop County, Eocene: Arnold, C. A., 1.
 - Pelecypods, Stone City beds, Eocene: Stenzel, H. B., 5.
 - Vertebrates, Big Bend National Park, Paleocene-Eocene: Wilson, J. A., 1.
 - Tillodonts, Paleocene-Eocene: Gazin, C. L., 2.
 - Trinidad, Foraminifera, arenaceous, Oligocene-Miocene: Bronnimann, P., 6.
 - Foraminifera, Eocene: Bronnimann, P., 8.
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 - Lizard Springs formation, Paleocene: Bolli, H. M., 2.
 - Oligocene: Drooger, C. W., 3.
 - United States, plant microfossils, western interior: Wilson, L. R., 3.
 - Utah, gastropod, Flagstaff limestone, Paleocene: Gilliland, W. N., 1.
 - Mollusks, Colton and Green River formations, Eocene: La Rocque, J. A. A., 3.
 - Vermont, pollen, Brandon lignite: Traverse, A. F., Jr., 1.
 - Virginia, ostracodes, Miocene, biostratigraphy: Malkin, D. S.
 - West Indies, Foraminifera, Anguilla, St. Martin, and Tintamarre Islands: Drooger, C. W., 1.
 - Foraminifera, Aruba Island, Miocene: Drooger, C. W., 6.
 - Curaçao and Bonaire, Eocene: Drooger, C. W., 5.
 - Wyoming, Eocene floras, northwestern: Dorf, E., 2.
 - Mammals, Knight formation, Eocene: Gazin, C. L., 1.
 - Tillodonts: Gazin, C. L., 2.
 - Vertebrates, Boysen Reservoir area, Eocene: White, T. E.
 - Hoback formation: Dorr, J. A., Jr., 1.
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- Ammonoids, classification: Kummel, B., Jr., 1.
 - Arizona, reptile, Chinle formation: Colbert, E. H., 1.
 - British Columbia, ammonoids, classification: McLearn, F. H., 1.
 - Connecticut Valley, reptiles, bones and footprints: Lull, R. S., 2.
 - Estherids, classification: Bock, W., 4.

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- Alabama, subsurface: Applin, P. L., 1; Bridge, J.
 Appalachian basin, oil and gas: Fettke, C. R., 2.
 Appalachians, geologic age determinations, radioactive minerals: Rodgers, J., 3.
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 Arizona, northwestern: McNair, A. H.
 Arkansas, Arkansas Valley, pre-Atoka rocks: Maher, J. C., 4.
 Northern, correlation with Oklahoma: Lantz, R. J.
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 California, Mohave Desert, metamorphosed roof pendants: McCulloh, T. H., 1.
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 Colorado, Leadville-Mosquito Range district: Behre, C. H., Jr., 2.
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- Eastern, pre-Devonian: Eha, S.
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 Illinois, Hardin-Brussels quadrangles: Rubey, W. W., 1.
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 Northwestern, positive area: Stokes, W. L., 6.
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 Utah Lake area, sedimentation and tectonics: Bissell, H. J., 3.
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 Hartville area: Love, J. D., 4.
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 Utah, Great Western mine area, Piute County: Evans, M. T.
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 California, Calistoga area, miniature: Higgins, C. G., Jr., 3.
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 Utah, Henry Mts. region: Hunt, C. B., 2.
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 Alabama: Heinrich, E. W., 2.
 Arizona, White Picacho district: Jahns, R. H., 2.
 California, Butte County, xenolith in serpentine: Creely, R. S.
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 Canada, lithium deposits: Rowe, R. B., 5.
 Canadian Shield subdivisions, dating: Wilson, John T., 6.
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 B., 3.
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 Clay, lightweight aggregate suitabilities:
 Wilson, H. S.
 Copper, Gaspé Peninsula, alteration: Bell,
 A. M.
 Fabre Township, possibilities: Mauffette, P.
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 E., 2.
 Malartic deposits: Eakins, P.
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 Vertical zoning: Mills, J. W.
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 J. M., 1.
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 bert, J. E. J., 3.
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 ships: Hall, F. E.
 Mica, Pontgravé-Bergeronnes area: Greig,
 E. W.
 Mineral deposits, Brongniart-Lescure area:
 Lyall, H. B.
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 son, A.
 Montreal area: Clark, T. H., 1.
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 Peat, Farnham bog: Risi, J.
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 Sept-Iles region, mineral possibilities:
 Grenier, P. E., 3.
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Fabre Township, pre-Cambrian: Mauffette, P.

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St. Magloire area: Béland, J.

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 Cameron Lake area, igneous and metamorphic, pre-Cambrian: Hewlett, C. G.
 Canimiti River area, pre-Cambrian: Gillies, N. B.
 Charny formation, Cambrian, origin: Osborne, F. F., 5.
 Concretion conglomerate, Charny sandstone: Osborne, F. F., 2.
 Dalember River-Dufresnoy Lake area: L'Espérance, R. L., 2.
 Duprat Township: L'Espérance, R. L., 1.
 Jaspilite, orbicular, Hull Township, origin: Tanton, T. L., 2.
 Johan Beetz area: Cooper, G. E., 1.
 Kaniapiskau system, metamorphic, pre-Cambrian: Kirkland, R. W.
 Kensington area: Aubert de la Rüe, E., 2.
 Kornerupine-bearing paragneiss, Lac Ste. Marie: Girault, J. P., 1.
 McKenzie Township: Smith, J. R.
 Meach Lake breccias, origin: Osborne, F. F., 4.
 Montreal area, Tertiary: Clark, T. H., 1.
 Nipisso Lake area, pre-Cambrian: Hogan, H. R.
 Noranda district, wallrock alteration zones, elements, distribution: Riddell, J. E., 3.
 Olga-Goéland area, pre-Cambrian: Imbault, P. E.
 Pascalis Township, igneous rocks, luminosity in minerals: McDougall, D. J., 2.
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 Preissac-Lacorne region, pegmatites: Rowe, R. B., 3.
 Sudbury district, Copper Cliff offset, age relationships: Slaght, W. H.
 Temiscamie River area, pre-Cambrian: Wahl, W. G.
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 Wall-rock alteration, northwestern: Price, P.
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 Mistassini region, fault pattern: Neilson, J. M., 2.

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 Champlain Sea, Pleistocene, maximum extent: Cousineau, J. C.
 Chubb meteor crater, Ungava Peninsula: Meen, V. B., 1; Tandberg-Hanssen, E.
 Ungava Peninsula, popular account: Meen, V. B., 2.
 Disraeli area, granitic relief inversion, Devonian: Vogt, J., 2.
 Eastmain River-Ungava Bay area: Gilbert, J. E. J., 3.
 Gaspé Peninsula, continental and local glaciation, Pleistocene: McGerrigle, H. W.
 General and glacial features: Blanchard, R.
 Glacial deposits, photogeology: Douglas, M. C. V., 2.
 Glacial features, late Pleistocene, north-central: Neilson, J. M., 3.
 Magdalen Islands, glacial features: Le Gallo, C., 2.
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