

UNITED STATES DEPARTMENT OF THE INTERIOR
Ray Lyman Wilbur, Secretary
GEOLOGICAL SURVEY
George Otis Smith, Director

Bulletin 823

BIBLIOGRAPHY
OF
NORTH AMERICAN GEOLOGY
1919-1928

BY
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CANCELLED.

OHIO STATE
UNIVERSITY

UNITED STATES
GOVERNMENT PRINTING OFFICE
WASHINGTON : 1931

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CONTENTS

	Page
Introduction-----	iii
Serials examined-----	1
Bibliography-----	7
Index-----	695

II

STATE OF
VIRGINIA

BIBLIOGRAPHY OF NORTH AMERICAN GEOLOGY 1919-1928

By JOHN M. NICKLES

INTRODUCTION

The bibliography of North American geology, including paleontology, petrology, and mineralogy, for the years 1919-1928 lists publications on the geology of the Continent of North America and adjacent islands and on Panama and the Hawaiian Islands. It includes textbooks and papers of general character by American authors, but not those by foreign authors, except papers that appear in American publications.

The papers, with full title and medium of publication, are listed under the names of their authors, which are arranged in alphabetic order. The author list is followed by an index to the literature cited.

The bibliography of North American geology to the end of 1926 is contained in the following bulletins of the United States Geological Survey: 127 (1732-1892), 188 and 189 (1892-1900), 301 (1901-1905), 372 (1906-7), 409 (1908), 444 (1909), 495 (1910), 524 (1911), 545 (1912), 584 (1913), 617 (1914), 645 (1915), 665 (1916), 684 (1917), 698 (1918), 731 (1919-20), 758 (1921-22), 784 (1923-24), and 802 (1925-26). All these bulletins are now out of print but may be consulted in the larger libraries. They have been cumulated in Bulletins 746 and 747 (1785-1918), also now out of print, and Bulletin 823 (1919-1928). The bibliography for 1927 and 1928, which is included in the present bulletin, will not be published separately.

III

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Vol. 1, no. 1, April, 1925.

1. A new Cretaceous *Uvigerina* from Louisiana, p. 1.
2. Three new species of *Siphogenerina* from the Miocene of California, pp. 2-3.
3. New Foraminifera from the upper Eocene of Mexico, pp. 4-8, 1 pl.
4. A new *Uvigerina* from the Vienna Basin, p. 10.
5. (and Hughes, Donald D.). Some later Tertiary Cassidulinas of California, pp. 11-16, 1 pl.
6. Some new Foraminifera from the Velasco shale of Mexico, pp. 18-22, 1 pl.
7. Apertural characters in *Cristellaria* with descriptions of a new species, pp. 24-25, 1 pl.

Vol. 1, pt. 2, July, 1925.

8. Some Textulariidae from the Miocene of California, pp. 29-34, 1 pl.
9. *Siphogenerina hughesi*, a new species from California, p. 9.
10. New Species of *Cassidulina* from the Pacific, pp. 36-38, 1 pl.
11. Recent Foraminifera from British Columbia, pp. 38-44, 2 pls.
12. Foraminifera as an original source of petroleum, p. 48.

Vol. 1, pt. 3, October, 1925.

13. Notes on the genus *Cassidulina*, pp. 51-59, 2 pls.
14. Mexican species of *Marginulina*, pp. 61-62.
15. Notes on the genus *Tritaxilina*, pp. 62-65.
16. Eocene Foraminifera from the Cocoa sand of Alabama, pp. 65-69, 1 pl.

Vol. 1, pt. 4, January, 1926.

17. The genus *Chilostomella* and related genera, pp. 73-79, 1 pl.
18. Some fossil Bolivinas from Mexico, pp. 81-84, 1 pl.
19. *Trifarina* in the American Eocene and elsewhere, pp. 86-88.
20. A peculiar *Fronidularia* from Mexico and Trinidad, pp. 88-89.
21. Miocene species of *Nonionina* from California, pp. 89-91, 1 pl.

Vol. 2, pt. 1, April, 1926.

22. Photographing Foraminifera, pp. 1-3.
23. *Eouvigerina*, a new genus from the Cretaceous, pp. 3-6.
24. The genus *Lamarckina* and its American species, pp. 7-13, 1 pl.
25. *Siphogenerina plummert*, a species from the upper Cretaceous of Texas, p. 15.
26. Some Foraminifera from the Mendez shale of eastern Mexico, pp. 16-24, 2 pls.

Vol. 2, pt. 2, July, 1926.

27. Some new Foraminifera from the upper Eocene of the south-eastern Coastal Plain of the United States, pp. 29-36, 2 pls.
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29. Some Pliocene Bolivinas from California, pp. 40-46, 1 pl.

Vol. 2, pt. 3, October, 1926.

30. Foraminifera of the typical Monterey of California, pp. 53-66, 3 pls.
31. The generic position of "*Pulvinulina favus* H. B. Brady," pp. 70-71.
32. Some phases of correlation by means of the Foraminifera, pp. 71-74.

Cushman, Joseph Augustine—Continued.

22. Contributions from the Cushman Laboratory for Foraminiferal Research.
Sharon, Massachusetts—Continued.

Vol. 2, pt. 4, January, 1927.

33. Some new genera of the Foraminifera, pp. 77-81.
34. (and Waters, James A.). Some arenaceous Foraminifera from the upper Cretaceous of Texas, pp. 81-85.
35. American upper Cretaceous species of *Bolivina* and related species, pp. 85-91.
36. (and Harris, Reginald W.). The significance of relative measurements in the study of Foraminifera, pp. 92-94.
37. *Sporadogenerina*, a degenerate foraminiferal genus, pp. 94-95.

Vol. 3, pt. 1, March, 1927.

39. An outline of a reclassification of the Foraminifera, pp. 1-105.

Vol. 3, pt. 2, June, 1927.

40. (and Waters, James A.) Pennsylvanian Foraminifera from Michigan, pp. 107-110.
41. New and interesting Foraminifera from Mexico and Texas, pp. 111-116.
42. (and Howe, Henry V.). A species of *Siphoninella* in the Tertiary of America, pp. 120-121.
43. Some notes on the early foraminiferal genera erected before 1808, pp. 122-126.
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Vol. 3, pt. 3, September, 1927.

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48. The genera *Renulina* and *Vertebralina*, pp. 158-160.

Vol. 3, pt. 4, December, 1927.

49. Trimorphism in the Foraminifera, pp. 165-167.
50. The work of Fichtel and Moll and of Montfort, pp. 168-171.
51. (and Harris, Reginald W.). Some notes on the genus *Ceratotulimina*, pp. 171-176.
52. *Epistomina elegans* (D'Orbigny) and *E. partschiana* (D'Orbigny), pp. 180-184.
53. The designation of some genotypes in the Foraminifera, pp. 188-190.

Vol. 4, pt. 1, March, 1928.

54. Additional genera of the Foraminifera, pp. 1-8.
55. A new genus, *Depratella*, and its relation to *Endothyra*, pp. 9-10, by Ozawa, Yoshiaki.
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57. (and Ozawa, Yoshiaki). An outline of a revision of the Poly-morphinidae, pp. 13-20.
58. Apertural characters in the Lagenidae, pp. 22-25.

Vol. 4, pt. 2, June, 1928.

59. (and Waters, James A.). Some Foraminifera from the Pennsylvanian and Permian of Texas, pp. 31-55.

Vol. 4, pt. 3, September, 1928.

60. A peculiar *Clavulina* from the upper Cretaceous of Texas, pp. 61-62.
61. (and Waters, James A.). Additional Cisco Foraminifera from Texas, pp. 62-67.
62. The microspheric and megalospheric forms of *Apterrinella grahamensis*, pp. 68-69.
63. A Cretaceous *Cyclammina* from California, p. 70.
64. Additional Foraminifera from the upper Eocene of Alabama, pp. 73-79.
65. On *Faujasina* D'Orbigny, pp. 80-81, by Hofker, J.

Cushman, Joseph Augustine—Continued.

22. Contributions from the Cushman Laboratory for Foraminiferal Research. Sharon, Massachusetts—Continued.

Vol. 4, pt. 4, December, 1928.

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Anonymous—Continued.

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INDEX

(The numbers refer to entries in the bibliography)

Aa and pahoe-hoe, formation: Emerson, O. H., 1.
 Abajo Mountains, Utah, structural features: Thorpe, 1.
 Abitibi-Night Hawk gold area, Timiskaming district, Ontario: Knight, C. W., 1.
 Abrasive materials.
 Canada: Eardley-Wilmot, 3.
 Corundum: Eardley-Wilmot, 7.
 Diamond: Eardley-Wilmot, 7.
 Garner: Eardley-Wilmot, 8.
 North Carolina: Katz, 1.
 Abstracting geologic literature: Keyes, 141.
 Abstraction of potassium during sedimentation: Watson, J. W., 1.
 Acadia, paleogeography: Bailey, L. W., 2.
 Adirondacks: Alling, H. L., 1.
 Addresses.
 Ancient mountain systems of Europe and America: Bailey, E. B., 1.
 Appalachian stratigraphy, variations in: Butts, 15.
 Applied geology, scientific by-products: Smith, G. O., 10.
 At the surface of a crystal: Wherry, 23.
 Borderland of astronomy and geology: Eddington, 1.
 Change in ideas about Foraminifera: Galloway, J. J., 12.
 Classification of natural resources: Fenneman, 4.
 Constitution of earth: Lamb, 1.
 Correlation: Berry, 65.
 Cultural aspects in geology: Parks, 23.
 Cycads, origin: Chamberlain, 1.
 Dakota sandstone problems: Stanton, 5.
 Development of stratigraphic geology and paleontology in Canada: Parks, 6.
 Development of American paleontology: Scott, W. B., 5.
 Direction of progress in economic geology: Ransome, 18.
 Earth genesis: Chamberlin, T. C., 1.
 Earth sciences as the background of history: Merriam, J. C., 3.
 Earth movements in California: Day, 16.
 Earth's framework: Cumings, 2.
 Earth sciences as the background of history: Merriam, 5.
 Economic geology, relation to the general principles of geology: Penrose, 1479.

Addresses—Continued.

Evolutional paleontology in relation to the lower Paleozoic rocks: Elles, 1.
 Forces in man's social evolution: Shimer, 3.
 Folded mountains and isostasy: Lawson, 9.
 Fossils and life: Bather, 4.
 Geography among the earth sciences: Penck, 1.
 Geologic factors in evolution: Mather, 6.
 Geologist and petroleum industry: DeGolyer, 10.
 Geological climates: Scott, W. B., 4.
 Geology and the world at large: Ashley, 24.
 Geology at work: Smith, G. O., 24.
 Geology in partnership with American industry: Smith, G. O., 11.
 Geology in the petroleum industry: DeGolyer, 11.
 Geology in the service of man: Watts, W. W., 1.
 Geology in the world war and after: Cross, C. W., 1.
 Geology's debt to the mineral industry: Miller, W. G., 5.
 Great fossil reptiles of Alberta: Parks, W. A., 1.
 Igneous intrusion, after-effects: Kemp, 12.
 James Hutton, pioneer of modern geology: Hobbs, 28.
 Land and sea oscillations, major causes: Ulrich, 3.
 Metasomatism: Lindgren, 16.
 Military contribution of civilian engineers: Smith, G. O., 4.
 Mineral deposits, present tendencies in the study of: Lindgren, 5.
 Mineralogy, future in America: Kraus, 3.
 Mineralogic instruction, needed extension: Eakle, 8.
 Mineral replacements in pegmatites: Schaller, 13.
 Modern study of mineralogy: Washington, 30.
 National geological survey, functions and ideals: Ransome, 4.
 North American geosyncline: Schuchert, 22.
 Oceanography in its relation to other earth sciences: Vaughan, 33.

Addresses—Continued.

- Oklahoma, the geologists' laboratory: Gould, C. N., 31.
- Opportunity for scientific research in the national parks: Jagger, 19.
- Origin and antiquity of man: Miller, A. M., 17.
- Origin of species: Osborn, 41.
- Outrageous geological hypotheses: Davis, 32.
- Paleontology, applications: Scott, W. B., 7.
- Paleontology and human relations: Weller, 18.
- Paleozoic mountain systems of Europe and America: Bailey, E. B., 1.
- Petroleum and natural gas, epochs in the history of: White, I. C., 4.
- Place of paleontology among the sciences: Clarke, J. M., 353.
- Plain geology: Smith, G. O., 14.
- Prehistoric ornithology: Wetmore, 14.
- Present tendencies in paleontology: Berry, 9.
- Progress and trends in vertebrate paleontology: Matthew, 26.
- Réné Just Haüy: Whitlock, 1.
- Science and service: Walcott, 12.
- Scientific by-products of applied geology: Smith, G. O., 10.
- Scientist in the Federal service: Brooks, 11.
- Seventy-five years of American geology: Chamberlin, T. C., 24.
- Society of Economic Geologists; its sphere and its future: Penrose, 3.
- Some reflections on paleontology: Parks, 31.
- Sources and tendencies in American geology: Barrell, 2.
- South American faunas, origin: Loomis, F. B., 5.
- Structural failure of the lithosphere: Leith, 6.
- Structural symmetry, North America: Keith, 8.
- Studying mines with a microscope: Bayley, 8.
- Trend of earth history: Blackwelder, 4.
- Trends in American geology: Mendenhall, W. C., 2.
- Aerial observation, use in geology: Willis, 7.
- Agate: Farrington, 2; Harstad, 2.
- Age of the earth. See Earth, age.
- Agricultural aspects of rock weathering: Hunt, H. A., 1.
- Agricultural geology: Emerson, F. V., 3; Smith, J. E., 2.
- Ainsworth district, British Columbia: Schofield, 4.
- Airplane mapping, Arizona: Sampson, 14.
- Airplanes for geologic exploration: Renick, 7.
- Aishihik Lake area, Yukon: Cockfield, 19.

Alabama.

- Geological Survey, recent activities: Smith, E. A., 7.
- reports: Smith, E. A., 1, 3, 6.
- Areas described.*
- Bessemer-Vandiver quadrangle: Butts, 13.
- Clay County: Prouty, 10.
- Economic geology.*
- Bauxite deposits: Adams, G. I., 3; Jones, W. B., 6.
- formation in sink holes: Adams, G. I., 1.
- Marguerum district, Jones, W. B., 6.
- southeastern Alabama: Rettger, 1.
- Brown iron ores: Burchard, 26.
- age and occurrence: Adams, G. I., 4.
- Clay County: Prouty, 3.
- Coal, analyses: Fieldner, 3.
- Coal fields: Butts, 7.
- Graphite: Brummell, 1; Prouty, 2.
- Ashland area: Brown, J. S., 6.
- Economic minerals and rocks: Jones, W. B., 3.
- Iron ores, Clinton formation, Birmingham district: Aldrich, T. H., 2; Crane, W. R., 3.
- Clinton ore, Birmingham district: Crane, W. R., 2.
- Kaolin: Clark, G. H., 1.
- Mica deposits: Clark, G. H., 1.
- Mineral production, Jones, W. B., 1; 2, 5, 11; Wingard, 1, 2.
- Mineral resources: Ernst, 1; Jones, W. B., 4; Maynard, T. P., 2; Smith, E. A., 4; Wingard, 3.
- Oil possibilities, northern Alabama: Semmes, 3.
- Oil prospecting: Lloyd, S. J., 2.
- Oil to carbon ratio: Lloyd, S. J., 1.
- Petroleum possibilities, Coastal Plain area: Brantley, 1; northern Alabama: Semmes, 2, 3.
- Petroleum products in shallow wells: Jones, W. B., 7.
- Red iron ore, Birmingham district: Crane, W. R., 4.
- Resources, southern Alabama: Harper, 1.
- Rock-asphalt deposits: Clark, G. H., 2; Jones, W. B., 12.
- Historical geology.*
- Ashland graphite area: Brown, J. S., 3.
- Bentonite in Ordovician: Nelson, 22.
- Boring near Florence: Miser, 21.
- Cenozoic: Cooke, C. W., 13.
- Chester series: Ulrich, 5.
- Clay County: Prouty, 3.
- Clinton formation: Aldrich, T. H., 2.
- Coastal Plain: Brantley, 1; Jones, W. B., 10.
- Cretaceous: Berry, 4.
- eastern Alabama: Berry, 50.
- Crystalline rocks: Adams, G. I., 2.
- Crystalline and semicrystalline rocks, age: Prouty, 1.

Alabama—Continued.

Historical geology—Continued.

Eocene formations, correlation: Cooke, C. W., 12.

Devonian: Butts, 11, 12.

General: Jones, W. B., 13.

Geologic map: Smith, E. A., 2, 5.

Mesozoic: Stephenson, 5.

Muscle Shoals area: Prouty, 8.

Northern Alabama: Semmes, 2, 3.

Ocoee rocks, Clay County, age: Prouty, 6, 7.

Paleozoic: Butts, 8.

Talladega phyllite, Clay County, age: Prouty, 4.

Talladega slates: Prouty, 5.

Mineralogy.

Iron-tourmaline in pegmatite: Van Horn, 6.

Paleontology.

Cretaceous floras: Berry, 4.

Eocene Mollusca: Aldrich, T. H., 1.

Foraminifera, Vicksburg group: Cushman, 16.

Hantkenina, Eocene foraminifer: Cushman, 17, 19.

Hymenaea, Fayette County: Berry, 5.

Mississippian conodonts: Holmes, G. B., 1.

Pleistocene plants: Berry, 34.

Petrology.

Bentonite: Ross, C. S., 21.

Physical geology.

Drag-folding in marble: Dale, T. N., 3.

Physiographic geology.

Pleistocene peneplain in Coastal Plain: Cleland, 5.

Alamosa Creek valley, Socorro County, New Mexico: Winchester, 3.

Alaska.

General: Smith, P. S., 8.

Geological survey: Brooks, 6.

Northern Alaska: Smith, P. S., 11.

St. Matthew Island, Bering Sea: Hanna, G. D., 30.

Surveys and investigations, administrative report: Brooks, 4.

Areas described.

Alaska Railroad region: Capps, 6.

Canning River region, northern Alaska: Leffingwell, 1.

Chichagof Island, west coast: Overbeck, 1.

Chandalar district: Mertie, 12.

Chignik region: Martin, G. C., 14.

Chitina Valley: Moffit, 5.

Chulitna region: Capps, 4.

Cold Bay district: Capps, 5; Smith, W. R., 4.

Cold Bay-Chignik district: Smith, W. R., 1.

Cold Bay-Katmai district: Smith, W. R., 3.

Iniskin Bay district: Moffit, 3.

Iniskin-Chinitna Peninsula: Moffit, 7.

Jack Bay district, Prince William Sound: Johnson, B. L., 2.

Alaska—Continued.

Areas described—Continued.

Kahiltna Valley: Mertie, 2.

Kamishak Bay region: Mather, 7.

Kantishna region: Capps, 1.

Kiwalik-Koyuk region: Harrington, 1.

Knik-Matanuska district: Landes, K. K., 2.

Kodiak Island: Maddren, 2.

Kotsina-Kuskulana district: Moffit, 4.

Kuskokwim region: Martin, G. C., 9.

Matanuska Valley, upper: Capps, 11.

Mt. Spurr region: Capps, 13.

Nixon Fork country: Brown, J. S., 7.

Northwestern Arctic Alaska: Smith, P. S., 7.

Point Barrow region: Paige, 5.

Porcupine district: Eakin, 1.

Ruby-Kuskokwim region: Mertie, 11.

Salmon River district, Portland Canal region: Westgate, 2.

Seward Peninsula: Cathcart, 2.

Sheenjek River district: Mertie, 16.

Snug Harbor district: Moffit, 7.

Talkeetna Mountains, western: Capps, 3.

Toklat-Tonzona River region: Capps, 12.

Tolstoi district: Harrington, 2.

Tuxedni Bay vicinity, Cook Inlet: Moffit, 2.

Valley of Ten Thousand Smokes: Griggs, 6.

Wrangell district, southeastern Alaska: Buddington, 4.

York region: Steidtmann, 4.

Economic geology.

Anvik-Andreafski region: Harrington, 2.

Beatson copper mine: Bateman, 12.

Beatson mine, Prince William Sound district: Birch, 2.

Bituminous deposit, Nenana coal field: Martin, G. C., 11.

Chichagof Island, west coast: Overbeck, 1.

Chistochina region: Chapin, 3.

Chitina Valley: Moffit, 1, 5.

Chromite deposits: Diller, 1; Mertie, 3.

Kenai Peninsula: Gill, A. C., 1, 2.

Chulitna region: Capps, 4.

Coal fields: Evans, G. W., 2.

Coal, Matanuska field: Chapin, 8.

Nenana field: Martin, G. C., 1.

Cold Bay oil field: Palmer, L. A., 1.

Copper, Kennecott: Bateman, 3; Anon., 3.

Prince William Sound: Moffit, 6.

Early Tertiary placer deposit: Capps, 7.

Fairbanks district: Chapin, 4.

Fairhaven silver-lead district: Levensaler, 1.

Future of Alaska mining: Brooks, 2.

Gold, Anvik-Andreafski region: Harrington, 1.

Chichagof Island: Overbeck, 1.

Porcupine district: Eakin, 1.

Alaska—Continued.

Economic geology—Continued.

- Gold, silver, copper, and lead: Martin, G. C., 4.
 Tolovana district: Overbeck, 3.
 Juneau and Ketchikan districts: Mertie, 5.
 Willow Creek district: Chapin, 12.
 Gold, silver, copper, and lead: Brooks, 5, 12, 14.
 Gold lodes, Kuskokwim region: Martin, G. C., 9.
 Goodnews Bay region: Harrington, 6.
 Gypsum: Stone, 11.
 Hot Springs district: Chapin, 6.
 Hyder district, southeastern Alaska: Jewell, 1.
 Jack Bay district, Prince William Sound: Johnson, B. L., 2.
 Juneau district: Bradley, P. R., 1; Mertie, 5.
 Kahlitna Valley: Mertie, 2.
 Kantishna region: Capps, 1; Haney, J. A., 1.
 Kenai Peninsula: Johnson, 3.
 Kennecott copper deposits: Bateman, 3, 4.
 Kennecott mines, Chitina district: Birch, 1.
 Ketchikan district: Mertie, 5.
 Kiwalik-Koyuk region, gold and platinum placers: Harrington, 5.
 Kodiak Island, beach placers: Maddren, 2.
 Magmatic sulphide ore, Chichagof Island: Kerr, P. F. 2.
 Marble resources, southeastern Alaska: Burchard, 6.
 Matanuska coal fields: Chapin, 11; Martin, G. C., 3.
 Metalliferous deposits, Yukon and Kuskokwim regions: Mertie, 7.
 Mineral deposits, southeastern Alaska: Buddington, 8, 13.
 Mineral industry: Brooks, 15; Smith, P. S., 6, 12.
 Mineral resources: Brooks, A. H., 2, 3, 16; Moffit, 8.
 Mining industry: Brooks, 8, 9, 13; Martin, G. C., 2, 7.
 Molybdenite, Healy River: Chapin, 5.
 Nenana coal field: Martin, G. C., 1, 10.
 Nickel, Copper River valley: Overbeck, 2.
 Nickel minerals: Buddington, 7.
 Northwestern Alaska: Cathcart, 1.
 Oil developments, Cold Bay district: Smith, W. R., 4.
 Oil fields: George, H. C., 1.
 Palladium, Prince of Wales Island: Campbell, D. G., 1.
 Petroleum: Martin, G. C., 8, 12; Smith, P. S., 10.
 Iniskin Bay district: Moffit, 3.
 Petroleum seepage, Anchorage: Brooks, 10.

Alaska—Continued.

Economic geology—Continued.

- Porcupine district: Eakin, 1.
 Prince William Sound: Johnson, B. L., 1.
 Ruby district, tin: Chapin, 7.
 Ruby silver prospect, Susitna Basin: Capps, 10.
 Salmon River area, southeastern Alaska: Buddington, 12.
 Portland Canal region: Westgate, 2.
 Salmon-Unuk River region: Mertie, 6.
 Salt-Chuck palladium-copper mine, Prince of Wales Island: Mertie, 4.
 Seward Peninsula: Harrington, 7.
 graphite: Harrington, 4.
 metalliferous lodes: Cathcart, 2.
 tin: Harrington, 3.
 Silver-lead prospects near Ruby: Brown, J. S., 8.
 Southeastern Alaska: Buddington, 9.
 Talkeetna Mountains, western: Capps, 3.
 Tin, Lost River district: Fearing, 1.
 York region: Steidtmann, 4.
 Tolstoi district: Harrington, 2.
 Unalaska and Akun islands, sulphur: Maddren, 1.
 Willow Creek district: Capps, 8; Chapin, 12.
 gold lode, mining: Capps, 2; Chapin, 9.
 Wrangell district, southeastern Alaska: Buddington, 4.
 Yentna gold placer district: Capps, 9.
Historical geology.
 Anvik-Andreafski region: Harrington, 1.
 Canning River region, northern Alaska: Lefflingwell, 1.
 Chistochina region: Chapin, 3.
 Glaciation, Paleozoic, southeastern Alaska: Kirk, E., 1.
 Coast Range intrusives: Buddington, 14.
 Cretaceous: Martin, G. C., 13.
 Goodnews Bay region: Harrington, 6.
 Kahlitna Valley: Mertie, 2.
 Kantishna region: Capps, 1.
 Kenai Peninsula, southwestern part: Gill, A. C., 2.
 Kennecott: Bateman, 10.
 Kiwalik-Koyuk region: Harrington, 5.
 Kodiak Island: Maddren, 2.
 Matanuska coal fields: Martin, G. C., 3.
 Mesozoic formations: Goranson, 1.
 Mesozoic stratigraphy: Martin, G. C., 15.
 Paleoclimatology: Blackwelder, 1.
 Paleozoic, interior Alaska: Mertie, 13.
 Peard Bay region: Meek, 1.
 Pliocene: Dall, 2.
 Porcupine district: Eakin, 1.
 Pribilof Islands: Hanna, G. D., 1.
 Prince William Sound: Moffit, 6.
 Salmon-Unuk River region: Mertie, 6.
 Tertiary: Brooks, 7.
 Tolstoi district: Harrington, 2.

Alaska—Continued.

Historical geology—Continued.

Tuxedni Bay vicinity, Cook Inlet:
Moffit, 2.

Upper Yukon Valley: Mertie, 15.

Mineralogy.

Epidote: Matthes, O., 1.
Gillespite, Dry Delta: Schaller, 5.
Meteorite, Cold Bay: Merrill, 19, 20.
Nickel minerals: Buddington, 7.
Stellerite, Juneau: Wheeler, E. P., 2.

Palaeontology.

Bathmopterus, Silurian: Kirk, 11.
Brooksina: Kirk, 2.
Crustacea, stalk-eyed: Rathbun, 5.
Cymbidium, pentameroid brachiopod:
Kirk, 5.
Harpidium, pentameroid brachiopod,
southeastern Alaska: Kirk, 3.
Hydrangea, Tertiary sandstone: Hol-
lick, 5.
Pentacrinus: Springer, 11.
Peard Bay region, Pleistocene: Meek, 1.
Pliocene and Pleistocene: Dall, 2.
Pliocene pectens, Nome: Dall, 3.
Pribilof Islands: Hanna, G. D., 1.
Pycnodesma, Silurian: Kirk, E., 6.
Tertiary, Pribilof Islands: Dall, 1.
Upper Triassic: Smith, J. P., 3.

Petrology.

Assimilation during the Katmai erup-
tion of 1912: Fenner, 4.
Coast Range intrusives: Buddington,
14.
Katmai magmatic province: Fenner, 8.
Magmatic problems of Aleutians:
Fenner, 10.
Matanuska Valley, upper: Mertie, 14.
Submarine pillow lavas, southeastern
Alaska: Buddington, 10.

Physical geology.

Bogoslof Islands: Friedlaender, 2.
Earth movements accompanying Kat-
mai eruption: Fenner, 7.
Faulting, Kennecott: Lasky, 1.
Glacial erosion: Crosby, W. O., 2, 5.
Glacier studies: Chamberlin, T. C., 15.
Glaciers: Crosby, W. O., 5.
Kennecott Glacier: Bateman, 5, 7.
Klutlan Glacier: Lambart, 1.
movement: Reeds, 1.
Kaolinite associated with miarolitic
structure: Buddington, 6.
Katmai, earthquakes and eruption,
1912: Tams, 1.
eruption: Griggs, 6.
Valley of Ten Thousand Smokes:
Griggs, 5.
Katmai region: Fenner, 1.
fumaroles, chemical study: Allen,
E. T., 25.
fumarolic incrustations: Zies, 1, 2.
tuff deposits, Valley of Ten Thou-
sand Smokes: Escher, 1; Fenner,
5; Griggs, 7.

Alaska—Continued.

Physical geology—Continued.

Valley of Ten Thousand Smokes:
Shipley, 1; floor: Cole, G. A. J., 1;
temperature inversions in fuma-
roles: Sosman, 1.
hot springs: Zies, 3.
moving pictures: Fenner, 6.
Katmai Volcano: Griggs, 2; eruption:
Fenner, 2; Griggs, 1.
Mageik landslide, Katmai district:
Griggs, 3.
Volcanic emanations and incrusta-
tions: Shipley, 2.
Volcanoes, Aleutian region: Griggs, 4.
Physiographic geology.
Aniakchak Crater, Alaska Peninsula:
Smith, W. R., 2.
Canning River Region, northern Alaska:
Leffingwell, 1.
Glaciation, Tertiary: Richarz, 1.
Katmai region: Fenner, 2.
Lynn Canal region: Martin, L., 2.
Marine benches, southeastern Alaska:
Buddington, 11.
Post-Tertiary changes: Smith, P. S., 13.
Stream piracy, Tolovana and Hess
River basins: Mertie, 1.

Alberta.

Geological reconnaissance: Allan, 6.
Red Deer region: Tyrrell, 6.
Report of geological investigations,
1922: Allan, 8.
Report of geological survey: Allan, 18,
21, 22.
Smoky, Hay, and Berland rivers: Mac-
Vicar, 2.

Areas described.

Area between Athabasca and Embarras
rivers: Rutherford, 5.
Banff area: Warren, P. S., 4.
Blackstone, Brazeau, and Pembina riv-
ers, foothills belt: Allan, 13.
Bow River between Cochrane and Kan-
anaskis: Rutherford, 6.
Bragg Creek area: Hume, 30.
Cypress Hills, western end: Dyer, 9.
Drumheller district: Allan, 7.
Foothills belt between McLeod and Ath-
abasca rivers: Rutherford, 4.
Kananaskis Lakes—Fallis River area:
Marshall, J. R., 2.
Little Smoky River: McLearn, 4.
North Saskatchewan and McLeod riv-
ers: Rutherford, 8.
Saunders Creek and Nordegg coal
basins: Allan, 9.
Turner Valley oil area: Hume, 22.

Economic geology.

Bituminous sands, northern Alberta:
Clark, K. A., 2, 3, 4, 5; Ellis, 1, 4,
5, 6, 8, 9.
Bow River coal basin: Dowling, 20.
Carbon ratios: Jones, I. W., 1.
Clay, Athabasca River: Hume, 9.

Alberta—Continued.

Economic geology—Continued.

Coal: Allan, 17.

analyses: Stansfield, E., 1.

Brule Lake region: MacVicar, 1.

Crownsnest area: Rose, 3.

Drumheller district: Allan, 7.

Highwood area: Rose, 2.

Red Deer region: Tyrrell, 6.

Smoky, Hay, and Berland rivers: MacVicar, 2

Coal-seam correlation: Rutherford, 3.

Crownsnest coal area: Rose, 3.

Gas and oil fields: Dowling, 2.

General: Allan, 11, 15, 18.

McMurray tar sands: Clark, K. A., 1.

Mineral resources: Allan, 2, 4, 5, 6.

Natural gas: Allan, 21; Dowling, 4; Elworthy, 1, 4.

Oil and gas: Hume, 28; possibilities, eastern Alberta: Irwin, 1.

Oil and gas development, foothills belt: Hopkins, O. B., 4.

Oil possibilities, Great Plains: Dowling, 5.

Oil prospecting: Dowling, 10; Ness, 1.

Oil prospects: McLearn, 14.

Battle River: Hume, 20.

Bragg Creek: Hume, 30.

southern Alberta: Williams, M. Y., 15.

Peace River oil: Rutledge, 1.

Petroleum: Hume, 15, 17, 23; Link, 3. and natural gas: Ross, C. C., 1. occurrence: Coste, 1; Dowling, 6; Purdy, 1.

Turner Valley: Davies, S. J., 1.

Sheep River gas and oil field: Slipper, 2.

Smoky River coal field, McAvoy, 1; Anon, 33.

Turner Valley oil field: Elworthy, 3.

Wainwright oil field: Emmens, 1; Hume, 21.

Wainwright oil and gas area: Hume, 10.

Wainwright-Irma oil and gas area: Hume, 13, 16.

Wainwright-Vermilion area: Hume, 19.

Historical geology.

Banff section: Keyes, 178.

Battle River: Hume, 20.

Borings: Dowling, 3.

Fort McMurray: Allan, 3.

Brule Lake region: MacVicar, 1.

Central Alberta: Sheppard, 1.

Cordillera: Burwash, 2.

Cordilleran formations, nomenclature: Walcott, 7.

Correlation: Dowling, 2.

Cretaceous and Jurassic stratigraphy: Allan, 12.

Cretaceous formations: Berry, 74.

lower Smoky River: McLearn, 1.

Peace and Athabaska valleys: McLearn, 2.

Crownsnest Pass, Paleozoic: Warren, P. S., 7.

Alberta—Continued.

Historical geology—Continued.

Crownsnest coal field, northern part: Rose, 1.

Cypress Hills, western end, borings: Dyer, 9.

Devonian, central basin: Dowling, 5.

Edmonton formation, Red Deer River: Sternberg, C. M., 7.

Edmonton-Paskapoo unconformity: Allan, 16.

Fossil zones of Colorado shale: Warren, P. S., 8.

General: Allan, 18; Dowling, 10.

Geologic map: Allan, 14.

Glacier Lake section: Walcott, 3.

Highwood coal area: Rose, 2.

Jasper Park region: Keyes, 37.

Lake Minnewanka section near Banff: Shlimer, 6.

Mud Buttes: Slater, 2.

Northern Cordilleran geosyncline: Fisher, C. A., 2.

Ozarkian system: Walcott, 7.

Paskapoo formation: Allan, 20; Russell, L. S., 1; Simpson, G. G., 14.

Pre-Devonian deposits: Walcott, 11.

Pre-Devonian sedimentation, southern Rocky Mountains: Walcott, 17, 18.

Red Deer River: Sternberg, C. H., 1.

Rocky Mountains: MacKenzie, J. D., 4.

Sheep River gas and oil field: Slipper, 2.

Southern Alberta: Dowling, 19.

Stratigraphy: McLearn, 14.

Southern and central Alberta: Slipper, 1.

Southwestern Alberta: Stewart, J. S., 1.

Swan Hills, Lesser Slave Lake district: Allan, 1.

Wainwright-Vermilion area: Hume, 19.

Western Alberta: Purdy, 1.

Paleontology.

Albertosaurus arctungus, Edmonton formation: Parks, 30.

Arrhinoceratops, Edmonton: Parks, 20. Aspidereutes, Belly River Cretaceous: Gilmore, 19.

Banff area: Warren, P. S., 4.

Birch Lake sandstone, marine fauna: Warren, P. S., 3.

Cambrian trilobites: Raymond, 36.

Catopsalis, Paskapoo formation: Russell, L. S., 2.

Centrosaurus apertus, Belly River beds: Parks, 5.

Chamososaurus albertensis, Edmonton formation: Parks, 29.

Coloradoan, lower Smoky and lower Peace rivers: McLearn, 10.

Corythosaurus, Red Deer River: Gilmore, 18; Parks, 10.

Cretaceous conifer, Belly River formation: Bell, W. A., 15.

Cretaceous plants: Berry, 74.

Cycad from Kootenay coal measures: Warren, P. S., 6.

Alberta—Continued.

Palaeontology—Continued.

- Cycadeoid, Belly River beds: Wieland, 10.
 Delnodontidae, Cretaceous: Matthew, 23, 27.
 Devonian: Kindle, 32.
 Peace River: Kindle, 47.
 Dinosaur tracks, Edmonton formation: Sternberg, C. M., 6.
 Dinosaurs: Matthew, 13; Parks, 13, 16.
 Belly River beds: Lambe, 2; Parks, W. A., 2.
 Belly River formation: Gilmore, 18, 21.
 Edmonton Cretaceous: Gilmore, 21; Parks, 21, 24; Sternberg, C. M., 10.
 Red Deer River: Sternberg, C. H., 1.
Dyoplosaurus acutosquameus, armored dinosaur: Parks, 12.
 Edmonton formation, Red Deer River: Sternberg, C. M., 7; Invertebrata: Warren, P. S., 2.
Edmontosaurus: Lambe, 1.
 Fishes. Raymond, 30.
 Fossil zones of Colorado shale: Warren, P. S., 8.
 Jurassic Ammonoidea, Fernie formation: McLearn, 15.
 Jurassic faunas: McLearn, 13.
 Kinderhook fauna, Nordegg: Warren, P. S., 1.
Kindleia, cichlid fish, Cretaceous: Jordan, D. S., 18.
Kritosaurus, Belly River formation: Parks, 3.
 Lake Minnewanka section near Banff: Shimer, 6.
Laosaurus, Cretaceous: Gilmore, 20.
 Mammal tracks, Paskapoo beds: Rutherford, 7.
 Mammalia, Paskapoo formation: Simpson, G. G., 14.
Palaeoscincus: Matthew, 22.
Panoplosaurus mirus, Belly River beds: Sternberg, C. M., 1.
Parasaurolophus, Red Deer River: Parks, 7.
 Paskapoo formation, Mollusca: Russell, L. S., 1.
 plants: Berry, 73.
 Pelecypoda, Cretaceous: McLearn, 3, 5.
 Fernie formation: McLearn, 9.
Prosaurolophus maximus: Parks, 12.
 Red Deer River fossil beds: Sternberg, C. H., 2.
 Reptilia: Parks, W. A., 1.
Stephanosaurus, crested dinosaur: Parks, 11.
Struthiomimus breviterius, Edmonton formation: Parks, 19.
samueli, Belly River formation: Parks, 33.
Stylomyleodon lacus, Paskapoo beds: Russell, L. S., 3.

Alberta—Continued.

Palaeontology—Continued.

- Styracosaurus*, Red Deer River: Gilmore, 9.
Thescelosaurus warreni, Edmonton formation: Parks, 26.
 Tree, Red Deer Valley: Kindle, 14.
Troodon validus, Belly River formation: Gilmore, 22.

Petrology.

- Sandstone dikes, southeastern Alberta: Williams, M. Y., 17.
 Sandstones, criteria for age determination: Sanderson, 1.

Physical geology.

- Corrosion by saline waters, Salt Prairie: Rutherford, 1.
 Crownsnest coal area, structure: Rose, 3, thrusting: Keyes, 44.
 Freshfield Glacier: Palmer, H., 1, 2.
 Lyell and Freshfield glaciers: Thorington, 1.
 Mud Buttes, structure: Slater, 2.
 Sandstone dikes, southeastern Alberta: Williams, M. Y., 17.
 Sedimentation in Lake Louise: Johnston, W. A., 15.
 Southwestern Alberta: Stewart, J. S., 1.
 Structural features produced by Pleistocene glaciation: Hopkins, O. B., 3.

Physiographic geology.

- Cypress plain: Lawson, 8.
 Boulders in glacial deposits: Rutherford, 9.
 Glacial section at Calgary: Burwash, 4.
 Lake Athabasca, origin: Alcock, 6.
 Mud Buttes, structure: Slater, 2.
 Postglacial lakes, Mackenzie River basin: Cameron, 2.
 Southwestern Alberta: Stewart, J. S., 1.

Underground water.

- Southern Alberta, artesian area: Dowling, 19.

Aleutian Islands, magmatic problems: Fenner, 10.

Algal reefs in Green River formation: Bradley, W. H., 7.

Algae.

- Archean: Gruner, 4, 6.
 California, Los Angeles, Miocene: Gardner, N. L., 1.
 Lithothamnium, Ellis formation, Montana: Howe, M. A., 4.
 Middle Cambrian: Walcott, C. D., 1.
 Pre-Cambrian and Carboniferous: Twenhofel, 3.
 Trinidad, Miocene: Howe, M. A., 2.
 West Indies Tertiary calcareous: Howe, M. A., 1.
 Wyoming, Fuson oil shale: Bradley, W. H., 2.

Algae as limestone makers and climatic indicators: Glock, 3.

- Algonkian. *See* Pre-Cambrian.
- Algonkian sediments, quantitative study: Trowbridge, 4.
- Alidade, telescopic, manipulation: Mather, 1.
- Alkali deposits.
- Canada, western: Cole, L. H., 4, 6, 7, 9.
- Colorado: Headen, 1.
- Nebraska: Barbour, 1.
- Texas, western: Meigs, 1.
- Allanite, Quebec, Champlain County, Lac a Baude: Harvie, 2.
- Alleghany State Park, New York: Lobeck, 8.
- Allendale oil field, Illinois: Moulton, 6.
- Alluvial fan deposits in Upper Huronian: Bain, 3.
- Alluvial fans, California, San Bernardino Mountains: Vaughan, F. E., 1.
- Cucamonga district, California: Eckis, 1.
- Almandite and its significance in the contact zones of the Grenville limestone: Bain, 2.
- Alpine structures, Jasper Park, Alberta: Keyes, 4.
- Altamont moraine: Leverett, 10.
- Alturas quadrangle, Blaine County, Idaho: Ballard, 2.
- Alum.
- Nevada, Fallon, magnesia alum: Hewett, 13.
- Alunite. *See also* Potash.
- Texas, south central: Braun, 1.
- Utah, Marysvale: Tingley, 1.
- Amber.
- British Columbia, Coalmont: Wilson, A. W. G., 1.
- origin: Black, G. F., 1.
- American Mineralogist: Hunt, W. F., 1.
- Ammonites. *See* Cephalopoda.
- Ammonoosuc mining district, New Hampshire: Ross, C. P., 2.
- Amphibia.
- Colorado, Pennsylvanian sandstones, footprints: Henderson, 5.
- Desmatosuchia, Triassic: Case, 10.
- Diplocaulus primigenius, Baylor County, Texas: Mehl, 5.
- Environmental conditions of Permian vertebrates: Case, 15.
- Eryops, carpus: Gregory, W. K., 9.
- pectoral limb: Miner, 1.
- Kansas, coal measures: Martin, H. T., 3.
- Onychopus: Martin, H. T., 4.
- footprints: Hanna, 19.
- Labyrinthodont footprints, Carboniferous, Maryland: Lull, 11.
- Labyrinthodont thoracic shield: Case, 5.
- Labyrinthodonts, auditory organ: Branson, 21.
- Ohio, Pennsylvanian, footprints: Carman, 3.
- Permian: Mehl, 14.
- Tetrapods, primitive: Miner, 1.
- Texas, Triassic: Case, 16.
- western, Upper Triassic: Case, 11.
- Amphibia—Continued.
- Trematops thomasi, Permian, Oklahoma: Mehl, 15.
- Urodeles, Pliocene, western Kansas: Adams, L. A., 4.
- West Virginia, footprints: Lull, 16.
- Wyoming, Lysite beds, Ototriton: Loomis, F. B., 1.
- Triassic: Branson, 19.
- Amphicoelias: Osborn, 5.
- Amygdaloid, tubular, Nova Scotia: Walker, 16.
- Analyses of natural waters, index: Collins, W. D., 5.
- Anaspida and origin of vertebrates: Raymond, 29.
- Andalusite.
- California: Melhase, 1.
- Anguilla, geology: Earle, 6; Vaughan, 40.
- Paleontology.*
- Decapod crustaceans, Oligocene: Withers, 4.
- Echinoids, Neogene: Lambert, J., 1.
- Tertiary calcareous Algae: Howe, M. A., 1.
- Angular fragments in veins: Weinig, 1.
- Anhydrite, geology: Newland, 3.
- Aniakchak Crater, Alaska Peninsula: Smith, W. R., 2.
- Annelida.
- Hamulus, Cretaceous, Tennessee: Wade, B., 2.
- Iowa, Devonian: Searight, 1.
- Anorthosites, formation: Loewinson, 1.
- Anthozoa.
- British Columbia, Triassic coral reef fauna: Shimer, 7.
- Archohella clarki, Meganos formation, California: Vaughan, 45.
- Aulopora, Devonian, Iowa: Fenton, M. A., 1.
- Cannonball fauna: Vaughan, 9.
- Cladochonus and Monilipora: Girty, 6.
- Dominican Republic: Vaughan, 37.
- Ecology and growth rate of corals: Vaughan, 31.
- Favosites, pseudopercula: Dunbar, 10.
- Heterolasma, Silurian, Michigan: Ehlers, 2.
- Hexacoralla, ancestry: Robinson, W. I., 3.
- History: Raymond, 13.
- Paleozoic corals, attachment: Foerste, 12.
- Mexico, western: Palmer, R. H., 8.
- Michigan: Case, 25.
- New York, Utica, and Lorraine formations: Ruedemann, 17.
- Nomenclature: Vaughan, 39.
- Pseudopercula in Favosites: Dunbar, 10.
- Tertiary: Vaughan, 36.
- Tetracoralla, extinction, cause: Hall, G. M., 1.
- Tetradium and coral evolution: Sardeson, 11.

Anthozoa—Continued.

- Trinidad, Miocene: Vaughan, 38.
- Vermont, Chazy coral reef: Raymond, 24.
- West Indies: Vaughan, T. W., 2.

Anthracite.

- Microstructure: Kelly, S. F., 2; Turner, H. G., 3.
- Origin: Jeffrey, 5.
- Low-temperature origin: Roberts, J., 1.
- Pennsylvania: Ashmead, 1.

Anthraxolite, microstructure: Kelly, S. F., 2.

- Sudbury, Ontario: Coleman, 32.

Anticosti Island: Twenhofel, 30.

Antigua.

- Geology: Earle, 1; Thomas, A. O., 1.

Paleontology.

- Lepidocyclina, Oligocene: Vaughan, 44.
- Oligocene brachiopods: Thomas, A. O., 8.
- Tertiary calcareous Algae: Howe, M. A., 872.

Petrology.

- Rhyolitic pebbles: Harrison, J. B., 3.

Antillean fauna, origin: Matthew, 5.

Antilles. See West Indies.

Antimony: Bastin, 2; Schrader, 2-4, 6, 8, 9; Smitheringale, 1.

- Alaska, Alaska Railroad region: Capps, 6.

- Arkansas, Sevier County: Mitchell, 6.
- Idaho: Thomson, F. A., 1; Pine Creek district: Jones, Ed. L., 1.
- Salmon River Mountains: Ross, C. P., 13.

- Washington, Okanogan Valley: Keyes, 73.

Anvik-Andreafski region, Alaska: Harrington, 1.

Apatite.

- Quebec, Buckingham district; Rowe, R. C., 1.

Appalachian field trip, Morse, W. C., 1.

Appalachian oil and gas fields, geology: Mills, R. V. A., 1.

Appalachian oil field: Reeder & Company, 1.

Appalachians.

- Cross section in southern New England: Woodworth, 3.
- New structural type in: Stose, 21.
- Structure: Keith, 2.

Apparatus.

- Torsion seismometer: Anderson, J. A., 2.

Application of geology to mining: Billingsley, 1.

Arachnida.

- Eurypterid horizon, New York: Chadwick, 2.

- Paleolimulus, Permian xiphosuran, Kansas: Dunbar, 3.

- Tertiary: Petrunkevitch, 1.

Aragonite deposited from sea water: Wells, R. C., 4.

Aravaipa mining district, Arizona: Ross, C. S., 5.

Arbuckle Mountains, Oklahoma: Reeds, 11.

Archean, evidence of life in evaluated: Hawley, J. E., 2.

Archean. See Pre-Cambrian.

Arctic regions.

- Arctic coast of Canada: O'Neill, 5.

- Baffin Island: Gould, L. M., 7.

- Canada, eastern: Weeks, L. J., 2.

- Cumberland Sound area, Baffin Island: Weeks, L. J., 3.

- Geological problems: Coleman, 31.

Areas described.

- Foxe Land: Gould, L. M., 6.

- North Atlantic polar islands: Nordenskjöld, 1.

Historical geology.

- Baffin Land, Frobisher Bay: Anon., 68.

- Ellesmere Land: Høltedahl, 1.

- Foxe Land: Gould, L. M., 8.

- General: Coleman, 31; Høltedahl, 3.

- Western Greenland: Seward, 4.

Paleontology.

- Baffin Island, corals, brachiopods, gastropods, and ostracodes: Hussey, 2.
- cephalopods: Foerste, 29.
- Frobisher Bay: Anon, 68.

- Cephalopoda: Foerste, 24, 29.

- Ordovician and Silurian: Foerste, 11.
- northern Greenland: Troedsson, 2.

- Cretaceous plants, western Greenland: Seward, 4.

- Devonian fauna, Ellesmere Land: Tolmachoff, 1.

- Ellesmere Land, Devonian: Tolmachoff, 2.

- Mammoth tusk, Banks Island: Kindle, 29.

- Paleozoic, Ellesmere Land: Kirk, 4.

- Pleistocene, Arctic coast: Dall, 9.

- Tertiary fossils, Brock River: Dall, 9.

Petrology.

- Basaltic rocks: Holmes, A., 1.

Physical geology.

- Ice, characteristics: Kindle, 27.

- Sediments, distribution by Arctic ice: Kindle, 27.

- Tectonics: Høltedahl, 5.

Physiographic geology.

- Baffin Island: Gould, L. M., 6.

Argillites suggesting seasonal deposition: Sayles, 7.

Argonaut gold mine, Ontario: Knight, C. W., 6.

Arizona.

- Airplane mapping: Sampson, 14.

- Outline of geology: Keyes, 83.

- Petrified forests: Edwards, I., 1.

- United States Geological Survey publications relating to Arizona: Jenkins, 2.

Areas described.

- Aravaipa and Stanley mining districts, Graham County: Ross, C. P., 5.

- Courtland-Gleeson region: Wilson, E. D., 2.

- Jerome district, Yavapai County: Reber, 1.

- Navajo country: Reagan, 20.

- Oatman district: Ransome, 12.

- Papago country: Bryan, 7, 25.

Arizona—Continued.

Areas described—Continued.

- Payson district: Lausen, 1.
- Ray-Miami region: Ransome, 1.
- Saddle Mountain and Banner mining districts: Ross, C. P., 6.
- San Carlos Indian Reservation: Schwennesen, 1.
- Sierrita Mountains, Pima County: Ransome, 9.

Economic geology.

- Amole district: Allen, M. A., 2.
- Aravaipa and Stanley mining districts, Graham County: Ross, C. P., 5.
- Asbestos: Allen, M. A., 3; Melhase, 2; Sampson, 11; Trischka, 1; Wilson, E. D., 4.
- Sierra Ancha: Bateman, 3.
- Barytes: Allen, M. A., 1.
- Bisbee district: Elsing, 1; Little, J. M., 1.
- Black Mesa iron deposits, Plumosa district: Keyes, 146.
- Carnotite, Aguila: Hewett, 15.
- Cave Creek district: Lewis, A. S., 1.
- Central Arizona: Ettlinger, 1.
- Copper: Tovote, 1.
- Globe district: Schwartz, 1.
- Jerome district: Mitchell, W. G., 1; Rice, M., 1.
- Ray-Miami region: Ransome, 1.
- Warren district: Mitchell, 4.
- Copper ore minerals, vertical distribution in Junction mine, Warren district: Mitchell, 2.
- Copper schist deposits: Crampton, 1.
- Courtland-Gleeson region, copper-lead deposits: Wilson, E. D., 2.
- Deposition of copper carbonate from mine water: Wilson, P. D., 3.
- Field tests for common metals: Fannett, 1.
- Fluorspar: Allen, M. A., 4.
- Gashed veins, Queen of Sheba: Keyes, 204.
- Globe district: Schwartz, 1.
- Gold, Oatman district: Ransome, 12.
- Gold and copper, Payson district: Lausen, 1.
- Gold placers: Allen, M. A., 6; Wilson, E. D., 3.
- Gypsum: Stone, 11.
- Iron ore, magmatic, Eureka district: Ball, S. H., 1.
- Jerome district, Yavapai County: Reber, 1; Fearing, J. L., 2; Rickard, 9.
- Jerome and Bradshaw Mountains quadrangles: Lindgren, 17.
- Magma mine, Superior district, Pinal County: Browning, W. C., 1.
- Manganese: Jones, Ed. L., 3; Colorado River desert region: Jones, Ed. L., 7.
- Mazatzal Mountains, tourmaline-bearing cinnabar veins: Lausen, 2.

Arizona—Continued.

Economic geology—Continued.

- Mineral resources: Rowe, J. P., 5; Tenney, 1.
 - Navajo country: Reagan, 22.
 - Oil possibilities: Butler, G. M., 1.
 - Holbrook area, northeastern Arizona: Hager, D., 3.
 - Ore deposits: Tovote, 2; age and classification: Wilson, P. D., 1.
 - Porphyry coppers, Palomas Range: Keyes, 153.
 - Quicksilver resources: Lausen, 3.
 - Ray quadrangle: Ransome, 11.
 - Red Bed ores: Bains, 1.
 - Saddle Mountain and Banner districts, Pinal and Gila Counties: Ross, C. P., 6, 14.
 - Salt deposits: Phalen, 1.
 - Sierrita Mountains, Pima County: Ransome, 9.
 - Silver ores, Chloride and Kingman, origin: Bastin, 1.
 - Wickenburg: Bastin, 6.
 - Superior district, Magma mine: Short, 1.
 - Tourmaline-bearing cinnabar veins, Mazatzal Mountains: Hummel, 3.
 - Tres Amigos gold veins: Keyes, 111.
 - Tucson and Amole Mountains: Jenkins, 3.
 - Uranium and vanadium: Butler, G. M., 2.
 - Vanadium: Allen, M. A., 5.
 - Verde Central mine, Jerome district: Fearing, J. L., 1.
 - Verde mining district: Smith, A. H. D., 1.
 - Warren district: Mitchell, G. J., 1.
 - silica outcrops: Trischka, 2.
 - Yavapai County, Congress mine: Staunton, 1.
 - Zinc: Ariz. Bur. Mines, 2.
- Historical geology.*
- Black Mesa: Reagan, 15.
 - Bright Angel quadrangle, geologic history: Noble, 1.
 - Carboniferous fossils in Triassic conglomerate: Bailey, W. F., 1.
 - Cave Creek district: Lewis, A. S., 1.
 - Central Arizona: Ettlinger, 1.
 - Colorado Plateau: Longwell, 6.
 - Colorado River basin: Pack, F. J., 5.
 - Correlation of Fort Apache formations: Reagan, 1.
 - Dakota fossils in Recent deposits: Reagan, 24.
 - Devonian: Keyes, 106; and Carboniferous: Stoyanow, 1.
 - Santa Rita Mountains: Stauffer, 12.
 - section, Pinal Creek: Stauffer, 11.
 - Dos Cabezas Mountains, southwestern Arizona: Sarle, 1.
 - Fort Apache region: Reagan, 4, 11.
 - Eocene glacial deposits: Reagan, 5.
 - General: Keyes, 83, 144.

Arizona—Continued.

Historical geology—Continued.

- Geologic map: Ariz. Bur. Mines, 1; Darton, 13.
 Geologic traverse, Mohave to San Juan River: Gregory, H. E., 9.
 Gila region: Ross, C. P., 1.
 Globe district: Schwartz, 1.
 Grand Canyon region: Moore, R. C., 35; White, D., 39.
 Grand Canyon of Colorado River: Darton, 12; Moore, R. C., 25, 26.
 Grand Canyon section: Keyes, 94.
 Holbrook area, northeastern Arizona: Hager, D., 3, 4.
 Headgate Rock, lower Colorado River: Strahorn, 1.
 Hopi Buttes volcanic field: Reagan, 8.
 Jerome and Bradshaw Mountains quadrangles: Lindgren, 17.
 Jerome district, Yavapai County: Fearing, J. L., 2; Reber, 1; Smith, A. H. D., 1.
 Lake Cochise area: Bryan, 23.
 Laramie formation: Reagan, 18.
 Lees Ferry region: Bryan, 8, 11.
 Lower Gila region: Ross, C. P., 1.
 Mazatzal quartzite, central Arizona: Wilson, E. D., 1.
 Mohave County: Reeside, 4.
 Nomenclature of formations: Keyes, 90.
 Northeastern Arizona: Hager, D., 6; Moore, R. C., 12, 19.
 Northwestern Arizona: Longwell, 12.
 Paleozoic, Grand Canyon: Noble, 3.
 Palomas Range: Keyes, 153.
 Papago country, southwestern Arizona: Bryan, 3.
 Permian: Darton, 20.
 Permo-Triassic, northwestern Arizona: Shimer, 2.
 Pre-Moenkopi unconformity, Colorado Plateau: Drake, 4.
 Ray-Miami region: Ransome, 1.
 Redwall limestone: Keyes, 104.
 Résumé of geology: Darton, 17.
 St. Clair limestone: Ulrich, 14.
 San Pedro Valley: Gidley, 7.
 Santa Rita limestone, Devonian: Stauffer, 8.
 Superior district: Short, 1.
 Tucson and Amole Mountains: Jenkins, 3.
 Verde River lake beds: Jenkins, 6.
 Warren district: Mitchell, G. J., 1.

Mineralogy.

- Analcite, sedimentary, Yavapai County: Ross, C. S., 22.
 Bisbeeite, Grand Canyon: Rogers, A. F., 12.
 Ceruleofibrite, Bisbee: Holden, 6.
 Chalcocalumite, Bisbee: Larsen, 14.
 Cyanotrichite, Grand Canyon: Gordon, S. G., 12; Palache, 18.
 Dumortierite, Clip: Bowen, 21.

Arizona—Continued.

Mineralogy—Continued.

- Flagstaffite: Guild, 1, 4; identily with terpin hydrate: Guild, 2.
 Garnets, Navajo country: Reagan, 21.
 Globe district: Schwartz, 1.
 Higginsite, Bisbee: Palache, 7.
 Hydrous sulphates, United Verde mine: Lausen, 6.
 Meteorite, Gun Creek, Gila County: Palache, 17.
 Navajo: Merrill, 20.
 Wallapai Indian Reservation: Merrill, 54.
 Natrojarosite, Kingman: Shannon, 76.
 Piedmontite, Sulphur Spring Valley: Lausen, 4.
 Pyrite, Tucson: Ayres, 1.
 Ray-Miami region: Ransome, 1.
 Sulphate minerals, Bisbee: Merwin, 6.
 Yuma County: Foshag, 1.
 Voltaite, Jerome: Anderson, C. A., 1.

Paleontology.

- Algal remains, Unker group, Grand Canyon: White, D., 39.
 Arthrodra, Devonian: Stoyanow, 1.
 Bird remains, Benson: Wetmore, 5.
 Brachiopods, St. Clair limestone: Thomas, N. L., 1.
 Devonian section, Pinal Creek: Stauffer, 11.
 Footprints, Grand Canyon: Gilmore, 26, 27, 31, 32, 33, 35, 36, 37.
 Fossil floras, Grand Canyon: White, D., 34, 35.
 Fossil wood, Navajo country: Reagan, 16.
 Ganado petrified forest: Reagan, 13, 14.
 Hermit shale flora, Grand Canyon: White, D., 33.
 Insect, *Typus gilmorei*, Grand Canyon: Carpenter, F. M., 2.
 Mancos-Dakota-Tununk formation, Steamboat: Reagan, 19.
 Nilsonia, Steamboat: Reagan, 12.
Paraphyllanthoxylon arizonense: Bailey, I. W., 1.
 Pleistocene Vertebrata, Anita, Coconino County: Hay, 9.
 Phytosaur, *Pseudopalatus pristinus*: Mehl, 18.
 Proboscidea and Edentata, San Pedro Valley: Gidley, 7.
 Unionid pelecypod, Shinarump conglomerate: Reeside, 16.
 Vertebrata, Lake Cochise area: Bryan, 23.
 San Pedro Valley: Gidley, 5.
 Turtle, *Klinosternon arizonense*: Gilmore, 15.

Petrology.

- Jerome ores: Rice, M., 1.
 Olivine bombs near Globe: Lausen, 5.

Physical geology.

- Basin Range structure at Jerome: Ransome, 15.

Arizona—Continued.

Physical geology—Continued.

Channel trenching in Southwest:
Swift, 1.

Colorado Plateau, structural features:
Moore, R. C., 21.

Erosion and sedimentation, Papago
country: Bryan, 7.

Gashed veins, Queen of Sheba: Keyes,
204.

Northwestern Arizona: Longwell, 12.

Oxidation subsidence at Bisbee: Wis-
ser, 1.

Pedestal rocks: Bryan, 13.

Texas Canyon, southeastern Arizona:
Leonard, R. J., 2.

San Pedro Valley: Bryan, 22.

Stream aggradation through irrigation:
Reagan, 10.

Wind erosion: Bryan, 12.

Physiographic geology.

Channels, valleys, and intermont
plains: Davis, W. M., 34.

Colorado River basin: Pack, 5.

Coon Butte, origin: Keyes, 36.

Desert ranges: Keyes, 259.

Grand Canyon region: Burden, 1;
Moore, R. C., 35; Noble, 1.

Grand Canyon of the Colorado: Birds-
eye, 1; Darton, 3, 12; Termier, 1.
development influenced by secondary
faults: Matthes, 11.

Grand Canyon topography: Matthes, 10.

Island mountain topography: Waibel, 1.

Meteor Crater: Barringer, 1, 2; Bout-
well, 1; Campbell, W. W., 1; Eng.
M. J., 7; Hager, D., 9; Holland,
L. F. S., 1; Robie, 1; Thur-
mond, 1.

origin; Merrill, 8.

Papago country, southwestern Arizona:
Bryan, 3, 7, 15.

Rock tanks and charcos, origin:
Bryan, 5.

San Carlos Indian Reservation:
Schwennesen, 1.

San Pedro Valley: Bryan, 22.

Underground water.

Ground-water resources: Catlin, 1.

Hot spring water, Clifton: Everitt, 1.

Papago country: Bryan, 15.

San Carlos Indian Reservation:
Schwennesen, 1.

Arkadelphia formation, stratigraphy: Howe,
H. V. W., 4.

Arkansas.

Geological Survey activities: Branner,
G. C., 2.

Geological surveys: Branner, J. C., 1.

State geologist's report, 1927: Bran-
ner, 5.

Areas described.

Batesville district: Miser, 8.

Hot Springs district: Purdue, 1.

Economic geology.

Antimony, Sevier County: Mitchell, 6.

Coal analyses: Fieldner, 10.

Arkansas—Continued.

Economic geology—Continued.

Coal fields: Brauner, G. C., 4.

Diamond deposits: Mitchell, 8.

Diamond-bearing peridotite area, Pike
County: Miser, 10, 12.

Diaspore clay: Wysor, 1.

El Dorado oil field: Crider, 432;

Heald, 8; Hull, 5, 9; Ley, 1;

Pratt, W. E., 3; Teas, 4; U. S.

G. S., 7.

age of producing sand; Stephenson, 2.

General: Ferguson, J. G., 1.

Gypsum: Stone, 11.

Lead and zinc ores, Sharpe and Law-
rence counties: U. S. G. S., 14.

Manganese: Stose, 7.

Batesville district: Miser, 1, 5, 8.

Mineral resources: Branner, G. C.,
1, 3; Ferguson, J. G., 1, 2.

Oil-producing sands in southern Ar-
kansas: Hull, 10.

Ozark region, oil and gas possibilities:
Cronels, 5.

Petroleum-bearing concretions, Newton
County: Binney, 1.

Rainbow City field, Union County:
Spoonor, 4.

Road-making materials: Branner,
J. C., 2.

St. Peter sandstone: Dunkin, 1.

Smackover oil and gas field, Ouachita
and Union counties: Bell, H. W.,
2, 3; Schneider, H. G., 1.

Structural features of oil fields, south-
ern Arkansas: Crider, 2.

Trinity sand, oil and gas possibilities:
Easton, 2.

Wildcat wells, south-central Arkansas:
Hull, 8.

Historical geology.

Arkadelphia formation: Howe, H. V. W.,
3, 4.

Boring, Union County: U. S. G. S., 7.

Coastal Plain: Spoonor, 3.

Diamond-bearing peridotite area, Pike
County: Miser, 12.

El Dorado oil and gas field: Gilluly,
1; U. S. G. S., 7.

General: Ferguson, J. G., 1; Miser, 4,
11.

Hot Springs area: Bryan, 9.

Igneous action at Bauxite: Nelson, 24.

Lower Cretaceous, southwestern Ar-
kansas: Miser, 27.

Midway formation: Howe, 8.

southwestern Arkansas: Hull, 12.

Mississippian tuff, Ouachita Moun-
tains: Miser, 3.

Nacatoch formation: Howe, H. V. W.,
5.

Ozark region: Cronels, 5.

Paleozoic: Miser, 7.

Pre-Cambrian rhyolite in well in north-
western Arkansas: Miser, 22.

Sabine uplift: Huntley, L. G., 3.

St. Peter sandstone: Dake, 6.

Arkansas—Continued.

Historical geology—Continued.

- Smackover oil field sands: Schneider, H. G., 2.
- South central Arkansas: Rubey, 1.
- Southwestern Arkansas: U. S. G. S., 13.
- Stratigraphy of oil-producing sands in southern Arkansas: Hull, 10.
- Trinity group: Vanderpool, 3.
- Trinity sandstone, depth of base: Melton, 8.
- Upper Cretaceous: Stephenson, 8.
- Volcanic rocks, Cretaceous: Miser, 19.
- White Cliffs chalk, age and correlation: Ellisor, 2.

Mineralogy.

- Catapleite, Magnet Cove: Foshag, 16.
- Hausmannite, Batesville district: Miser, 2.
- Meteorite, western Arkansas: Merrill, 53.
- Minerals: Wilkes, 1.
- Newtonite, Newton County: Wherry, 30.
- identity with alunite: Foshag, 25.
- Pyrite and wavellite: Shannon, 34.

Paleontology.

- Brachiopoda, St. Clair limestone: Thomas, N. L., 4.
- Cephalopoda, Fayetteville: Croneis, 3.
- Rayonoceras, Fayetteville: Croneis, 1.
- Sharks, Fayetteville formation: Croneis, 4.
- Trilobite, St. Clair limestone: Foerste, 14.
- Trinity fauna: Vanderpool, 2.

Petrology.

- Hot Springs district, igneous rocks: Lloyd, E. R., 2.
- Volcanic rocks, Cretaceous: Miser, 19.
- Wavellite, Montgomery County: Gordon, S. G., 10.

Physical geology.

- Craterlets, east central Arkansas: Thomas, E. T., 1.
- Differential compacting the cause of certain Claiborne dips: Teas, 5.
- Granite in wells: Gould, C. N., 3.
- Ouachita Mountains: Miser, 31.
- structure: Miser, 30.
- Peridotite dikes, Scott County: Miser, 9.
- Structural features of oil fields, southern Arkansas: Crider, 2.

Underground water.

- Gage, Ellis County: Thompson, D. G., 2.
- Hot Springs: Bryan, 9, 14.

Arsenic.

- Nevada Toquima Range: Ferguson, H. G., 2.
- Canada: Hurst, 4.
- General: Heikes, 1, 2.
- United States: Heikes, 3; Sayre, 1.
- Washington, Seattle district: Stoess, 1.

Artesian pressure, origin: Russell, W. L., 15.

Artesian waters and wells. See Underground water.

Artiodactyls, dentition: Loomis, 14.

Arthropoda.

- Balanus, Haiti: Pilsbry, 3.
- Cambrian: Henriksen, 1.
- Crabs, Eocene, Texas: Rathbun, 6.
- Eurypterida: Ruedemann, 3.
- Phylogeny: Raymond, 7.
- Scorpions: Moore, J. I., 1.

Articulata. See Arthropoda.

Arundel fauna, Maryland: Gilmore, 8.

Asbestos.

- Arizona: Allen, M. A., 3; Melbase, 2; Sampson, 11; Trischka, 1; Wilson, E. D., 4.
- Sierra Ancha: Bateman, 10.
- California: Woolsey, 1.
- General: Diller, 3; Sampson, 2, 5, 7, 13; Trischka, 1.
- Quebec: Fisher, N. B., 1; Lynch, 1; Ru Keyser, 1.
- Black Lake: Hubbard, W. D., 1.
- Bonaventure County, Weir Township: Harvie, 1.

Asbestos veins, origin: Stillwell, 2.

Asotin craters of Columbia River basalt: Fuller, R. E., 3.

Aspen district, Pitkin County, Colorado: Knopf, A., 10.

Asphalt. See also Bituminous rocks and sands.

- Alabama: Jones, W. B., 12.
- California: Vander Leck, 2.
- Cuba: Allende, 15.
- Humic acid origin: Haseman, 1.
- Kentucky: Jillson, 25.
- Edmonson County, rock asphalt: Jillson, 64; Weller, J. M., 1.
- Oklahoma, Love County: Bullard, 2.
- southeastern: Honess, C. W., 6.
- Oregon: Hodge, E. T., 12.
- Trinidad: Hartzell, 1; Milner, 1; Waring, 6.

Asphaltic rock.

Alabama: Clark, G. H., 2.

Aspidella-like markings, Cambridge slate: Clark, T. H., 10.

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Associations, meetings—Continued

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twenty-first, Stanford University: Rogers, A. F., 14.

twenty-second, Berkeley: Buwalda, 6.

twenty-third, Stanford University: Buwalda, 9.

twenty-fourth, Berkeley: Buwalda, 10.

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first annual meeting, Chicago, 1920: Whitlock, 11.

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third annual meeting, Ann Arbor: Van Horn, 1, 2.

Associations, meetings—Continued

Mineralogical Society of America—Continued.

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Starfishes, Decorah shale, Minnesota: Sardeson, 32.

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Athapapuskow Lake district, Manitoba: Bruce, 1.

- Atikokania: Rothpletz, 2.
 Atlantic and Gulf Coastal Plain, major geological features: Stephenson, 6.
 Atlantic ridge, central, movement: Brouwer, 3.
 Atlas of Colorado: Margerie, 2.
 Ausable quadrangle, New York: Kemp, 23.
 Attitude of concealed bedded formations, determination of: Mead, 2.
 Aulacera: Schuchert, 2.
 Aux Vases sandstone, diastrophic aspects: Keyes, 91.
 Aves: Ballou, 1.
 Arizona, Benson: Wetmore, 5.
 Bermuda: Shufeldt, 1.
 California, Carpinteria asphalt pit: Miller, L. H., 4.
 Miocene, Lompoc: Miller, L. H., 3.
 Rancho La Brea: Miller, L. H., 1, 2.
 Colorado, Oligocene: Wetmore, 12.
 Cyphornis magnus: Wetmore, 15.
 Diatryma, plumage: Cockerell, 17.
 supposed plumage: Edwards, W. N., 1.
 Fossil eggs, Bermuda: Lewis, F. P., 1; Wood, C. A., 1.
 General: Wetmore, 10.
 Ilium in dinosaurs and birds: Romer, 1.
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 Nebraska, Miocene: Wetmore, 7.
 Agate Springs, Miocene hawk: Wetmore, 9, 11.
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 Sioux County: Wetmore, 13.
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 Palaeospiza bella, Florissant: Wetmore, 6.
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 Aztec mine, Baldy, New Mexico: Chase, C. A., 1.
 Bacteria, ancient: Moodle, 11, 16.
 Bacteria as agents of chemical denudation: Thiel, 11.
 Bacteria, iron-depositing: Harder, 1.
 Bahamas.
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 Detrital constituents in a reef sand: Goldman, 17.
 Bakelite for cementing sections: Ross, C. S., 7.
 Balanocrinus, Tamaulipas, Mexico: Springer, 5.
 Banded clays: Sayles, 1.
 Barbados.
 Historical geology.
 General: Wilmore, 1.
 Scotland beds: Trechmann, 6.
 Barbados—Continued.
 Paleontology.
 Scotland beds: Trechmann, 6; Callianassa: Withers, 6.
 Petrology.
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 Physical geology.
 Soils, genesis: Harrison, J. B., 2.
 Barbers Hill oil field, Chambers County, Texas: Bevier, 2.
 Barite: Allen, M. A., 1; Stose, 6.
 Arizona: Allen, M. A., 1.
 Canada: Spence, 4, 10.
 General: Ladoo, 3; Siebenthal, 23; Stose, 9, 11, 14.
 Georgia: Hull, 3.
 Magmatic origin: Lewis, J. V., 2.
 Mexico: Wittich, 18.
 Missouri: Tarr, W. A., 1.
 Nova Scotia, Inverness County, Lake Ainslie district: Bell, W. A., 12.
 Ontario, Groundhog River area: Todd, E. W., 4.
 Tennessee, eastern: Gordon, C. H., 1.
 Barite pisolites, Batson and Saratoga oil fields: Barton, 10.
 Barium: Stose, 20.
 Barkerville area, Cariboo district, British Columbia: Johnston, 22.
 Barkley Sound, Vancouver Island, British Columbia: Dolmage, 2.
 Barometric surveying in petroleum mapping: Lahee, 3.
 Barosaurus: Lull, 2.
 Barrell's work on sedimentation: Vaughan, 20.
 Barytes. See Barite.
 Base level: Malott, 12.
 Basin Range structure: Gilbert, G. K., 1; Keyes, 160; Louderback, 5; Russell, R. J., 6.
 Basin Ranges, origin: Davis, 26.
 Batchawana area, District of Algoma, Ontario: Moore, E. S., 19.
 Batesville district, Arkansas: Miser, 5.
 Batholiths. See also Intrusions.
 Colorado, central: Crawford, R. D., 2.
 Arizona, central: Ettlinger, 1.
 General: Barrell, 4; Chamberlin, R. T., 14.
 Idaho: Beckwith, R. H., 1.
 Laterally spreading theory: Chamberlin, R. T., 16.
 Minnesota, Giants Range: Allison, I. S., 1.
 Vermillion: Grout, 18.
 Orogenic batholiths: Barrell, 4.
 Problems of: Grout, 24.
 Batholiths and schistosity, relations: Blackwelder, 9.
 Batrachia. See Amphibia.
 Batson oil field, Hardin County, Texas: Sawtelle, 1.
 Bauxite.
 Alabama: Jones, W. B., 6.
 southeastern: Rettger, 1.

Bauxite—Continued.

- Appalachian bauxite deposits: Nelson, 13.
 Association with siderite: Burchard, 17.
 British Columbia: Dunn, R., 2.
 Enrichment: Thiel, 10.
 Formation: Emory, 1; in sink holes: Adams, G. I., 1.
 General: Ladoo, 1; Morse, P. F., 1.
 Georgia, Coastal Plain: Stull, 1, 2.
 Mississippi, northeastern: Burchard, 17, 20; Morse, P. F., 1.
 Origin: Nelson, 10, 13.
 Southern States: Adams, G. I., 3.
 United States: Morse, P. F., 1; Musset, 1.

Baxter Basin gas field, Sweetwater County, Wyoming: Sears, 7.

Bayou Bouillon salt dome, St. Martin Parish, Louisiana: Donoghue, 2.

Beaches. See also Shore lines; Terraces.

Alaska: Dall, 2; southeastern, marine benches: Buddington, 11.

Illinois, Chicago area: Salisbury, 2.

Manitoba, Upper Whitemouth area: Johnston, W. A., 3.

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Beartooth Mountains, Montana: Bevan, 2.

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Belt fauna: Rothpletz, 1.

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Bemis moraine: Leverett, 10.

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Bentonite. See also Volcanic ash.

California: Melbase, 3.

Canada: Spence, 8; western: Spence, 9.

General: Bonine, 2; Davis, C. W., 2; Ross, C. S., 12; in correlation: Sardeson, 36.

Kansas, Logan County: Pinkley, 1.

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Minnesota, southeastern: Sardeson, 30.

Mississippi: Grim, 2.

Occurrence and origin: Giles, 10.

Ordovician, Tennessee, Kentucky, and Alabama: Nelson, 10.

Paleozoic: Ross, C. S., 21.

Tennessee: Nelson, 9.

Wyoming, Shoshone River: Hewett, 16.

Bermudas.

Fossil soils: Sayles, 12, 16.

Paleontology.

Avian remains: Shufeldt, 1.

Bermudas—Continued.

Paleontology—Continued.

Fossil eggs: Lewis, F. P., 1; Wood, C. A., 1.

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Physical geology.

Changes of level: Sayles, 14.

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 Sellards, 2.
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 doo, 5.
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 lards, 2.
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 31, 36, 51, 77.
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 ler, A. M., 1; western coal field:
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 7.
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 32.
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 Carthy, 2.
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 22.
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 F. E., 2.
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 24.
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 Barrell, Joseph: Gregory, H. E., 10; Vaughan, 20; Schuchert, 5, 6, 7, 43; Willis, 3.
 Becker, G. F.: Day, A. L., 2, 3; Merrill, 45.
 Bell, Robert: Ami, 1.
 Billings, W. R.: Kindle, 8.
 Böse, Emil: Cavins, 1; Schuchert, 44.
 Bostwick, T. A.: Dunbar, 6.
 Branner, J. C.: Jordan, 7; Keyes, 54; Penrose, 5, 6; Smith, J. P., 2; Townley, 2.
 Broadhead, G. C.: Keyes, 5.
 Brooks, A. H.: Keyes, 193; Smith, G. O., 18, 19; Smith, P. S., 5, 9; Spurr, 16.
 Brush, G. J.: Dana, 3.
 Burrows, A. G.: Bateman, G. C., 2.
 Call, R. E.: Keyes, 43.
 Canfield, F. A.: Palache, 19.
 Camsell, Charles: Murray, 2.
 Chamberlin, T. C.: Fairchild, 25; Kemp, 22; Keyes, 131; Willis, 32.
 Clark, W. B.: Clarke, J. M., 3; Emerson, B. K., 1.
 Clarke, J. M.: Keyes, 201; Schuchert, 27, 28, 30, 53; Walcott, 16; Woodward, A. S., 2; Anon., 12, 52.
 Coleman, A. P.: Anon., 65.
 Condon, Thomas: McCormack, 2.
 Cox, G. H.: Dake, 9; McNutt, 1.
 Crosby, W. O.: Johnson, D. W., 12; Shimer, 8.
 Curtis, G. C.: Sayles, 17.
 Cushing, H. P.: Clarke, J. M., 15; Kemp, 11.
 Dall, W. H.: Merriam, C. H., 2; Parker, G. H., 1; Pillsbury, 4; Schuchert, 37.
 Dana, J. D.: Pirsson, 3.
 Day, D. T.: Campbell, M. R., 11.

Biography—Continued.

- De Montessus de Ballore: Hobbs, 21.
 Diener, Carl: Richarz, 12.
 Diller, J. S.: Smith, G. O., 30.
 Dowling, D. B.: Collins, W. H., 14, 17.
 Dumble, E. T.: Baker, C. L., 5; Keyes, 177; Simonds, 1; Suman, 2; Taff, 5.
 Eastman, C. R.: Dean, 1, 2; Holland, W. J., 1; Keyes, 253.
 Emerson, B. K.: Keyes, 30.
 Emerson, F. V.: Brigham, 2.
 Emmons, Ebenezer: Keyes, 127.
 Gale, H. S.: Anon., 38.
 Gilbert, G. K.: Andrews, 1; Barrell, 1; Davis, 28; Fairchild, 4; Mendenhall, W. C., 1; Merriam, C. H., 1.
 Gulliver, F. P.: Davis, 10.
 Guppy, R. J. L.: Harris, G. D., 3.
 Hall, James: Clarke, J. M., 12, 13.
 Hague, Arnold: Iddings, 1.
 Hambach, Gustav: Klem, 1.
 Harrison, J. B.: Smith, S., 1.
 Hady, R. J.: Whitlock, 1.
 Hayden, F. V.: Keyes, 154.
 Hess, F. L.: Anon., 14.
 Hice, R. R.: Ashley, 19.
 Hidden, W. E.: Kunz, 1.
 Hilgard, E. W.: Slate, 1.
 Hills R. C.: George, R. D., 4.
 Hinrichs, G. D.: Keyes, 121, 151.
 Hitchcock, C. H.: Upham, 1.
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 Holden, E. F.: Kraus, 1503, 1504.
 Hovey, E. O.: Berkey, 10; Kemp, 6; Keyes, 181; Kemp, 6, 18; Whitlock, 17; Anon., 40.
 Howell, E. E.: Fairchild, 5.
 Hyatt, Alpheus: Anon., 73.
 Iddings, J. P.: Brögger, 1; Merrill, 11.
 Irving, J. D.: Kemp, 1.
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 Jordan, E. K.: Guerard, 1.
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 Lee, W. T.: Alden, 7.
 Leidy, Joseph: Clarke, F. W., 3; Osborn, 30, 31; Scott, W. B., 2, 3.
 Libbey, William: Darton, 22.
 Lilley, A. T.: Kindle, 16.
 Little, George: Little, G., 1.
 Lucas, A. F.: Goodrich, 2; McBeth, 1.
 Lusk, R. G.: Mather, 11.
 Luther, D. D.: Clarke, J. M., 29.
 Lyman, B. S.: Lyman, 1.
 McInnes, William: Alcock, 24; Malcolm, 5.

Biography—Continued.

- Maclure, William: Keyes, 205.
 Mackenzie, J. D.: Anon., 26.
 Marcou, Jules: Keyes, 143.
 Matthew, G. F.: Matthew, 28.
 Mell, P. H.: Calhoun, 1.
 Merriam, J. C.: Matthew, 10.
 Miller, B. L.: Anon., 24.
 Miller, W. G.: Brock, 9, 10; Goodwin, W. L., 3; Hore, 10; Keyes, 197; Knight, C. W., 13; McCrear, 1; Mackenzie, G. C., 2; Rickard, 2; Tyrrell, 8; Anon., 32, 42.
 Moses, A. J.: Kunz, 2; Luquer, 1; Whitlock, 8, 9.
 Morgan, G. B.: Moore, R. C., 29.
 Nicolle, J. N.: Keyes, 200.
 Norton, W. H.: Keyes, 213.
 Norwood, C. J.: Foerste, 25; Jillson, 97; Keyes, 249.
 Nuttall, Thomas: Keyes, 70.
 Owen, D. D.: Keyes, 108.
 Packard, A. S.: Cockerell, 7.
 Peck, F. B.: Fretz, 1; Shimer, 5.
 Pirsson, L. V.: Cross, C. W., 2; Iddings, 4.
 Powell, J. W., memorial: Dellenbaugh, 1.
 Prest, W. H.: Piers, 1.
 Pumpelly, Raphael: Keyes, 139; Willis, 16, 19; Anon., 31.
 Purdue, A. H.: Ashley, 3.
 Purington, C. W.: Ludlum, 1.
 Ransome, F. L.: Anon., 13.
 Raymond, R. W.: Ingalls, W. R., 1; Rickard, 4.
 Robinson, H. H.: Anon., 62.
 Roebling, W. A.: Phillips, 2.
 Rogers, G. S.: Kemp, 6.
 Rogers, H. D.: Keyes, 218.
 Rohn, Oscar: Leith, 12.
 St. John, O. H.: Keyes, 45, 253.
 Salisbury, R. D.: Chamberlin, T. C., 1; Keyes, 74; Wrather, 6.
 Scudder, S. H.: Mayor, 1.
 Shaler, N. S.: Lane, 26.
 Sinclair, E. G.: Osborne, 2.
 Smith, E. A.: Butts, 14; Jones, W. B., 8, 9; Schuchert, 41.
 Smith, William: Keyes, 247.
 Smock, J. C.: Kummel, 6.
 Spencer, J. W. W.: Shaw, 10.
 Springer, Frank: Keyes, 157, 269; Schuchert, 42, 46; Springer, 12.
 Stevenson, J. J.: Keyes, 173; White, I. C., 7.
 Swallow, G. C.: Boone Co. Hist. Soc., 1; Keyes, 274.
 Teller, E. E.: Teller, 1.
 Todd, J. E.: Keyes, 102, 145; Lev-erett, 12.
 Twitchell, M. W.: Kummel, 8.
 Tyrrell, J. B.: Murray, 1.
 Uglow, W. L.: Baker, M. B., 4; Brock, 12; Q., 1; Williams, M. Y., 18.
 Vallant, W. S.: Hayes, A. O., 8.

Biography—Continued.

- Van Hise, C. R.: Chamberlin, T. C., 6; Leith, 3; Wolff, J. E., 1.
 Van Ingen, Gilbert: Howell, B. F., 3.
 Vaux, George, jr.: Gordon, S. G., 22.
 Vogdes, A. W.: Dumble, 5; Keyes, 158; Resser, 2.
 Wadsworth, M. E.: Lane, 17.
 Walcott, C. D.: Barrois, 1; Chamberlin, T. C., 35; Darton, 23; Keyes, 254; Marr, 1; Merriam, 26; Schuchert, 36, 49; Smith, G. O., 25, 26, 29; Troedsson, 3; Woodward, A. S., 3; Wilcox, 1; Anon., 2, 25, 63.
 Ward, H. A.: Fairchild, 558.
 Ward, L. F.: Cape, 1.
 Watson, T. L.: Giles, 5; Keyes, 189; Leighton, 15; Ries, 12, 13.
 Weinzierl, L. L.: Applin, 2.
 Weller, Stuart: Chamberlin, T. C., 36, 39; Decker, 7; Jillson, 97; Schuchert, 38.
 Wells, H. L.: Chittenden, 1.
 White, I. C.: Fairchild, 23; Hennen, 2; Keyes, 271; Schuchert, 45.
 Whittaker, E. J.: Kindle, 33.
 Williams, G. H.: Keyes, 117.
 Williams, H. S.: Cleland, 1; Gregory, H. E., 1.
 Williston, S. W.: Lull, 1, 14; Osborn, H. F., 1, 2; Shimer, 1.
 Wilson, A. G.: Keyes, 253.
 Winchell, H. V.: Gray, J. P., 1; Kemp, 17; Keyes, 136; Rickard, 1; Anon., 18, 29.
 Wintringham, J. P.: Miller, T. I., 1.
 Woodward, R. S.: Wright, F. E., 8.
 Woodworth, J. B.: Daly, 20, 22; Keith, 3; Anon., 47, 49.
 Wortman, J. L.: Holland, W. J., 5; Osborn, 43.
 Wright, G. F.: Hubbard, G. D., 3; Upham, 3.
 Biplanation of earth's crust: Keyes, 44.
 Birds. See Aves.
 Bishop conglomerate, glacial origin: Hares, 2.
 Bissett formation, Texas: King, 4.
 Bituminous rocks and sands. See also Oil shale.
 Alberta, northern: Clark, K. A., 1-4; Ellis, 1, 4-8, 9.
 California: Vander Leek, 2.
 Illinois: Barrett, N. O., 4.
 Iowa, Linn County: Dille, 1.
 Kentucky, western coal field: Burroughs, W. G., 2.
 Black sands, Idaho: Shannon, 25.
 Black shales, origin and composition: Thiessen, 7.
 Blastoides.
 Astrocystites: Hudson, G. H., 2.
 Astrocystites. (*Steganoblastus*) *ottawaensis*: Hudson, G. H., 3.
 Chester fauna: Weller, S., 1.
 Orophocrinus stelliformis, growth stages: Bather, 5.

Block diagrams: Lobeck, 6.
 Blue Ridge salt dome, Fort Bend County,
 Texas: Hager, D. S., 2.
 Boghead coals, origin: Thiessen, 12.
 Bonaventure formation, geological age:
 Clarke, 26.
 Bone, fossil, mineralogy and petrography:
 Rogers, A. F., 19.
 Boraciferous beds, formation: Keyes, 67.
 Borate deposits, California and Nevada,
 vein nature: Keyes, 69.

Borax.

California: Foshag, 20.
 Kramer: Gale, 5; Noble, 5.
 colemanite, near Shoshone: Noble, 6.
 Origin: Foshag, 10.
 Nevada: Foshag, 20; Keyes, 61.
 Clark County: Noble, 2.
 Callville Wash: Gale, 3.

Borings.

Alabama, Coastal Plain: Brantley, 1.
 Florence: Miser, 21.
 northern: Semmes, 2, 3.
 Alberta: Allan, 4.
 Cypress Hills: Dyer, 9.
 Fort McMurray: Allan, 3.
 Wainwright-Vermilion area: Hume,
 19.
 Waterways: Allan, 11.
 Apparatus for measurement of temper-
 atures in deep wells: Van Or-
 strand, 5.
 Arizona, Camp Verde: Jenkins, 6.
 Arkansas, Batesville district: Miser, 8.
 Ozark region: Cronels, 5.
 south central: Rubey, 1.
 Union County: U. S. Geol. Survey, 7.
 British Columbia: Ingall, 1.
 Fraser River Delta: Johnston, W.
 A., 17.
 California, San Diego County: Ellis,
 A. J., 1.
 San Joaquin Valley: Taff, 6.
 Ventura County: Hudson, 4.
 Canada: Ingall, 6, 10.
 eastern: Ingall, 8.
 prairie provinces: Dowling, 3; In-
 gall, 2, 5; and Northwest Terri-
 tories: Ingall, 7.
 Colorado: Colorado, 1.
 Fort Collins: Ball, M. W., 2, 3.
 La Junta area: Patton, H. B., 3.
 northeastern: Mather, 12.
 Deep wells: Anon., 5.
 Deepest wells: Van Orstrand, 10.
 Examination of well cuttings: Tra-
 ger, 1.
 Florida: Sellards, 12.
 Fused cores: Ross, C. S., 4.
 Fused sedimentary rocks in drill cores:
 Bowen, 14.
 Georgia, Coastal Plain: Prettyman, 1.
 Illinois: Krey, 2.
 Allendale oil field, Wabash County:
 Moulton, 21.
 Carlyle-Centralia district: Shaw, 9.
 Clark County: Moulton, 22.

Borings—Continued.

Illinois—Continued.

Colchester and Macomb quadrangles:
 Hinds, H., 1.
 Decatur area: Collingwood, 6.
 District IV: Cady, 7.
 east-central: Mylius, 7.
 Edgington-Milan area: Savage, 5.
 Goodhope and La Harpe quadrang-
 les: Nebel, 2.
 Jacksonville area: Bell, A. H., 7;
 Collingwood, 3.
 Joliet quadrangle: Fisher, D. J., 2.
 Lawrence County, St. Francisville
 area: Bell, A. H., 10.
 Monmouth: Workman, 1.
 New Athens-Okawville area: Shaw,
 E. W., 8.
 northeastern: Anderson, C. B., 1.
 Indiana: Logan, 5, 24.
 southwestern: Logan, 18.
 Iowa, Atlantic: Tilton, 3.
 Brighton: Lindly, 4.
 Crawford County: Lees, 18.
 Davenport: Lindly, 6.
 Ida County: Lees, 10.
 Lucas County: Lugin, 6.
 Morning Sun: Lindly, 5.
 Pocahontas County, Laurens:
 Cable, 3.
 Winfield: Lindly, 2.
 Kansas, Gove County: Lupton, 3.
 Rose dome, Woodson County: Twen-
 hofel, 32.
 Syracuse and Lakin quadrangles:
 Darton, 2.
 western: Twenhofel, 20.
 Wilson County: Stryker, 1.
 Kentucky: Jillson, 2, 21, 25, 35, 73.
 Shaw, E. W., 1.
 Allen County: Jillson, 12.
 Bowling Green: Nelson, 16.
 Breathitt and Knox Counties: Jill-
 son, 13.
 Caldwell County: Weller, 5.
 Edmonson County: Weller, J. M., 1.
 eastern: Jillson, 16, 17.
 Island Creek oil pool, Owsley Coun-
 ty: Jillson, 83, 84.
 Jackson Purchase region: Jillson, 28.
 Nicholasville: Miller, 9.
 Princeton quadrangle: Weller, 7.
 southeastern: Jillson, 8.
 Stinking Creek region: Jillson, 3.
 Warren County: Jillson, 18; Laird,
 1; St. Clair, 3.
 Webster County: Glenn, 4, 5.
 Logging rotary-drilled wells: Clark,
 S. K., 2.
 Logmeter: Burton, G. E., 1.
 Louisiana, northern: Spooner, 2.
 northwestern: Hammill, 1.
 Richland Parish: Campbell, I., 1.
 Sulphur salt dome: Kelley, 1.
 Webster Parish: Ponton, 1.
 Welsh oil field: Reed, L. C., 1.

Borings—Continued.

Metamorphosed core material :
 Wrather, 3.
 Mexico, Isthmus of Tehuantepec :
 Huntley, S., 1.
 Vera Cruz, Idolo Island : Dumble, 6.
 Michigan, Detroit : Vanderwilt, 1.
 Mississippi : Grim, 1; Lowe, 3, 9.
 Tishomingo County : Bramlette, 4.
 Missouri : Krey, 2; Wilson, Mal. E., 1.
 Vernon County : Greene, 8.
 Montana, faulted area south of Bear-
 paw Mountains : Reeves, F., 8.
 Glendive : Bowen, C. F., 2.
 Vananda : Bowen, C. F., 2.
 Nebraska : Schramm, 2.
 Pennsylvanian : Condra, 2.
 Nevada, Steptoe Valley : Clark, W. O.,
 1.
 New Mexico : Darton, 10; Ellis, R. W.,
 1.
 North Carolina, Havelock : Mansfield,
 W. C., 5.
 North Dakota, Ellendale : Meinzer, 14.
 Nova Scotia, Sydney coal field : Hayes,
 6.
 Ohio : Panyity, 3.
 Vinton County : Stout, 6.
 Oklahoma : Bloesch, 1; Shaw, E. W., 6.
 Beaver County : Gould, C. N., 15.
 Caddo County, Cement field : Reeves,
 F., 1.
 Carter County : Roth, 2; Tomlin-
 son, 4.
 central : Hughes, 1.
 Cimarron County : Rothrock, 4.
 Harmon, Greer, Jackson, and Till-
 man counties : Clifton, 5.
 Jefferson County : Robinson, H. M.,
 3.
 Kingfisher and Canadian counties :
 Kite, 1.
 Love County : Bullard, 2.
 Marshall County : Bullard, 3.
 Papoose oil field : Roark, 2.
 southern : Hopkins, O. B., 2; Mor-
 gan, G. D., 1.
 Stonewall quadrangle : Morgan, G.
 D., 5.
 Ontario : Estlin, 2; Harkness, 3, 5, 6;
 Ingall, 3.
 Romney : Davis, H. R., 1.
 southwestern : Williams, M. Y., 4.
 Pennsylvania, Greensburg quadrangle :
 Johnson, M. E., 1.
 Plotting well logs : Weeks, A. W., 2.
 Prairie provinces and Northwest Ter-
 ritories : Ingall, 9.
 Pseudo-stratification in cores : Bram-
 lette, 5.
 Samplegraph : Gardner, J. H., 5, 6.
 South Dakota : Rothrock, 6.
 Ziebach County : Russell, W. L., 6.
 Tennessee, northern : Glenn, 6.
 Sumner County : Mather, 3.
 Waynesboro quadrangle : Miser, 6.

Borings—Continued.

Texas, Amarillo region : Gould, C. N.,
 1; Harrison, T. S., 1.
 Bexar County : Sellards, 10.
 Brown County : Waite, 1.
 central : Matteson, 1.
 Caldwell County : Sellards, 16.
 Colorado County : Bailey, T. L., 1.
 Damon Mound oil field : Bevier, 1.
 Denton County : Winton, W. M., 3.
 Foard County : Beede, 11.
 Fort Stockton quadrangle : Adkins, 4.
 Lytton Springs oil field : Bybee, 2.
 McLennan County : Adkins, 3; Pace,
 1.
 Medina County : Liddle, 3.
 Mexia oil field : Lahee, 17.
 Minerva field, Milam County : Hager,
 D. S., 1.
 Midland County : Sellards, 26.
 north central : Goldman, 5.
 northeastern (part) : Hopkins, O. B.,
 2.
 Panola County : Sellards, 15.
 Potter County : Patton, L. T., 2.
 Ranger oil field : Reeves, F., 2.
 salt domes : Powers, 12.
 Tarrant County : Winton, W. M., 1.
 Webb and Zapata counties : Sellards,
 13.
 western : Mansfield, G. R., 14.
 West Point salt dome : De Golyer, 1.
 United States : Phalen, 1.
 Utah, San Juan field : Miser, 17.
 southeastern : Prommel, 2.
 Virginia, Tazewell County : Harns-
 berger, 1.
 Well logs, correction : Lang, W. B., 4.
 Well samples, care of : Robinson,
 W. I., 2.
 West Virginia, Cabell County : Reger, 8.
 Cheat Mountain coal field, Randolph
 County : Reger, 15, 16.
 Grant County : 7.
 Marion County, deepest well : White,
 I. C., 1.
 Mercer, Monroe, and Summers coun-
 ties : Reger, 9.
 Wisconsin : Thwaites, 3.
 Wyoming, Big Horn Basin : Hewett, 16.
 Cambria : Hancock, 4.
 Lance Creek field : Hancock, 5.
 Rock Springs area, Sweetwater
 County : Schultz, 1.
 Upton-Thornton oil field : Hancock, 3.
 Botany, fossil. See Paleobotany.
 Boudinage : Quirke, 10.
 Boulders.
 Glacial, New York : Martens, 4.
 Kentucky : Jillson, 71.
 Iowa, Kansas drift : Kay, 3.
 Kansas, southeastern, granite boulders :
 Twenhofel, 2.
 Kentucky, glacial boulders : Jillson, 67.
 Bow River between Cochrane and Kanan-
 askis, Alberta : Rutherford, 6.

Royer Valley, Iowa : Lees, 5.

Brachiopoda.

Alberta, Devonian : Kindle, 32.

Peace River, Devonian : Kindle, 47.

Arkansas, St. Clair limestone : Thomas, N. L., 1, 2, 4.

Beloit formation : Sardeson, 24.

Bilobites bilobus, Iowa : Thomas, A. O., 25.

Brooksina, Alaska : Kirk, E., 2.

Cambrian : Walcott, 8.

Cymbidium, Alaska : Kirk, 5.

Derbya : Price, W. A., 1.

Derbya crassa, abnormal sculpture : Price, 5.

Etheridgina : Greger, 3.

Harpidium, pentameroid brachiopod, southeastern Alaska : Kirk, 3.

Iowa, Devonian Pentameracea : Belanski, 2.

Hackberry stage : Fenton, C. L., 1.

Maquoketa shale : Bradley, W. H., 2.

Kentucky, Mississippian : Ehlers, 10.

Wayne County, Warsaw formation :

Ehlers, 11.

Lenoir and Athens formations, Tennessee and Virginia : Raymond, 37.

Leptodus, British Columbia : Kindle, 38.

Lingula, antiquity : Keyes, 85.

Lingulidiscina : Girty, 14.

New York, Utica and Lorraine formations :

Ruedemann, 17.

Oligocene, Antigua : Thomas, 8.

Ontario, Toronto area : Parks, W. A., 8.

Ozarkian : Walcott, 8.

Orbiculoidea : Girty, 13.

Ottosee and Holston formations, Tennessee and Virginia : Willard, B., 5.

Platystrophia : McEwan, 1.

Pocono fauna : Price, W. A., 2.

Pugnoides, Devonian, Iowa : Thomas, 14.

Rhynchotrema and Zygospira, Black River : Fenton, 5.

Recurrent brachiopods, Lower Cretaceous, northern Texas : Sandidge, 1.

Schizophoria, Devonian, Iowa : Fenton, M. A., 3.

Spirifer : Butts, 3.

orthogenesis : Fenton, C. L., 7.

Spirifer orestes phylum : Fenton, C. L., 10.

Stringocephalus, distribution : Kirk, E., 7.

Stringocephalus burtoni, distribution : Kindle, 10.

Stropheodonta demissa, evolution in Snyder Creek shales : Branson, 4.

Strophomena, Black River and Richmond : Fenton, C. L., 9.

Strophomena incurvata, pathologic ornamentation : Sardeson, 26.

Syringothyris : North, F. J., 1.

Terebratula, Eocene, Maryland : Roberts, J. K., 1.

Brachiopoda—Continued.

Terebratulacea, Devonian, Iowa : Belanski, 4.

Texas, Butler salt dome, Midway formation : Gardner, J. A., 6.

San Saba County, Mississippian : Girty, 7.

Brass ore in nature : Keyes, 107.

Breccia.

Iowa, Wapsipinicon breccias : Norton, W. H., 1.

New York, Rochester : Giles, 1.

Breccias of St. Louis formation : Grawe, 2.

Bridge Creek flora, Oregon : Chaney, 16.

Bridge River district, British Columbia : McCann, 3, 4.

Bristow quadrangle, Creek County, Oklahoma : Fath, 6.

British Columbia.

Coal resin, Coalmont : Steele, 1.

General : Dolmage, 11.

Clearwater, Lake area : Marshall, J. R., 6.

Finlay River district : Dolmage, 17.

Reconnaissance, Skeena River to Stewart : Hanson, 6.

Areas described.

Ainsworth district : Schofield, 4.

Alberni area, Vancouver Island : MacKenzie, J. D., 7.

Atlin-Telegraph Creek : Cockfield, 18.

Barkerville area, Cariboo district : Johnston, W. A., 10, 22.

Barkley Sound, Vancouver Island : Dolmage, 2.

Bridge River area : McCann, 3, 4.

Britannia area : Schofield, 1.

Cariboo district : MacKay, B. R., 3; Uglow, 9.

Cedar Creek area : Johnston, W. A., 18.

Cheam Range : Cairnes, 3.

Chilko Lake area : Dolmage, 15.

Coast and islands between Burke and Douglas channels : Dolmage, 8; between Douglas Channel and the Alaskan boundary : Dolmage, 9.

Coquihalla area : Cairnes, 4; Cam-sell, 6.

Copper Mountain, Gun Creek : Cam-sell, 4.

Dease Lake area, Cassiar district : Johnston, W. A., 23; Kerr, F. A., 1.

Dewdney Trail : Cairnes, 2.

Driftwood Creek area, Babine Mountains : Hanson, 9.

Eutsuk Lake district : Brock, 1; Marshall, J. R., 4.

Fraser River Delta map area : Johnston, W. A., 17.

Harrison Lake district : Crickmay, 5.

Hat Creek coal area, Kamloops district : MacKay, B. R., 5.

Hazleton district : O'Neill, 1.

Jervis Inlet region : Blanchard, R., 1.

Kettle Valley : Cairnes, 2.

British Columbia—Continued.

Areas described—Continued.

- Kitsault River to Skeena River :
Hanson, 3.
Kitsault Valley; Hanson, 2.
Lakelse Lake area, coast district :
Marshall, J. R., 5.
Lardeau area: Bancroft, M. F., 3.
Lasqueti Island: MacKenzie, J. D., 3.
Lillooet Valley: Cairnes, 12.
Lillooet-Prince George region: Reinecke,
3.
North Thompson Valley, Kamloops dis-
trict: Uglow, 3.
Peace River district: Spieker, 1.
Peace River canyon coal area; Mc-
Learn, 7.
Pemberton area, Lillooet district :
Cairnes, 8.
Prince Rupert to Burns Lake: Hanson,
10.
Purcell Range west of Brisco, Kootenay
district: Walker, J. F., 2.
Quatsino Sound district, Vancouver
Island: Dolmage, 1.
Salmon River district: O'Neill, 3;
Schofield, 11; Young, G. J., 3.
Slocan area: Bancroft, M. F., 2.
Stikine River area: Kerr, F. A., 2, 3.
Sunloch copper district, Vancouver
Island: Dolmage, 3.
Tatla-Bella Coola area, Coast district :
Dolmage, 16.
Whitesail-Tahtsa lakes area: Marshall,
J. R., 3.
Windermere area, Kootenay district :
Walker, J. F., 1.
Yale district, Silver Creek, Skagit and
Similkameen rivers: Cairnes, 5.
Zymoetz River area, Coast district :
Hanson, 11.

Economic geology.

- Alberni area, Vancouver Island: Mac-
Kenzie, J. D., 7.
Alice Arm district: Davis, A. W., 1.
Alps-Alturas group, Slocan mining di-
vision: Cairnes, 11.
Anyox copper deposits: Clapp, L. R.,
1, 2.
B. C. silver mine, Stewart district :
Dolmage, 14.
Bauxite: Dunn, R., 2.
Bornite and pyrrhotite in Jeune ores,
Vancouver Island: Osborne, F. F., 1.
Britannia mines, copper: Schofield, 17.
Cariboo district: Galloway, J. D., 2;
Johnston, W. A., 13.
Barkerville area: Uglow, 9.
Cariboo gold fields: MacKay, B. R.,
1, 2.
Cheam Range, Lucky Four ore de-
posits: Cairnes, 3.
Clearwater Lake area: Marshall, J.
R., 6.
Clinton district: Reinecke, 2.
Coal, Vancouver Island: MacKenzie,
J. D., 5.

British Columbia—Continued.

Economic geology—Continued.

- Coalmont amber: Wilson, A. W. G., 1.
Coast and islands between Douglas
Channel and the Alaskan bound-
ary: Dolmage, 9.
Coast Range ore deposits: Brewer,
W. M., 2.
Copper, Lasqueti Island: MacKenzie,
J. D., 3.
Hidden Creek mine: Campbell,
E. E., 1.
Copper sulphides, La Fleur Mountain :
McLaughlin, D. H., 1.
Coquihalla area: Cairnes, 1.
Cordillera, metallogenetic epochs :
Brock, 13.
Crowsnest Pass coal field: Strachan, 1.
Dolly Varden mine, Kitsault River
district: Hanson, 4.
Elk River valley: Marshall, J. R., 1.
Engineer mine, Atlin: Weed, 3.
Epsomite, Ashcroft: Walker, 8.
Finlay River district: Dolmage, 17.
Fissure systems: Schofield, 16.
General: Brock, 7; Galloway, J. D.,
1-4; Nichols, H. G., 1; Robertson,
3-6.
Gold: Camsell, 8.
Barkerville area: Johnston, W. A.,
10, 11.
Bridge River area: McCann, 3, 4.
Cedar Creek area: Johnston, W. A.,
18.
coast and islands between Burke
and Douglas channels: Dolmage,
8.
Coquihalla area: Camsell, 6.
Dease Lake area, Cassiar district :
Johnston, W. A., 23.
Fraser River: Johnston, W. A., 21.
Placer gold, Barkerville area, Cari-
boo district, origin: Uglow, 10.
Gold-cobaltite-iodestone deposit, North
Thompson Valley: Uglow, 15.
Granby mines, Phoenix: Campbell, E.
E., 2.
Hat Creek coal area, Kamloops dis-
trict: MacKay, B. R., 5.
Hazleton district: O'Neill, 1.
Hidden Creek mine, Granby Bay :
Campbell, E. E., 1.
Kamloops Lake, mercury deposits :
Camsell, 2.
Iron ores: Young, G. A., 6.
Kootenay region: Langley, 1.
Lardeau district: Bancroft, M. F., 1, 4.
Lardeau and Trout Lake mining divi-
sions: Emmens, 2.
Lillooet district: Cartwright, C. E., 1.
Lillooet-Prince George region: Rein-
ecke, 3.
Limonite, Taseko Valley: MacKenzie,
J. D., 1.
Magnesium sulphate: Goudge, 1.
Magnetic deposit, Vancouver Island,
genesis: Uglow, 16.

British Columbia—Continued.

Economic geology—Continued.

- Marble Bay mine, Texada Island: Dolmage, 7.
- Mesozoic mineralization: Schofield, 3.
- Mineral deposits: Wilson, P. D., 2.
- Mineral resources, Pacific Great Eastern Railway: Brewer, W. M., 3; Davis, A. W., 2.
- Mineralization, George gold-copper mine, Stewart: Smitheringale, 2.
- Mining industry: Galloway, J. D., 1-5; Robertson, 1-6.
- Nickel ore, Yale district: Cairnes, 7, 9.
- Northwestern British Columbia: Hanson, 8.
- Oil and gas development, foothills belt: Hopkins, O. B., 4.
- Oil and gas possibilities, northeastern British Columbia: Stewart, J. S., 2.
- Oil possibilities, Vancouver region: Camsell, 3.
- Peace River district: Spieker, 1.
- Oil prospects: Hume, 27.
- Ore deposits: Schofield, 9, 11.
- prospecting: Uglow, 14.
- Peace River canyon coal area: McLearn, 7.
- Peat, southwestern British Columbia: Anrep, 11.
- Placer gold and lead-zinc deposits, Dogtooth Range, Kootenay district: Evans, C. S., 1.
- Placers, Cariboo district: Johnston, W. A., 13, 14; Tyrrell, 2.
- Cedar Creek: Johnston, W. A., 20.
- Platiniferous rocks, Tulameen area, Yale district: Poitevin, 6.
- Platinum: Camsell, 5; Uglow, 2; Tulameen district: Macaulay, 1.
- Portland Canal district: Hanson, 7; Wilhelm, 1.
- Premier mine: Burton, W. D., 1; Hanson, 5.
- Quartz veins, Barkerville, Cariboo district: Uglow, 6, 8.
- Quatsino Sound district, Vancouver Island: Dolmage, 1.
- Salmon River district: Banks, 1; Prior, C. E., 1; Schofield, 7, 14.
- Silver, Stump Lake: Camsell, 7.
- Silver mineralization, Beaverdell: McKinsty, 8.
- Silver-lead deposits, Ainsworth district: Schofield, 4.
- Atlin district: Cockfield, 17.
- Slocan district: Bateman, 14.
- Silver-lead-zinc veins, Atlin: McKinsty, 7.
- Similkameen district: Campbell, C. M., 2.
- Horn silver mine: Bostock, 1.
- Slocan district: Cairnes, 10, 13.
- Sodium carbonate: Goudge, 2.

British Columbia—Continued.

Economic geology—Continued.

- Southwestern British Columbia, Yale, and Similkameen mining divisions: Cairnes, 2.
- Stewart district: Campbell, E. E., 1, 2.
- silver ores: Dolmage, 4.
- Sunloch copper district, Vancouver Island: Dolmage, 3.
- Taseko Valley iron deposits: Brewer, W. M., 1.
- Texada Island magnetites: Swanson, C. O., 2.
- Tungsten near Hazelton: Hurst, 3.
- Vancouver Island, west coast: Dolmage, 5.
- Western mineral belts: Dolmage, 13.
- Windpass gold mine, Chu Chua: Uglow, 12.
- Yale district, Hillsbar gold claims: Cairnes, 6.
- Zinc, East Kootenay district: Whittemore, C. R., 1.
- Zinc and lead: Robinson, A. H. A., 2.
- Zoning of mineral deposits: Hanson, 12.

Historical geology.

- Ainsworth district: Schofield, 2.
- Barkerville district: Uglow, 6.
- Cariboo district: Uglow, 8.
- Beaverfoot - Brisco - Stanford Range: Walcott, 9.
- Borings: Ingall, 1, 4.
- Bow River section, Banff: Kindle, 30.
- Bridge River district: McCann, 4.
- Cambro-Ordovician section, Beaverfoot Range: Burling, 4; Mount Robson area: Burling, 2, 5.
- Copper Mountain, Gun Creek: Camsell, 4.
- Coquihalla area: Cairnes, 1.
- Cordillera: Burwash, 2.
- geological record: Schofield, 13.
- Cordilleran formations, nomenclature: Walcott, 7.
- Elk River valley: Marshall, J. R., 1.
- Eocene coal basin, Chu Chua: Uglow, 7.
- Fraser River canyon: Camsell, 9.
- Geologic history: Brock, 4, 13.
- Geologic mapping: Dolmage, 6.
- Geologic record: Schofield, 15.
- Igneous activity: Brock, 14.
- Jurassic and Triassic, relations: Crickmay, 8.
- Lower Cambrian, southeastern British Columbia: Schofield, 10.
- Mesozoic formations: Goranson, 1; Schofield, 3; Hedley: Schofield, 5.
- Northeastern British Columbia: Stewart, J. S., 2.
- North Thompson Valley: Uglow, 11, 15.
- Parson Bay: Crickmay, 9.
- Pleistocene, Vancouver Island: Berry, 33.

British Columbia—Continued.

Historical geology—Continued.

Pre-Cambrian and Cambrian, southeastern British Columbia: Schofield, 12.

Pre-Devonian deposits: Walcott, 11, 17, 18.

Purcell Range and Rocky Mountains, relations: Burling, 3.

Rocky Mountain region: Schofield, 8.

Rocky Mountain trench: Shepard, 3, 11.

St. Eugene silts, Kootenay Valley: Hollick, 10.

Salmon River district: Schofield, 7.

Silurian tillite: Shepard, 1.

Sooke formation, Vancouver Island: Clark, B. L., 8; Cornwall, 1.

Southwestern British Columbia, Yale and Similkameen mining divisions: Cairnes, 2.

Taseko Lake-French Bar Creek: MacKenzie, J. D., 2.

Taseko Valley: MacKenzie, J. D., 1.

Tulameen district: Macaulay, 1.

Upper Peace River region: McLearn, 6.

Vancouver Island, coal measures: MacKenzie, J. D., 5.

west coast: Dolmage, 5.

Vancouver region: Camsell, 3; Schofield, 17.

Mineralogy.

"Allemontite," Atlin: Walker, 15.

Axinite, Nickel Plate Mountain: Poitevin, 3.

Bornite, cleavable, Usk: Walker, 13.

Bornite-chalcopryrite intergrowth, Legate Creek: Uglov, 4.

Calamine, Ainsworth: Poitevin, 2.

Camsellite, Douglas Lake: Ellsworth, 1.

Cerussite, Moyie: Poitevin, 4.

Copiapite, Liard Post: Walker, 20.

Ferrierite, Kamloops Lake: Graham, R. P. D., 1.

Fibroferrite, Quatsino: Walker, 21.

H. B. mine, Salmo: Walker, T. L., 1.

Iridosmine crystals, Ruby Creek, Atlin district: Gledhill, 1.

Knopite and magnetite occurrence, Moose Creek: Ellsworth, 10.

Lansfordite, Atlin: Poitevin, 8.

Marble Bay mine, Texada Island: Dolmage, 7.

Orthoclase, Penticton: Walker, 9.

Sundry minerals: Poitevin, 10.

Paleontology.

Algae, Middle Cambrian: Walcott, 1.

Cambrian: Walcott, 8.

Ceratopyge fauna: Raymond, 16.

Cirripedia, Sooke formation, Vancouver Island: Cornwall, 2.

Cretaceous Mollusca: Reagan, 7.

Cretaceous plants, Stikine River, Cassiar district: Bell, W. A., 14.

Crustacea, stalk-eyed: Rathbun, 5.

Cyphornis magnus, Vancouver Island: Wetmore, 15.

British Columbia—Continued.

Paleontology—Continued.

Diatomaceae: Boyer, 1.

Foraminifera: Cushman, 22.

Graptolites, Glenogle formation: Clark, T. H., 14.

Jurassic, Hazelton group: McLearn, 11.

Leptodus: Kindle, 38.

Marpolia, Cambrian Alga: Walton, 1.

Myadesma, Vancouver Island: Clark, B. L., 6.

Ordovician, Rocky Mountains: Wilson, A. E., 4.

Palliseria, upper Ordovician: Wilson, A. E., 3.

Pleistocene, southwestern British Columbia: Crickmay, 3.

Pseudocycas, Dunvegan sandstone, Moberly Lake: Berry, 31.

Sooke formation, Vancouver Island: Clark, B. L., 8; Cornwall, 1.

Saint Eugene silts, flora: Hollick, 10.

Spongiae, Middle Cambrian: Walcott, 2.

Tertiary floras: Berry, 78.

Triassic coral reef fauna: Shimer, 7.

Upper Triassic: Smith, J. P., 3.

Petrology.

Gabbros, East Sooke and Rocky Point, Vancouver Island: Cooke, H. C., 5.

Post-Pleistocene volcanics, Milbank Sound region: Dolmage, 10.

Physical geology.

Bromley Glacier: Hayes in Bateman, 5.

Concretions: Kindle, 24.

Earthquake, December 6, 1918: Denison, F. N., 1.

Igneous activity: Brock, 14.

Frazer River delta, sedimentation: Johnston, W. A., 8, 9.

sandstone in delta, formation: Johnston, W. A., 6.

stratification: Johnston, W. A., 12.

Robson Glacier, motion: Wheeler, A. O., 3.

Physiographic geology.

Cordilleran ice sheet: Read, 1.

Cariboo Mountains: Chamberlin, R. T., 15.

Cretaceous peneplain, southern British Columbia: Uglov, 11.

Fraser River canyon: Camsell, 9.

Fraser River delta: Johnston, W. A., 7, 8.

Glacial deposits, Vancouver region: Johnston, W. A., 5.

Glaciation: Tyrrell, 1.

Llewellyn Glacier: Read, 1.

Pleistocene, Cariboo and Cassiar districts: Johnston, W. A., 24.

Pleistocene oscillations of sea level, Vancouver region: Johnston, W. A., 4.

Purcell trench: Schofield, 6.

Purcell Range and Rocky Mountains, structural relation: Shepard, 2.

British Columbia—Continued.

Physiographic geology—Continued.

Rocky Mountain trench: Shepard, 2,
11; origin: Schofield, 8.

Yoho Glacier, movement, 1917–19:
Wheeler, A. O., 2.

Underground water.

Hot Springs: Elworthy, 6.

British Honduras.

General: Ower, 1.

Economic geology.

Cassiterite: Jones, W. R., 1.

Historical geology.

General: Ower, 2.

Silica lines: Ower, 3.

British Virgin Islands, geology: Earle, 5.

Brockville-Mallory area, Ontario: Wright,
J. F., 1, 2.

Bromine: Stone, R. W., 5, 14.

Brown's Park formation: Peterson, 8.

Bryan Heights salt dome, Brazoria County,
Texas: Kennedy, 1.

Bryozoa.

Anisotrypa waynensis, Warsaw forma-
tion, Kentucky: Deiss, 1.

Aulopora, nature and relationships:
Fenton, M. A., 2.

Carboniferous, Oklahoma: Morgan,
G. D., 5.

Cheilostomata, classification: Canu, 7.
Chester series, Illinois and Kentucky:
McFarlan, 1.

Cyclotomata: Canu, 3, 6.

Fistulipora, Canyon formation, Texas:
Link, 6.

General: Bassler, 6.

Gulf of Mexico region: Canu, 8.

New York, Utica and Lorraine forma-
tions: Ruedemann, 17.

North American later Tertiary and
Quaternary: Canu, 4.

Ontario, Toronto area: Parks, 8.

Workman's Creek section, Cincin-
natian series: Fritz, 2.

Stones River group: Coryell, 2.

Tennessee, Ripley fauna: Wade, B., 3.

Tertiary: Canu, 2, 5.

West Indies: Canu, 1.

Bubble impressions: Twenhofel, 13.

Buffalo Hump mining district, Idaho: Beck-
with, R. H., 2.

Building stone. See also Granite; Lime-
stone; Sandstone; Stone.

Canada: Parks, 27.

General: Richardson, C. H., 6.

Indiana: Logan, 8, 10.

Kentucky: Richardson, C. H., 6.

Oklahoma: Oakes, 1.

Pennsylvania: Stone, 19.

Burbank field, Osage County, Oklahoma:
Sands, 1, 2.

Burket-Seeley oil pool, Greenwood County,
Kansas: Loomis, H., 2.

Burnthill Brook area, New Brunswick:
Young, G. A., 1.

Butler salt dome, Texas: Powers, 3.

Buttress structure: Branson, 20.

Byram marl, Mississippi: Cooke, C. W., 7.

Cadmium: Siebenthal, 1, 2, 6, 9, 14, 18, 26.

Caesium: Landes, K. K., 7.

Cahokia Mounds, Illinois, geological aspects:
Leighton, 12; origin: Leighton, 8.

Calcination volcanoes: Hobbs, 10.

Calcites, behavior to radium radiations:
Headden, 5.

luminescence: Headden, 6.

Calcium carbonate, precipitation: Em-
mons, R. C. 8.

Calcium chloride: Stone, 5, 14.

Caliche: Udden, 16.

formation: Wanless, 3.

Oklahoma: Lonsdale, 5.

origin: Lonsdale, 6.

Caliche and pseudo-anticlines: Price, W. A.,
10.

California.

Cormorant Island, Salton Sea, Im-
perial County: Rogers, A. F., 26.

Geologic conditions at St. Francis dam
site, San Francisquito Canyon:
Louderback, 9.

Geologic features: Bailey, C. E., 2.

Kennett dam site, Sacramento River:
Louderback, 10.

St. Francis dam site: Louderback, 9,
11; Ransome, 19.

State mineralogist's report: Bradley,
W. W., 10.

Areas described.

Cuyamaca region: Hudson, F. S., 1.

Humboldt County: Thornbury, 1.

Iron Canyon, Sacramento River: Ham-
lin, 1; Lawson, 3.

Ivanpah quadrangle: Hewett, 17.

La Jolla quadrangle: Hanna, M. A., 3.

Lanfair Valley, San Bernardino
County: Thompson, D. G., 1.

Los Angeles County: Kew, 6.

Mohave Desert, eastern part: Palmer,
L. A., 2.

Petaluma, Point Reyes, and Santa Rosa
quadrangles: Dickerson, 2.

Point Sur quadrangle: Trask, 5.

Randsburg quadrangle: Hulin, 3.

Sacramento Valley: Bryan, 10.

Salton Sea region: Brown, J. S., 3.

San Bernardino Mountains: Vaughan,
F. E., 1.

San Gabriel Valley region: Johnson,
H. R., 1.

San Diego County, western part: Ellis,
A. J., 1.

Santa Rosa Island, Santa Barbara
County: Kew, 10.

Santa Ynez River district, Santa Bar-
bara County: Kew, 2.

Simi Valley, southern California: Kew,
1.

Sunset-Midway oil field: Pack, R. W.,
1.

Upper Santa Ynez River basin: Nelson,
R. N., 1.

Ventura County: Kew, 6.

California—Continued.

Areas described—Continued.

Warner Range, northeastern California: Russell, R. J., 1.

Wheeler Ridge area, Kern County: Hoots, 5.

Economic geology.

Ancient river-bed deposits: Alling, M. N., 1.

Asbestos: Woolsey, 1.

Alamitos and Seal Beach oil fields: Cunningham, C. M., 1.

Andalusite: Knopf, A., 9; Melhase, 1.

Asphalt and bituminous sand deposits: Vander Leck, 2.

Avawatz Mountains: Tucker, W. B., 1.

Belridge and North Belridge oil fields, Kern County: Boezinger, 1.

Bentonite: Melhase, 3.

Borate deposits, Kramer: Gale, 5.

Borax: Foshag, 20.

Buena Vista Hills, Midway oil field, Kern County: Godde, 2.

Calaveras County, West Point district: Logan, C. A., 2.

Calico mining district, San Bernardino County: Weeks, F. B., 1.

Carson Hill: Moss, 1.

Chromite, Klamath Mountains: Diller, 4.

Chromite deposits: Diller, 1.

Ciervo oil field: Stalder, 1.

Clay: Boalich, 1; Dietrich, 1, 2.

Alberhill, Riverside County: Hill, J. H., 1.

Coal, bibliography: Boalich, 3.

Coalinga field: Wilhelm, 4.

Colemanite deposits, origin: Foshag, 10

Colemanite near Shoshone: Noble, 6.

Copper: Logan, C. A., 3.

Engels, Plumas County, origin: Turner, H. W., 1.

Shasta County: Tucker, W. B., 4.

Development of oil fields: Moran, 3.

Devils Den oil field, Kern County: Huguenin, 1.

Diatomiferous horizons and petroleum deposits: Landero, 1.

Dominguez oil field: Dodd, 2.

Dry placers, southern California:

Haley, C. S., 1.

Economic minerals: Castello, 1.

Early oil development: Orcutt, W. W., 1.

Gold, Wilshire district: Turner, H. W., 3.

Gold lodes, East Fork district, Trinity County: Tucker, W. B., 2.

Gold ores, Grass Valley: Howe, E., 1.

Gold placers: Haley, 3.

Gold production 1849-1923: Hill, J. M., 5.

Goleta district: Vickery, 6, 8, 9.

Gypsum: Stone, 11.

southern California: Newman, 1.

Hovey Hills oil field, Kern County: Saunders, 1.

California—Continued.

Economic geology—Continued.

Humboldt County, oil and gas exploration: Hoots, 6, 7.

Huntington Beach oil field, Orange County: Case, J. B., 3; Gester, S. H., 1; Graser, 1.

Iron ore: Boalich, 2.

Identifying subsurface strata: Roberts, D. C., 1.

Inglewood oil field: Huguenin, 2.

Kelly silver mine, Randsburg, Kern County: Carpenter, J. A., 2.

Kern County, northwestern: English, W. A., 1.

Sunset oil field, Thirty-five anticline: Godde, 3.

Kern River oil field, Kern Front area: Hendrickson, 1.

Kramer borate deposits, Kern County: Noble, 5.

Lindero anticline, Ventura County: Warner, T., 2.

Limestone deposits, bibliography: Lutz, 1.

Long Beach oil field: Case, J. B., 2; Schwennesen, 2.

Los Angeles basin, oil fields: Arnold, 3; Milner, 4; Vickery, 11.

structure: Eaton, J. E., 1.

Los Burros district, Monterey County: Hill, J. M., 4.

Lost Hills oil field, Kern County: McCabe, R. E., 1.

McKittrick oil field, structure: English, W. A., 4.

Magnetite: Bradley, W. W., 6; Palmer, L. A., 3; Phalen, 2.

Sonoma County: Turner, H. W., 4.

Magnetite, Madera County: Dougherty, 6.

Manganese, southeastern California: Jones, Ed. L., 4.

Mineral production: Bradley, W. W., 1-5, 7-9.

1927: Symons, 1.

Mineral resources: Hamilton, F., 1, 2.

Mineralization, Randsburg: Hulin, 1.

Mt. Poso oil field: Wilhelm, 3.

Nevada County: Mac Boyle, 3.

Nitrate deposits, Amargosa region, southeastern California: Noble, 4.

Oil and gas prospects, Buttonwillow, Kern County: Ferguson, R. N., 1.

Oil, gas, and water, relations in Sunset-Midway field: Rogers, G. S., 1.

Oil-field waters: Palmer, C., 2; Rogers, G. S., 2.

Oil fields: Collom, 1; Heller, 1; Kew, 8; McLaughlin, R. P., 2; Tolman, 2.

Los Angeles Basin: Arnold, 3; Milner, 4; Vickery, 11.

San Joaquin Valley: English, W. A., 5; Stevens, J. B., 1.

Santa Maria district: Collom, 2.

California—Continued.

Economic geology—Continued.

Oil fields—Continued.

Ventura County: Godde, 1; Tallafarro, 1; and Newhall district: Hertel, 2.

Oil possibilities, Comanche Point and Wheeler Ridge: U. S. G. S., 17.
near Petaluma, Sonoma County: Mendenhall, 4.

Oil shale, Santa Barbara County: Gore, 1, 2.

Oil structures: Hill, E. A., 1.

Olinda oil field: Clute, 1.

Petroleum: Landero, 1; Légraye, 2; Vander Leck, 1.

diatom origin: Takahashi, 3.

Elk Hills: Woodring, 19.

Kern County: English, W. A., 1.

Los Angeles and Ventura counties: Kew, 6.

origin: Anderson, F. M., 2, 3; Anderson, R., 1; Cunningham, G. M., 2; McLaughlin, R. P., 1; Stipp, 1; Takahashi, 2; and accumulation: Gester, G. C., 1, 2.

production decline: McLaughlin, R. P., 2.

Randsburg quadrangle: Hulin, 1, 2.

Richfield oil field: Musser, 3.

Santa Clara Valley: Reinhard, 1.

Simi Valley: Kew, 1.

southern California: Eaton, J. E., 9; Jensen, 1.

Sunset-Midway oil field: Pack, R. W., 1.

Petroleum geology, development: Hamilton, W. R., 1.

Petroleums, chemical characteristics: Prutzman, 1.

Phosphorus in California petroleum: Palmer, C., 1.

Placers: Haley, 2.

Platinum and allied metals: Logan, C. A., 1.

Plumas County: Mac Boyle, 2.

Poso Creek oil field, Kern County: Kaiser, 2.

Potrero oil field: Eaton, J. E., 5.

Primary and secondary gold concentrations: Haley, 4.

Rincon oil field: Kotick, 1.

Rosecrans oil field: Musser, 2.

Salt deposits: Phalen, 1.

San Joaquin Valley oil fields: Stevens, J. B., 1.

structural features: Hoots, 4.

Santa Fe Springs oil field: Case, J. B., 1; Templeton, 1.

Shadow Mountains, San Bernardino County: Riddell, 1.

Sierra County: Mac Boyle, 3.

Silver lodes, South Fork district, Shasta County: Tucker, W. B., 3.

South Mountain oil field, Ventura County: Hudson, F. S., 2.

Sunset Extension oil field, Kern County: Rogers, R. G., 1.

California—Continued.

Economic geology—Continued.

Sunset oil field: Farnsworth, 2.

Sunset-Midway oil field: Pack, R. W., 1.

Tertiary clays: Linton, 1.

Thirty-five anticline, Sunset oil field, Kern County: Copp, 1.

Torrance oil field: Musser, 1.

Tungsten ores: Hess, 11.

Vein crossing, Grass Valley: Hoover, 1.

Ventura Avenue oil field: Hertel, 3.

Ventura Basin, Ventura County: Eaton, J. E., 4.

Ventura County oil fields: Godde, 1.

Ventura oil field, Ventura County: Craddock, 1; Bush, 1; Eaton, J. E., 2; Hertel, 1.

West Goleta district: Sherman, 1.

Wheeler Ridge oil field, Kern County: Cunningham, G. M., 1; Kaiser, 1.

Historical geology.

Alamitos Heights: Rogers, R. G., 2.

Amargosa Valley: Noble, 6.

Baldwin Hills, Los Angeles County, Pliocene and Pleistocene history: Tieje, 5, 6.

Bautista Creek Pleistocene: Frick, 1.

Blackhawk Canyon, San Bernardino Mountains: Woodford, 7.

Boring, Ventura County: Hudson, F. S., 4.

Briones formation: Trask, 1, 2.

Cambrian, Mohave Desert: Clark, C. W., 1.

Bristol Mountain: Resser, 6.

Carson Hill: Moss, 1.

Catalina metamorphic facies of Franciscan series: Woodford, 1.

Coalinga, Tertiary formations: Reed, 5.

Coalinga field: Wilhelm, 4.

Coyote (Carrizo) Mountain, Imperial County: Hanna, 25.

Dead Man Island: Crickmay, 7.

Deep Spring Valley: Miller, W. J., 35.

Diatomaceous shale interbedded with arkose: Schenck, 6.

Domengine horizon, Eocene: Clark, B. L., 14, 16.

Elk Hills: Woodring, 19.

Eocene, La Jolla quadrangle: Hanna, M. A., 5.

Eocene divisions: Clark, B. L., 1.

Fernando formation, nomenclature: Keyes, 199.

Foraminiferal section, Adams Canyon, Ventura County: Driver, 2.

Geologic formation names, check list: Bailey, G. E., 1.

Geological traverse, Mohave to San Juan River: Gregory, H. E., 8.

Goleta district: Vickery, 6.

Human remains, Los Angeles: Stock, 15.

Humboldt County: Hoots, 6, 7.

southwestern, geologic map: U. S. G. S., 19.

California—Continued.

Historical geology—Continued.

- Huntington Beach oil field: Graser, 1.
 Identifying subsurface strata: Roberts, D. C., 1.
 Imperial Valley: Augur, 1.
 Ione formation: Allen, V. T., 2.
 Kern County, northwestern: English, W. A., 1.
 Kreyenhagen shale, age and correlation: Hanna, 22.
 Livermore region, structural dynamics: Vickery, 7.
 Lomita beds, constitution and fossils: Hanna, G. D., 8.
 Los Angeles Basin: Arnold, 3; Eaton, J. E., 3, 8; Vickery, 11.
 Malaga Cove diatom-bearing shales, age: Hanna, G. D., 39.
 Martinez Eocene, Ventura County: Nelson, R. N., 2.
 Marysville Buttes: Williams, H., 2.
 Matilija overturn, Ventura County: Kerr, 7.
 Meganos group: Clark, B. L., 2, 18; Dickerson, 1.
 Mesozoic formations: Goranson, 1.
 Microlithology and micropaleontology of oil-bearing formations in Sunset-Midway and Kern River oil fields: Goudkoff, 1.
 Midway-Sunset-Elk Hills region, Kern County: Roberts, D. C., 2.
 Miocene, Kern County: Godde, 4.
 Santa Barbara County: Jordan, D. S., 3.
 Miocene paleogeography, central Coast Ranges: Reed, 7.
 Mohave Desert: Merriam, J. C. 1.
 Monterey County, San Antonio and Nacimiento valleys: Pike, R. W., 1.
 Monterey shale: Hanna, G. D., 38.
 Monterey (Salinas) shales, Pine Canyon, Monterey County: Stalder, 2.
 Moreno shale, age and correlation: Taff, 4.
 Mount Diablo: Clark, B. L., 13; and Byron regions: Clark, B. L., 15.
 Mount Poso oil field: Wilhelm, 3.
 Nevada County: Mac Boyle, 1.
 Olinda oil field: Clute, 1.
 Oil fields: Kew, 8.
 Orange County, Newport Beach: Meek, 2.
 Organic shales, San Joaquin Valley: Gaylord, 2.
 Phosphate beds in Monterey shales: Reed, R. D., 11.
 Pico formation, sedimentation: Cartwright, L. D., 2.
 Pleistocene, divisions and duration, southern California: Eaton, J. E., 6.
 southern California: Eaton, J. E., 7.
 Pleistocene-Recent boundary: Matthes, 13.

California—Continued.

Historical geology—Continued.

- Pliocene, southern California: Carlson, 1.
 Plumas County: Mac Boyle, 1.
 Puente formation: Chaney, 4.
 Puente Hills region: English, W. A., 3.
 San Benito County: Kerr, P. F., 4.
 San Gabriel Mountains: Miller, W. J., 29.
 San Joaquin Valley: English, W. A., 5; Stevens, J. B., 1.
 geologic section: Taff, 6.
 Lazard area: Reed, R. D., 12.
 southern part: Henny, 1; Hoots, 2, 3.
 San Lorenzo group, San Emigdio region: Wagner, C. M., 1.
 San Onofre breccia: Woodford, 3, 4.
 San Pedro Hills, Los Angeles County: Kew, 9.
 Santa Clara Valley: Reinhard, 1.
 Santa Maria district: Collom, 2.
 Santa Rosa Island: Kew, 11.
 Santa Ynez River Basin: Nelson, 12.
 Santa Ynez River district, Santa Barbara County: Kew, 2.
 San Timoteo Pliocene: Frick, 1.
 Section in Salinas Valley: Nicholls, 1.
 Sierra County: Mac Boyle, 3.
 Southern California: Hill, R. T., 8; Kew, 4.
 Sunset oil field, Kern County: Farnsworth, 1.
 Sunset-Midway oil field: Pack, R. W., 1.
 Tejon group: Anderson, F. M., 1.
 Tertiary: Clark, B. L., 9.
 correlation: Clark, B. L., 4.
 marine: Clark, B. L., 5.
 Tertiary and Cretaceous: Stewart, R. B., 1.
 Three glacial epochs in Sierra Nevada: Blackwelder, 20.
 Tuolumne Table Mountain, age: Hay, 35.
 Vaqueros and Temblor formations: Wiedey, 1.
 Vaqueros formation, Ventura and Santa Barbara counties: Corey, 1.
 Ventura Basin, Ventura County: Eaton, J. E., 4.
 Ventura County: Taliaferro, 1.
 Ventura oil field: Eaton, J. E., 2.
 Ventura quadrangle: Cartwright, L. D., 2.
 Warner Range: Russell, R. J., 6.
 West Goleta district: Sherman, 1.
 Wheeler Ridge oil field: Cunningham, G. M., 1.

Mineralogy.

- Andalusite, Mono County: Peck, A. B., 1.
 Anauxite, Ione formation: Allen, V. T., 1.
 Antimony, native, Kern County: Behre, 1.
 Apthitalite, Searles Lake: Foshag, 6.

California—Continued.

Mineralogy—Continued.

- Boussingaultite, South Mountain, Santa Paula: Larsen, 2.
 Calico Hills, San Bernardino County: Foshag, 15.
 Camssellite, Marin County: Eakle, 7.
 Centallasite, Crestmore: Foshag, 19.
 Chlorite, chromiferous: Shannon, 16.
 Coalinga Tertiary formation, rôle of heavy minerals: Reed, 5.
 Colemanite pseudomorphous after inyoite, Death Valley: Rogers, A. F., 1.
 Copiapite, Santa Maria Mountains, eastern Riverside County: Schairer, 1.
 Crestmore, Riverside County: Eakle, 9.
 Cristobalite: Rogers, A. F., 10.
 Curtisite, Sonoma County: Wright, F. E., 9.
 Economic minerals: Castello, 1.
 Foshagite, Crestmore: Eakle, 6.
 Furnace Creek, Death Valley: Foshag, 17.
 Hydroboracite, Inyo County: Schaller, 16.
 Hydromagnesite, crystallography: Rogers, A. F., 15.
 Ilsemaninite, Shasta County: Cook, C. W., 1.
 Jurupaite, Crestmore: Eakle, 3.
 Kempite, Santa Clara County: Rogers, A. F., 18, 22.
 Magnesite, San Jose: Rogers, A. F., 16.
 Kernite, Kern County: Gale, H. S., 6; Schaller, 12.
 Manganese minerals, San Jose: Rogers, A. F., 2.
 Merwinite, Crestmore: Larsen, 7.
 Meteorite, Owens Valley: Merrill, 17, 21, 49.
 Minerals: Eakle, 5.
 Minerals in limestone formed by contact metamorphism, Crestmore, Riverside County: Eakle, 1.
 Plazolite, Riverside: Foshag, 8.
 Priceite, Furnace Creek, Inyo County: Foshag, 18.
 Roemerite, Trinity County: Landon, 1.
 Sand-calcite crystals, Monterey County: Rogers, A. F., 25.
 Sespe formation, Ojai Valley: Gianella, 1.
 Sulphohalite, Searles Lake: Foshag, 4.
 Talc, Porterville: Foshag, 14.
 Thaumassite and spurrite, Crestmore: Foshag, 5.
 Tourmaline field, San Diego County: Schaller, 7.
 Troilite, Del Norte County: Eakle, 4.
 Velardeinite, Tulare County: Shannon, 33.
 Vonsenite, Riverside: Eakle, 2.

California—Continued.

Mineralogy—Continued.

- Wulfenite, Lavic: Guild, 3.
 Xonotlite: Larsen, 11.

Paleontology.

- Algae, Miocene, Los Angeles: Gardner, N. L., 1.
 Alticamelus, San Bernardino County: Davidson, P., 2.
 Archohelia clarki, Meganos formation: Vaughan, 45.
 Arctotherium, Pleistocene: Merriam, 17.
 Asphalt pits near Los Angeles: Hay, 37.
 Bassariscinae: Hall, E. R., 1.
 Beudanticeras breweri and Coloboceras stantoni: Crickmay, 4.
 Bird remains, Carpinteria asphalt pit: Miller, B. L., 4.
 Miocene, Lompoc: Miller, L. H., 3.
 Rancho La Brea: Miller, L. H., 2.
 Bolivinita, Pliocene, Los Angeles Basin: Church, 1.
 Briones fauna: Trask, 2.
 Cambrian, Bristol Mountain: Resser, 6.
 Canid and proboscidean remains, Mohave Desert: Stock, 25.
 Canid and rhinocerotid remains, Ricardo Pliocene, Mohave Desert: Stock, 16.
 Cassididae: Schenck, 3.
 Cats, Rancho La Brea: Merriam, 13.
 Cetotheres: Kellogg, R., 10.
 Channel Islands: Hertlein, 6.
 Chitons: Berry, S. S., 1.
 Conifers: Mason, H. L., 1.
 Coyote (Carrizo) Mountain, Imperial County: Hanna, 25.
 Crassatellites, Pleistocene, Los Angeles County: Oldroyd, I. S., 1.
 Cretaceous diatoms: Hanna, G. D., 33.
 Mollusca: Reagan, 7.
 Santa Ana Mountains: Packard, 4.
 Crustacea, stalk-eyed: Rathbun, 5.
 Deprandus lestes: Gilbert, J. Z., 1.
 Desmostylus, San Jose: Hannibal, 1.
 Diabelodon edensis: Osborn, 25.
 Diatomaceae, Lompoc, Santa Barbara County: Yermoloff, 1.
 Discocyclina: Schenck, 10.
 Echinoidea: Kew, 3.
 west coast: Israelsky, 1.
 Elephant, Pleistocene, Santa Rosa Island: Stock, 21.
 Elphidiums, Tertiary and Quaternary: Cushman, 34.
 Eocene echinoid: Schenck, 8.
 Invertebrates, La Jolla quadrangle: Hanna, M. A., 5.
 Vacaville: Palmer, D. B. K., 1.
 Foraminifera: Cushman, 22.
 Eocene, Coalinga: Cushman, 32.
 San Diego: Cushman, 29.
 Vacaville: Hanna, G. D., 10.
 Foraminiferal section, Adams Canyon, Ventura County: Driver, 2.

California—Continued.

Paleontology—Continued.

- Fossil fishes: Hubbs, 1.
- Miocene: Jordan, 5.
- Lompoc: Jordan, D. S., 2, 12.
- southern California: Jordan, D. S., 1.
- Fossil sharks and rays: Jordan, 11.
- Gastropod, Etchegoin Pliocene: Hanna, G. D., 12.
- Gastropoda, Gabb's types: Stewart, R. B., 1.
- Hipparion, Siestan, Berkeley Hills: Stock, 8.
- Hipparion mohavense, Puente formation: Stock, 26.
- Human remains, Los Angeles, Stock, 12.
- Insects in tar traps: Hanna, G. D., 16.
- Lampris *'*atima, Lompoc: Jordan, D. S., 4.
- Llama, Pleistocene, McKittrick: Merriam, 18.
- Lomita beds, constitution and fossils: Hanna, G. D., 8.
- Mammalia, associated with marine forms: Stock, 10.
- Sespe beds, Santa Paula: Stock, 14.
- Kern River bed: Stock, 22.
- Martinez Eocene: Nelson, R. N., 2.
- Meganos fauna: Clark, B. L., 2, 18.
- Megaptera, Lompoc: Kellogg, R., 3.
- Miocene fishes: Jordan, 6.
- Merycodus, Mohave Desert: Furlong, 2.
- Microfauna, Los Angeles Basin: Tleje, 7.
- Midway-Sunset-Elk Hills region, Kern County, fossil markers: Roberts, D. C., 2.
- Miocene fishes, southern California: Jordan, D. S., 15, 17.
- flora, Tesla region: Scott, F. M., 1.
- lacustrine mollusks, Sonoma County: Hanna, G. D., 7.
- marine vertebrates, Kern County: Hanna, G. D., 20.
- Mohave Desert: Merriam, J. C., 1.
- Mollusca, Pleistocene: Oldroyd, T. S., 1; Santa Barbara: Palmer, K. V. W., 2.
- Myiodon harlani, mounted skeleton: Stock, 4.
- Olivella: Oldroyd, 2.
- Organic shales, San Joaquin Valley: Gaylord, 2.
- Ostrea californica Marcou: Hanna, G. D., 34.
- Parapavo californicus, Rancho La Brea asphalt beds: Howard, H., 1.
- Pecten lohri, Pliocene: Hertlein, 5.
- Peccary, McKittrick Pleistocene: Stock, 23.
- Rancho La Brea: Merriam, 8.
- Pelecypoda, marine Oligocene: Clark, B. L., 11.
- Pholadomya in Miocene deposits: Hake, 1.

California—Continued.

Paleontology—Continued.

- Physeteroid cetacean, Santa Barbara County: Kellogg, R., 9.
- Physeteroid whales: Kellogg, R., 10.
- Pine cone, Oakland: Metcalf, W., 1.
- Pinnipeds: Kellogg, R., 16.
- Miocene, Lompoc: Kellogg, R., 10.
- Miocene and Pliocene: Kellogg, R., 2.
- Plants, Carpinteria asphalt pit: Chaney, 23.
- Pleistocene fossils, Carpinteria asphalt pit: Hoffman, R., 1; Stock, 20.
- Pleistocene flora, Rancho La Brea: Frost, 2.
- southern California: Chaney, 26.
- Pleistocene Foraminifera, Palos Verdes Hills: Galloway, J. J., 8.
- Pleistocene Megalonychinae and Mylodontidae, Rancho La Brea: Stock, 13.
- Pleistocene Vertebrata, Bautista Creek: Frick, 1.
- McKittrick asphalt deposit: Merriam, 9, 11.
- Pliocene, southern California: Carson, 1; Gastropoda: Carson, 2.
- Vertebrata, San Timoteo: Frick, 1.
- Viviparus-like opercula: Woodring, 14.
- Pliopoda, Pliocene: Kellogg, R., 1.
- Porpoise, San Diego: Gregory, W. K., 21.
- Prosiphon in Cretaceous ammonites: Crickmay, 1.
- Puente flora, Chaney, 4.
- Rancho La Brea asphalt beds: Miller, L. H., 1; Wyman, 1; flora: Chaney, 5.
- Ricardo fauna: Stock, 25.
- Rimella-like gastropods: Clark, B. L., 7.
- Rodents and lagomorphs, Rancho La Brea: Dice, 1.
- Ruminant, McKittrick Pleistocene: Stock, 19.
- San Lorenzo group, San Emigdio region: Wagner, C. M., 1.
- San Pedro fauna, Nob Hill cut, San Pedro: Oldroyd, T. S., 3.
- Scaez petroliia: Hanna, 28.
- Sharks, Temblor group, Kern County: Jordan, D. S., 16.
- Sharks' teeth, Pliocene: Jordan, 9.
- Siliciflagellata, Cretaceous: Hanna, G. D., 35.
- Sperm whale, Temblor Miocene: Kellogg, R., 15.
- Succinea avara, asphalt pit, Rancho La Brea: Hanna, G. D., 11.
- Tanupolama, Pleistocene: Stock, 24.
- Tejon fauna, Kern County: Anderson, F. M., 1.
- Terrestrial plants in marine deposits: Chaney, 13.
- Tertiary and Quaternary faunas: Smith, J. P., 1.

California—Continued.

Paleontology—Continued.

- Tertiary diatoms: Hanna, G. D., 31.
- Mollusca: Hertlein, 2.
- Vertebrate fauna, southern coast ranges: Stock, 3.
- Trigonidae: Packard, 3.
- Turritellae, Miocene: Wiedey, 2.
- Upper Triassic: Smith, J. P., 3.
- Vaqueros and Temblor formations: Wiedey, 1.
- Venericardia, Eocene: Hanna, M. A., 1.
- Whale, Monterey group: Hanna, G. D., 15.
- Xyne grex*, Santa Barbara County: Jordan, D. S., 3.

Petrology.

- Anorthosite, Los Angeles County: Miller, W. J., 34.
- Cuyamaca region: Hudson, F. S., 1.
- Feldspar in sandstones: Reed, R. D., 14.
- Hollywood Hills, near Los Angeles: Schürmann, 1.
- Inclusions in granitic rocks, Sierra Nevada: Pabst, 1.
- Siliceous shale formation: Reed, R. D., 13; Tolman, 1.
- Tridymite-orthoclase rock, Imperial County: Rogers, A. F., 7.

Physical geology.

- Anticlinorium, southern coast: Warner, T., 1.
- Aragonite concretions, Kettleman Hills: Reed, 9.
- Basin Range structure in the Great Basin: Louderback, 5.
- Berkeley Hills, geomorphogeny: Fox, 1.
- Blackhawk Canyon, San Bernardino Mountains: Woodford, 5, 7.
- Calaveras Valley earthquake, April 13, 1924: Macelwane, 20.
- Cloudburst on San Gabriel Peak, Los Angeles County: Wolff, J. E., 3.
- Coast erosion, San Diego region: Leonard, 6.
- Coast Ranges: Clark, B. L., 17. Willis, 20.
- mobility: Lawson, 1; structure, Willis, 5.
- Coastal southern California, structural features: Vickery, 10.
- Correlative value of heavy minerals: Tickell, 1.
- Crustal movements: Day, 4.
- Crystal Springs earthquake, February 10, 1925: Macelwane, 19.
- Deep Spring Valley: Miller, W. J., 35.
- Differential movements, San Francisco Bay region: Louderback, 4.
- Earth movements: Bowie, 10, 13; Day, 16.
- Earthquake conditions, southern California: Hill, R. T., 9.
- Earthquake records made by well recorders: Stearns, H. T., 13.

California—Continued.

Physical geology—Continued.

- Earthquake rifts, aerial observation: Willis, 7.
- Earthquakes: Townley, 1; Willis, 18.
- Calaveras Valley, April 3, 1924: Macelwane, 20.
- Chittenden: Kemnitzner, W., 1.
- Corralitos, September 19, 1923: Macelwane, 4.
- Crystal Springs, February 10, 1925: Macelwane, 19.
- Eagle Lake, Lassen County: Kemnitzner, W., 2.
- Evergreen, July 19, 1925 and May 28, 1927: Byerly, 15.
- Inglewood, June 21, 1920: Taber, 3; geologic evidence: Kew, 5.
- January 31, 1922: Macelwane, 3.
- Los Angeles, July, 1920: Taber, 5.
- Los Angeles region: Arnold, R., 1.
- northern California, January 22, 1923: Anon., 37.
- recent: Palmer, A. H., 3; Macelwane, 9; depth of focus: Byerly, 3.
- registration: Bond, 1-3; Byerly, 6, 7, 10-12, 16-18; Davis, E. F., 1-3; Macelwane 2, 7, 8, 11, 13, 14.
- Salinas, December 27, 1924: Kemnitzner, L. E., 1.
- San Jose: Vickery, 1.
- Santa Barbara, June 29, 1925: Kirkbride, 1.
- Sierra Nevada, March 30, 1925: Anon., 46.
- southern California: Mulholland, 1; Taber, 4; early records: Carpenter, F. A., 1; July 22, 1923: Laughlin, 1.
- 1918, 1919, 1920, 1921: Palmer, A. H., 1, 2, 4, 5.
- Erosion, Los Angeles County: Wolff, J. E., 3.
- Fault map: Willis, 10, 13, 17.
- Fault system at southern end of Sierra Nevada: Buwalda, 1.
- Faulting: Willis, 27.
- San Gabriel Mountains: Kew, 7.
- Coast Ranges: Willis, 15.
- Fused sedimentary rocks in drill cores: Bowen, N. L., 1.
- Gabilan Mesa, soil deposition: Reed, R. D., 10.
- Garnet sand on beach, Monterey County: Trask, 3.
- Geologic section across the Coast Ranges: Louderback, 6.
- Hayward fault zone movements: Buwalda, 11.
- Inglewood fault zone: Taber, 10.
- Jointing, Merced Canyon: Morse, P. F., 2.
- Intrusive rocks, Klamath Mountains: Hinds, N. E. A., 11.
- Kettleman Hills, aragonite: Reed, 9.

California—Continued.

Physical geology—Continued.

- Landslides: Nichols, D. A., 1.
- Lassen Peak: Loomis, B. F., 1.
- recent eruption: Williams, H., 1.
- volcanic activity: Day, 15; cause: Day, 5.
- Lassen Peak Observatory: Finch, R. H., 9.
- Livermore region, structural dynamics: Vickery, 3, 7.
- Los Angeles Basin, oil-field structure: Ferguson, R. N., 2.
- McKittrick oil field, structure: English, W. A., 4.
- Matilija overturn, Ventura County: Kerr, 7.
- Mobility of coast ranges: Lawson, 1.
- Monterey County, San Antonio and Nacimiento valleys: Pike, R. W., 1.
- Mount Diablo: Clark, B. L., 13.
- Mount Lassen: Colburn, 1.
- Offsets along Haywards fault: Russell, R. J., 2.
- Orogenic period: Willis, 24.
- Permian revolution: Finlay, 2.
- Pico formation, sedimentation: Cartwright, L. D., 2.
- Post-Monterey disturbance, Salinas Valley: Reed, 6.
- Puente Hills region: English, W. A., 3.
- Rancho La Brea tar beds, mode of accumulation: Gilbert, J. Z., 2.
- Rifts of southern California: Davis, W. M., 33; Hill, R. T., 2.
- Samuel Cave, Shasta County, Merriam, 23.
- San Andreas rift, southern California: Noble, 7, 9; Willis, 7.
- Salton Basin, fault features: Brown, J. S., 1.
- San Francisco Bay sediments: Louderback, 1.
- San Joaquin Valley, east side, structural features: Fox, 1.
- southern part: Henny, 1; Hoots, 2.
- Sandstone dike, Orange County, genesis: Meek, 2.
- Santa Barbara earthquake: Davis, D. H., 2; Willis, 21, 22.
- intensity: Byerly, 2.
- Santa Cruz area: Rode, 1.
- Santa Lucia Coast Range, origin: Trask, 4.
- Scarps, southwestern Sierra Nevada: Hake, 2.
- Seismic force: Willis, 30.
- Seismicity: Willis, 34.
- Seismological investigation: Day, 8.
- Sespe formation, Ojai Valley, origin: Gianella, 1.
- South Mountain, origin: Reinhart, 1.
- Sierra Nevada, postglacial denudation: Muir, 1.
- southwestern: Hake, 2.

California—Continued.

Physical geology—Continued.

- Solidfluxion, Coast Ranges: Legraye, 1.
- Southern California: Haase, 1; Hill, R. T., 8.
- Surprise Valley fault: Russell, R. J., 3.
- "The Geysers," Sonoma County: Allen, E. T., 4, 6.
- Thrust faulting in Mojave Desert: Hewett, 18, 20.
- Mount Diablo region: Clark, B. L., 10, 12.
- San Benito County: Kerr, P. F., 4.
- Valle Grande: Clark, B. L., 19.
- Variation of temperature with geologic structure in oil districts: Van Orstrand, 1.
- Warner Range: Russell, R. J., 6.
- Wind action in San Joaquin and Salinas valleys: Reed, 8.
- Physiographic geology.*
- Alluvial fans, Cucamonga district: Eckis, 1.
- Bakersfield fault scarp: Gilbert, G. K., 1.
- Classification and nomenclature of physiographic features: Hill, R. T., 4.
- Coast ranges: Willis, 2.
- Cockscomb Crest, Yosemite: Matthes, 2.
- Consequent streams: Vickery, 12.
- Continental shelf off the coast: Lawson, 6.
- Deep Spring Valley: Miller, W. J., 35.
- Evolution Basin, Sierra Nevada: Matthes, 9.
- Glacial stages, Sierra Nevada: Matthes, 4.
- Glaciation, San Gabriel Mountains: Miller, W. J., 28.
- Hanging side valleys, Yosemite Valley, and San Joaquin Canyon: Matthes, 5.
- Kern Canyon, glaciation: Hills, T. M., 2.
- Kings River Canyon and Yosemite Valley: Matthes, 9.
- Lake Mono: Antevs, 12.
- Landslide lakes: Russell, R. J., 4.
- Lassen Peak region: Loomis, B. F., 1; Williams, H., 1.
- Lava Beds National Monument: Stearns, H. T., 15.
- Los Angeles coastal belt: Vickery, 5.
- Moraines of Convict Lake glaciers: Blackwelder, 24.
- Offsets along Haywards fault: Russell, R. J., 2.
- Piracy and persistence of antecedent streams on Los Angeles coastal belt: Vickery, 4.
- Pleistocene lakes along Mohave River: Thompson, D. G., 3.
- Recurrent glaciation in Sierra Nevada: Matthes, 7.
- Red Rock Canyon: Miller, W. J., 31.

California—Continued.

Physiographic geology—Continued.

Rifts of southern California: Hill, R. T., 2.

Saline lakes, Mohave Desert: Foshag, 24.

Salton Basin: Brown, J. S., 1.

Sand rivers: Hill, R. T., 6.

San Gabriel Mountains, southwestern, geomorphology: Miller, W. J., 33.

San Pedro Hills, Los Angeles County: Kew, 9.

Santa Clara Valley: Clark, W. O., 2.

Scarp at mouth of Kern River Canyon: Blackwelder, 17.

Scarp production in Great Basin: Loudenback, 7.

Scarps, southwestern Sierra Nevada: Hake, 2.

Sierra Nevada: Muir, 3.

Devil's Post-pile: Matthes, 8.

Southern California: Hill, R. T., 8.

Surprise Valley, northwestern Great Basin: Russell, R. J., 5.

Topography of active faulting: Willis, R., 1.

Yosemite region, three glaciations: Matthes, 12.

Yosemite Valley: Matthes, 3.

Underground water.

Calcium chloride waters, Ventura County: Hudson, F. S., 3.

Hot springs, Lassen National Park, source of heat and water: Day, 11.

Sonoma County: Day, 12.

Huntington Beach oil field: Grizzle, 1.

Lanfair Valley, San Bernardino County: Thompson, D. G., 1.

Lassen National Park, hot springs: Day, 15.

Oil-field waters: Palmer, C., 2; Rogers, G. S., 2.

Pahrump, Mesquite, and Ivanpah Valleys: Waring, 3.

Sacramento Valley: Bryan, 10.

Salton Sea region: Brown, J. S., 3.

San Diego County, western part: Ellis, A. J., 1.

San Jacinto and Temecula basins: Waring, 1.

San Joaquin Valley: Harding, 1.

Santa Clara Valley: Clark, W. O., 2.

The Geysers, Sonoma County: Allen, E. T., 3, 4.

Water levels, southern California: Ebert, 1.

Camarasaurus: Osborn, 5, 6.

Cambrian. *See also* Paleontology, Cambrian.

Acadia: Bailey, L. W., 2.

Alabama: Butts, 8; Jones, W. B., 13.

Bessemer-Vandiver quadrangle: Butts, 13.

Alberta, Banff area: Warren, P. S., 4.

Glacier Lake section: Walcott, 3.

pre-Devonian Paleozoic: Walcott, 18.

Cambrian—Continued.

Arctic regions, Ellesmere Land: Holte-dahl, 1.

Appalachians, southern, Lower Cambrian: Barrell, 8.

Arbuckle limestone, Oklahoma: Decker, 8.

Arizona: Darton, 17; Keyes, 83.

Aravaipa-Stanley region: Ross, C. P., 6.

central: Ettlinger, 1.

Courtland-Gleeson region: Wilson, E. D., 2.

Grand Canyon: Noble, 3.

Grand Canyon district: Moore, R. C., 26.

northeastern, Holbrook area: Hager, D., 3.

Ray-Miami region: Ransome, 1.

Tucson and Amole Mountains: Jenkins, 3.

Ray quadrangle: Ransome, 11.

Arkansas: Miser, 4, 11.

Belt formation, Helena, Montana: Rothpletz, 1.

Bibliographic studies: Resser, 1.

British Columbia, Beaverfoot Range: Burling, 4.

Beaverfoot-Brisco-Stanford Range: Walcott, 9.

Bow River section, Banff: Kindle, 30.

Kamloops district, North Thompson valley: Uglow, 3.

Mount Robson area: Burling, 2;

Cambro-Ordovician section: Burling, 5.

pre-Devonian Paleozoic: Walcott, 18.

Rocky Mountain region: Schofield, 8.

Rocky Mountain trench: Shepard, 3.

southeastern: Schofield, 10, 12.

Windermere area, Kootenay district: Walker, J. F., 1.

California, Deep Spring Valley: Miller, W. J., 35.

Mohave Desert: Clark, C. W., 1.

San Bernardino Mountains: Vaughan, F. E., 1.

Canadian Rockies: Burwash, 2.

Colorado: Keyes, 162.

Red Cliff district: Crawford, R. D., 3.

Cordilleran formation, nomenclature: Walcott, 7.

General: Keyes, 234; Resser, 4.

Georgia: McCallie, 1.

Tate quadrangle: Bayley, 13.

Greenland: Böggild, 1.

northern: Koch, 4.

northwestern: Koch, 1; Poulsen, 1.

Peary Land: Koch, 3.

Idaho, Fort Hall Indian Reservation: Mansfield, G. R., 3.

Pend Oreille district: Sampson, 16.

southeastern: Mansfield, 29.

Cambrian—Continued.

- Illinois : Thwaites, 3.
- Kings quadrangle : Bretz, 4.
- northern : Thwaites, 7.
- Indiana, sub-Trenton formations : Logan, 23.
- Iowa : Keyes, 89.
- Ida County : Lees, 10.
- Mackenzie, Franklin Mountains : Williams, M. Y., 14.
- Mackenzie River district : Williams, M. Y., 13.
- Mackenzie River between Norman and Beaver River : Hume, 5.
- Maine, northern : Smith, E. S. C., 5, 6.
- Maryland : Bassler, R. S., 1.
- Massachusetts, Essex County : Clapp, C. H., 1.
- Minnesota : Grout, 2.
- Jordan sandstone : Stauffer, 5.
- Red Clastic series : Stauffer, 9.
- Missouri : Wilson, Mal. E., 1.
- Ste. Genevieve County : Weller, 19.
- Montana : Keyes, 234.
- Beartooth Mountains : Bevan, 2.
- Fergus County : Freeman, O. W., 1.
- Helena region : Rothpletz, 1.
- Nevada : Keyes, 128. Nolan, 4.
- Manhattan district : Ferguson, H. G., 2, 5.
- Muddy Mountains : Longwell, 15.
- Pioche district : Westgate, 6.
- New Brunswick : Bailey, L. W., 1.
- Newfoundland : Howell, B. F., 1.
- Fortune Bay : Dale, N. C., 5.
- southeastern : Howell, 5.
- western : Schuchert, 16.
- New Hampshire, Ammonoosuc district : Ross, C. P., 2.
- New Jersey, Sussex County : Ries, 8.
- New Mexico : Darton, 26 ; Keyes, 14.
- eastern : Baker, C. L., 1.
- New York, Canton quadrangle : Chadwick, 5.
- Lake Clear region : Alling, H. L., 1.
- Gouverneur quadrangle : Cushing, 1.
- Lake Bonaparte quadrangle : Smyth, 2.
- Luzerne quadrangle : Miller, W. J., 19.
- West Point quadrangle : Berkey, 3.
- Oklahoma : Gould, 9.
- Arbuckle Mountains : Taff, 7.
- Carter County : Tomlinson, 4.
- Comanche County : Gouin, 3.
- southern Ouachita Mountains : Honess, C. W., 4.
- Stonewall quadrangle : Morgan, G. D., 5.
- Wichita Mountains : Taff, 7.
- Ontario, Brockville-Mallorytown area : Wright, J. F., 2.
- Pennsylvania : Miller, B. L., 4.
- Allentown quadrangle : Miller, B. L., 5.
- McCalls Ferry quadrangle : Jonas, 2.
- New Holland quadrangle : Jonas, 5.

Cambrian—Continued.

- Pennsylvania—Continued.
- Northampton County, slate belt : Behre, 7.
- Piedmont Plateau : Knopf, E. B., 3.
- Quarryville quadrangle : Jonas, 3.
- southeastern : Hawkins, A. C., 4 : Stose, 15, 21.
- Pennsylvania and Maryland, Piedmont province : Stose, 18.
- Pre-Devonian sedimentation, Canadian Rocky Mountains : Walcott, 17.
- Quebec, Beauceville area : MacKay, B. R., 4.
- Coleraine area : Knox, J. K., 1.
- Rocky Mountains : Resser, 5.
- South Dakota, central Black Hills : Darton, 14.
- Subdivisions : Resser 3
- Taconic area, southern : Knopf, E. B., 6.
- Taconic system resurrected : Schuchert, 1.
- Tennessee, Ducktown district : Emmons, W. H., 7.
- east : Secrist, 1.
- Texas : Udden, J. A., 3, 13.
- Utah : Butler, 4 ; Keyes, 150.
- Ophir district : Olmstead, 1.
- Tintic district : Lindgren, 2.
- Vermont, Addison, Panton, and Ferrisburg townships : Foyles, 4.
- Barnard, Pomfret, and Woodstock townships : Richardson, C. H. 11.
- Bethel Township : Richardson, C. H., 8.
- Braintree : Richardson, C. H., 5.
- Green Mountains, western flank : Dale, N. C., 1.
- Northfield : Richardson, C. H., 2.
- northwestern : Keith, 1 ; Raymond, 23 ; Paradoxides beds : Howell, 7.
- Orange County, Randolph Township : Richardson, C. H., 7.
- Plymouth and Bridgewater townships : Perry, E. L., 1.
- Roxbury : Richardson, C. H., 3.
- Shoreham and Bridport : Foyles, 3.
- western : Gordon, C. E., 2, 4.
- Virginia : Giles, 11.
- Blue Ridge, west foot : Stose, 1.
- Giles County : Hubbard, G. D., 6.
- Little North Mountain : Giles, 8.
- Piedmont : Jonas, 8.
- southwestern : Butts, 10.
- Valley coal fields : Campbell, M. R., 9.
- western : Stose, 16.
- West Virginia, conglomerate rocks : Reger, 12.
- Wisconsin : Thwaites, 3 ; Ulrich, 12.
- Tomah-Sparta quadrangles : Twenhofel, 4.
- Wyoming, Bell Springs district, Carbon County : Dobbin, 5.
- Wind River Mountains : Condit, 4.
- Camp Bird compound veindike : Spurr, 18.

Camp Devens area, Massachusetts: Atwood, W. W., 1.

Camp Dodge region, Iowa: Lees, 1.

Canada (general). *See also* names of Provinces.

Borings: Ingall, 10.

eastern Canada: Ingall, 8.

prairie provinces and Northwest territories: Ingall, 2, 5, 7, 9.

Carbon in pre-Cambrian formations: Moore, E. S., 12.

Central Arctic coast: O'Neill, 5.

Eastern Arctic Canada: Weeks, L. J., 2.

Elementary geology: Coleman, 9.

Field work of Geological Survey: Collins: W. H., 5.

Field work of Survey: Collins, 9, 18.

Geological mapping of Cordillera: Dunn, R., 1.

Geological Survey, publications, catalog: Ferrier, 1.

Geological Survey, reports: Collins, W. H., 3, 6, 8, 12, 13, 16, 20; McInnes, 1-3.

Glaciation, effect on prospecting for mineral deposits: Tanton, 11.

Gravity observations, western Canada: Miller, A. H., 2.

Great Lakes area: Alcock, 25.

Hudson May, east coast: Low, 1.

Index to reports of Canada Geological Survey: Nicolas, 2.

Mackenzie River basin: Camsell, 1.

Mapping pre-Cambrian areas: Bruce, 6.

Mines Branch, reports: Haanel, E., 1, 2; McLeish, 1, 2.

Pacific region, structure: Brock, 3.

Pre-Cambrian time, duration: Ellsworth, 9.

Seismology in Canada: Hodgson, 11.

Areas described.

Belcher Islands, Hudson Bay: Young, G. A., 3.

Economic geology.

Abrasive materials: Eardley-Wilmot, 3.

Alkali deposits, western Canada: Cole, L. H., 4, 6, 7.

Apatite: Spence, 2.

Arsenic-bearing deposits: Hurst, 4.

Barytes: Spence, 4, 10.

Belcher Islands, Hudson Bay, iron deposits: Moore, E. S., 1.

Bentonite: Spence, 8, 9.

Building stone: Parks, 27.

Carbon ratios of coal as an index of oil and gas prospects in western Canada: Hume, 24.

Coal: Gray, F. W., 2; western Canada: White, J., 1.

Coal fields, western, history of discovery: Dowling, 14.

Coal resources: Patton, M. J., 1.

Copper: Browning, C. P., 1.

Arctic Canada: Douglas, G. M., 1; O'Neill, 3.

Canada (general)—Continued.

Economic geology—Continued.

Diatomaceous earth: Eardley-Wilmot, 5.

Diatomite: Eardley-Wilmot, 9.

Feldspar: Eardley-Wilmot, 2; Spence, 8.

Fluorspar: Eardley-Wilmot, 2.

General: Bell, J. M., 7; Corless, 1; Malcolm, 1, 3; Young, G. A. 5.

Gold: Cole, G. E., 3; Webb, 1.

Graphite: Eardley-Wilmot, 2; Spence, 1.

Helium: Elworthy, 1, 5; McLennan, 1.

Hudson Bay region: Wallace, 16.

Iron deposits: Moore, E. S., 11.

Belcher Islands: Woodbridge, 1; Young, G. A., 3.

Lead and zinc: Bingay, 1; eastern Canada: Alcock, 23.

Liquid fuels: Hume, 12.

Mackenzie River basin: Camsell, 1; Hume, 27.

Manganese: Mackenzie, G. C., 1.

Metallogenesis and pre-Cambrian: Baker, M. B., 2.

Mineral deposits: Graham, R. P. D., 3; undeveloped: Adams, F. D., 1.

Mineral pigments: Fréchette, 2.

Mineral resources: Graham, R. P. D., 3; Malcolm, 4, 7, 8; Van Leekwyck, 1; Young, G. A., 5.

Mineral wealth of the pre-Cambrian: Corless, 3, 4.

Mining in Canada: Tyrrell, 4.

Molybdenum: Eardley-Wilmot, 1, 2, 4.

Natural gas: Elworthy, 8.

Nonmetallic minerals: Spence, 7.

Oil and gas, western Canada: Hume, 28; Pearce, 1.

Oil and gas prospects, Great Plains, western Canada: Hume, 25.

Oil possibilities, western Canada: Dowling, 9.

Oil reserves: Arnold, 4.

Oil resources: Dowling, 8, 13.

Oil shales: Ellis, 4, 7.

Oil situation and prospects: Hume, 11.

Ore bodies, occurrence in pre-Cambrian: Dougherty, 2.

Ore deposits, occurrence: Kelly, S. F., 1; of Arctic Canada: Moore, E. S., 2.

Pacific region: Brock, 4.

Peat: Anrep, 5; Haanel, B. F., 2.

Peat bogs: Auer, 1.

Pegmatites and their minerals: Ellsworth, 7.

Petroleum: Hume, 15; and natural gas: Hume, 29.

Petroleum provinces: Brock, 6.

Phosphate: Spence, 2.

Platinum: Mackenzie, G. C., 1; O'Neill, 2.

Pre-Cambrian and ore deposition: Baker, M. B., 3.

Canada (general)—Continued.

Economic geology—Continued.

Pre-Cambrian iron formation, origin:
Moore, E. S., 21.

Precious metals: Wilson, A. W. G., 2.

Prospecting: Dolmage, 12.

Salt: Cole, L. H., 2, 3.

Silica, eastern Canada: Cole, L. H., 5.
western Canada: Cole, L. H., 13.

Silver: Cole, A. A., 2.

Sodium and magnesium salts, western
Canada: Cole, L. H., 9.

Sodium sulphate: Cole, L. H., 11.

Strontium: Spence, 4.

Talc and soapstone: Eardley-Wilmot,
2; Spence, 5.

Titanium: Robinson, A. H. A., 2.

Talc deposits: Wilson, M. E., 16.

Titaniferous iron ores: Goodwin, W.
L., 1.

Zinc and lead, eastern Canada: Robin-
son, A. H. A., 3.

Historical geology.

Canadian shield, orogeny: Collins, W.
H., 22.

Climate, pre-Cambrian: Coleman, 21.

General: Brock, 11; Collins, 10; Mal-
colm, 8; Young, G. A., 5.

Geological map: Can. G. S., 3.

Grenville subprovince: Wilson, M. E.,
12.

Keewatin, stratigraphic position: Greg-
ory, J. W., 4.

Laurentian problems and atomic dis-
integrations: Lane, 21.

Northern Cordilleran geosyncline:
Fisher, C. A., 2.

Plains formations: Dowling, 7.

Pre-Cambrian: Cooke, H. C., 19; Miller,
W. G., 4, 12.

Pre-Cambrian classification: Wilson,
M. E., 18.

Pre-Cambrian time scale: Young, G. A.,
4.

Pre-Cambrian and ore deposition:
Baker, M. B., 3.

Retreat of last ice sheet in eastern
Canada: Antevs, 6.

Mineralogy.

Lithium-bearing minerals: Cole, L. H.,
12.

Mineralogy at Ottawa: Poitevin, 9.

Pegmatites, age: Walker, 37.

Sundry minerals: Poitevin, 10; Anon.,
8.

Paleontology.

Diatomaceae: Boyer, 1.

Diatoms: Eardley-Wilmot, 9.

Dinosaur group, National Museum of
Canada: Sternberg, C. M., 8.

Eocene floras, western Canada: Berry,
70.

Index to paleontology, 1847-1916:
Nicolas, 3.

Sagenopteris: Berry, 45.

Stringocephalus burtoni, distribution:
Kindle, 10.

Canada (general)—Continued.

Petrology.

Pegmatites and their minerals: Ells-
worth, 7.

Physical geology.

Concretions: Kindle, 24.

St. Lawrence earthquake, February 28,
1925: Hodgson, 14.

Seismology: Hodgson, 13.

Physiographic geology.

Cordilleran ice sheet: Reed, 1.

Cordilleras: Dowling, 16.

General: Brock, 3; Collins, 10; Corless,
1; Young, G. A., 5.

Glacial features: Coleman, 16.

Glacial periods, eastern Canada: Cole-
man, 30.

Glaciers, Rocky Mountains: Wheeler,
A. O., 1.

Mountain building in the Canadian
shield: Collins, W. H., 21.

Recent sinking of ocean level, lack of
evidence of, in western Canada:
Johnston, W. A., 25.

Relief map of prairie provinces: Dow-
ling, 1.

Retreat of last ice sheet in eastern
Canada: Antevs, 6.

Rocky Mountain gossynclinal: Burwash,
3.

Canadian shield, physiographic develop-
ment: Bain, 20, 21.

Canadian system: Ashley, 25.

Canal Zone. See Panama.

Candelaria silver district, Nevada: Knopf,
A., 5.

Cannel coal.

Pennsylvania: Pettke, 4.

Canning River region, northern Alaska:
Leffingwell, 1.

Cannonball fauna: Stanton, 3; corals:
Vaughan, 9.

Cape Breton Island. See Nova Scotia.

Capillary relationships of oil and water:
Cook, C. W., 2.

Carbon dioxide from wells in Colorado:
Duce, 2.

Carbon in pre-Cambrian formations: Moore,
E. S., 12.

Carbon ratios: Woolnough, 1.

Carbon-ratio theory, present status: Dor-
sey, 3; Reeves, F., 14; proofs:
Russell, W. L., 12.

Carbonaceous material, origin: Young, J.
W., 5.

Carbonaceous rocks, microthermal study:
Stadnichenko, 1.

Carbonaceous shales, organic material: Rae,
2; Washburne, 5.

Carbondale quadrangle, Illinois: Lamar, 3.

Carboniferous. See also Paleontology, Car-
boniferous.

Acadia: Bailey, L. W., 2.

Alabama: Butts, 8; Jones, W. B., 13;
Prouty, 1.

Bessemer-Vandiver quadrangle:
Butts, 13.

Carboniferous—Continued.

Alabama—Continued.

Muscle Shoals area: Prouty, 8.

northern: Semmes, 2.

Ocoee rocks: Prouty, 6, 7.

Alaska, Anvik-Andreafski region: Harrington, 1.

Canning River region: Leffingwell, 1.

Chistochina region: Chapin, 3.

Chitina Valley: Moffit, 5.

Kotsina-Kuskulana district: Moffit, 4.

interior: Mertie, 13.

Nixon Fork country: Brown, J. S., 7.

Porcupine district: Eakin, 1.

Sheenjek River district: Mertie, 16.

Alberta, Banff area: Warren, P. S., 4.

Crownest Pass: Warren, P. S., 7.

Lake Minnewanka section: Shimer, 6.

Saunders Creek and Nordegg coal basins: Allan, 9.

Allegheny formation, typical section:

Swartz, C. K., 1.

Appalachian coal measures, nomenclature: Ashley, 12.

Arctic regions, Ellesmere Land: Holte-dahl, 1.

Arizona: Darton, 17; Keyes, 83; Stoyanow, 1.

Aravaipa-Stanley region: Ross, C. P., 5.

central: Ettlinger, 1.

Courtland-Gleeson region: Wilson, E. D., 2.

Grand Canyon district: Moore, R. C., 26; Noble, 3.

Grand Canyon section: Keyes, 94.

Holbrook area: Hager, D., 3.

Hopi Buttes volcanic field: Reagan, 8.

Lees Ferry region: Bryan, 8.

Navajo country: Reagan, 20.

northeastern: Moore, R. C., 12, 19.

northwestern: Reeside, 4; Shimer, 2.

Papago country: Bryan, 7, 15.

Payson district: Lausen, 1.

Permian: Darton, 19.

Ray quadrangle: Ransome, 1, 11.

Ray-Miami region: Ransome, 11.

Saddle Mountain and Banner mining districts: Ross, C. P., 6.

Arkansas: Miser, 4, 7, 11.

Batesville district: Miser, 8.

Hot Springs district: Purdue, 1.

Atchison shales: Keyes, 287.

Aux Vases sandstone, diastrophic aspects: Keyes, 91.

Barnett shale, central Texas: Moore, R. C., 16.

Big Stone Gap shale, Chattanooga age: Swartz, J. H., 10.

Borden (Knobstone) rocks, southern Indiana: Stockdale, 4.

British Columbia, Ainsworth district: Schofield, 2, 4.

Bow River section, Banff: Kindel, 30.

Carboniferous—Continued.

British Columbia, Ainsworth district—Continued.

Bridge River area: McCann, 3.

Cariboo district, Barkerville area:

Johnston, W. A., 22; Uglov, 9.

Coquihalla area: Cairnes, 1, 3.

Lillooet-Prince George region: Reinecke, 3.

Selkirk Range: Schofield, 6.

Slocan area: Bancroft, M. F., 2.

southwestern: Cairnes, 2.

Taseko Lake-French Bar Creek:

MacKenzie, J. D., 2.

Yale district: Cairnes, 5.

British Honduras: Ower, 2.

Buried Permian mountain range, New Mexico and Colorado: Rich, J. L., 2.

California, Blackhawk Canyon, San Bernardino Mountains: Woodford, 7.

Mohave Desert: Clark, C. W., 1.

Canada, maritime provinces: Bell, W. A., 13.

Cape Breton, Great Bras d'Or coal district: Bell, W. A., 5.

Chester formations, correlation: Ulrich, 5.

Chester series: Keyes, 78, 91; Weller, 2.

Colorado: Keyes, 162.

east-central: Lee, W. T., 19.

Golden area: Johnson, J. H., 13.

Leadville district: Emmons, S. F., 1.

Moffat County: Sears, 3.

Montezuma County, McElmo anticline: Coffin, 2.

north central, foothills formations: Henderson, 2.

Pitkin County, Aspen district: Knopf, A., 10.

red beds of Front Range: Tieje, 3.

Red Cliff district: Crawford, R. D., 3.

Routt and Moffat counties: Perini, 1.

Sangre de Cristo Range: Melton, 4.

southern, and New Mexico, northern, correlation: Melton, 3.

southwestern: Coffin, 3.

Tarryall district: Mullenburg, 2.

Correlation, Texas-Kansas: Beede, 3.

Dighton conglomerate, origin: Perkins, G. H., 1.

Devono-Mississippian black shales, Virginia and Tennessee: Swartz J. H., 12.

Enid formation: Aurin, 3.

General: Keyes, 144, 198.

Georgia: McCallie, 1.

Glenn formation, north central Texas: Goldston, 2; southern Oklahoma: Goldston, 2.

Grassy black shales: Keyes, 56.

Greenland: Bøggild, 1.

northern: Koch, 4.

Peary Land: Koch, 3.

Guadalupe group: Darton, 19.

Homogeny in classification: Keyes, 275.

Carboniferous—Continued.

- Idaho, Bingham, Bonneville, and Caribou counties: Kirkham, 3.
 Fort Hall Indian Reservation: Mansfield, G. R., 3.
 Mud Lake basin: Stearns, 6.
 southeastern: Kirkham, 1; Mansfield, 29.
- Illinois: Culver, 2.
 Adams County, northeastern: Currier, 1.
 Allendale oil field: Moulton, 7.
 Ava-Campbell Hill area: Root, 1.
 Avon-Canton area: Savage, 6.
 basal Pennsylvanian conglomerate: Poor, 1.
 Brown County: Nebel, 1.
 Calhoun County: Lamar, 6.
 Carbondale quadrangle: Lamar, 3.
 Carlyle-Centralla district: Shaw, 9.
 Chester series: Weller, 2.
 Colchester and Macomb quadrangles: Hinds, H., 1.
 coal beds, correlation: Culver, 9.
 District IV: Cady, 7.
 east-central: Mylius, 7.
 Edgington-Milan area: Savage, 5.
 Equality-Shawneetown area: Butts, 5.
 Gillespie and Mount Olive quadrangles: Lee, W., 1.
 Good Hope and La Harpe quadrangles: Nebel, 2.
 Hardin County: Weller, S., 1.
 Henderson County: Bell, A. H., 8.
 Hennepin quadrangle: Cady, 3.
 Herscher quadrangle: Athy, 1.
 Jacksonville area: Collinwood, 3.
 Knox County: Jelliff, 2.
 La Harpe and Good Hope quadrangles: Savage, 8.
 La Salle quadrangle: Cady, 3, 6.
 Mississippi Valley: Krey, 2.
 Morris quadrangle: Culver, 2.
 New Athens-Okawville area: Shaw, 8.
 northwestern, Pennsylvanian: Culver, 4; Wanless, 5.
 Pennsylvanian: Savage, 17; subdivisions: Cady, 14.
 Pennsylvanian marine faunas: Savage, 11.
 Pennsylvanian unconformities: Savage, 17.
 Pike and Adams counties: Coryell, 1.
 Ste. Genevieve formation: Lamar, 4.
 Saline County: Cady, 12.
 Saline and Gallatin counties: Cady, 4.
 southern: Henbest, 2; Weller, 6.
 Waterloo anticline: Lamar, 1.
 western: Culver, 6.
 Williamson and Saline counties (parts): Cady, 11.

Carboniferous—Continued.

- Indiana: Cummings, 1; Logan, 15.
 Greene County, eastern: Malott, 1.
 Lawrence County: Esarey, 1.
 Mississippian: Stockdale, 1.
 Orange County, Chester formations: Hole, 2.
 southern, Chester series: Malott, 2.
 southwestern: Logan, 18, 25.
 upper Chester: Malott, 8.
 Interior coal fields: Keyes, 2.
- Iowa: Howell, J. V., 4.
 Adair County: Gow, 1.
 Butler's Landing outlier: Adams, J. E., 2.
 Cass County: Tilton, 3.
 Clarke County: Tilton, 2.
 Fort Dodge, Ste. Genevieve marls: Lees, 4.
 Lake Calvin region: Schoewe, 6.
 Linn and Jackson counties, outliers: Norton, W. H., 4.
 Lucas County: Lugn, 4, 6.
 Mississippian: Van Tuyl, 8.
 Missouri series: Tilton, 7.
 Pennsylvanian: Noé, 13.
 Ringgold County: Arey, 1.
 southwestern: Smith, G. L., 1.
 Stuart area: Tilton, 5.
 Taylor County: Arey, 2.
- Kansas: Aurin, 2; Cooper, 4; Keyes, 279; Moore, R. C., 4, 9; Rogers, G. S., 7; Snider, 1; Young, C. M., 1.
 Allen and Neosho counties: Moore, R. C., 5.
 Anderson County: Charles, 1.
 central, Mississippian in well: Moore, R. C., 36.
 central and western: Twenhofel, 19.
 Cowley County: Elledge, 1.
 eastern: Fath, 1.
 Eldorado field: Fath, 2.
 Elk City field: Boughton, 1.
 Mississippian lime west of granite ridge: Ley, 5.
 Pennsylvanian west of Nemaha granite ridge: Denison, A. R., 2; Moore, R. C., 32.
 Permian unconformity: Chadwick, 13.
 Salina Basin: Barwick, 1.
 southeastern: Williams, D. W., 1.
 Sumner County, Pennsylvanian red beds: Buchanan, 1.
 Wilson County, subsurface geology: Stryker, 1.
 Wilson and Montgomery counties: Moore, R. C., 6.
 Wreford and Foraker limestones: Twenhofel, W. H., 1.
- Kentucky: Jillson, 13, 21, 35; Miller, A. M., 1.
 Allen County: Miller, A. M., 5; Shaw, E. W., 1.
 Barren County: Butts, 2.

Carboniferous—Continued.

Kentucky—Continued.

- Berea region: Burroughs, W. G., 5.
 Breathitt and Knox counties: Jillson, 13.
 Butler County: Glenn, 11.
 Cave in Rock quadrangle: Weller, 16.
 eastern, Buckhorn region: Jillson, 37; Mississippian: Butts, 3; Pennsylvanian: Hudnall, 3.
 Edmonson County: Weller, J. M., 1.
 Golconda quadrangle: Weller, 4.
 Jackson Purchase region: Jillson, 37.
 Johnson County, Paint Creek, uplift: Rhodes, 1.
 Kendrick shale: Jillson, 9.
 Knob region: Burroughs, W. G., 4.
 Magoffin County: Browning, I. B., 1.
 Middlesboro Basin: Wentworth, 28.
 Monticello quadrangle: Foyles, 1; MacLachlan, 1.
 Morgan County: Robinson, L. C., 1.
 Pottsville-filled channel in Mississippian: Burroughs, W. G., 1.
 Princeton quadrangle: Weller, 7.
 southeastern: Jillson, 8.
 Stinking Creek region: Jillson, 3.
 Warren County: Jillson, 7; St. Clair, 3.
 Webster County: Glenn, 4.
 western: Jillson, 102.
 western coal field: Burroughs, W. G., 2.
 Kinderhook group: Moore, R. C., 1.
 Late Paleozoic climates: Coleman, 24.
 Louisian vs. Mississippian: Keyes, 8.
 Lexington limestone: Keyes, 287.
 Mackenzie, Kinderhook: Hume, 6.
 Madison limestone: Keyes, 130.
 Maine, Portsmouth Basin: Wandke, 2.
 Marais des Cygnes series: Keyes, 287.
 Maryland: Swartz, C. K., 4, 5.
 coal measures: Swartz, C. K., 2.
 Mexico, Coahuila, Permian: Böse, 5.
 Peregrina Canyon: Girty, 9.
 Sonora: Mitchell, G. J., 12.
 Mid-Continent fields: Snider, 1.
 Mississippi: Lowe, 2; Morse, P. F., 1; Morse, W. C., 4.
 Tishomingo County: Bramlette, 4.
 Mississippi Valley: Krey, 2.
 Mississippian: Keyes, 130.
 Mississippian formations, early: Moore, R. C., 23.
 Mississippian faunal zones: Weller, 12.
 Mississippian series, synonymy and taxonomy: Keyes, 262.
 Mississippian tuff, Ouachita Mountains: Miser, 3.
 Missouri: Branson, 1; Williams, H. S., 1; Wilson, Mal. E., 1.
 Louisiana limestone: Williams, J. S., 1.
 Mississippian series: Branson, 10; Moore, 41.
 Ste. Genevieve County: Weller, 19.

Carboniferous—Continued.

Missouri—Continued.

- St. Louis County, Mississippian section: Shipton, 1.
 Vernon County: Greene, 8.
 Montana: Bauer, C. M., 3; Keyes, 234.
 Beartooth Mountains, Bevan, 2.
 Cat Creek oil field: Lupton, 1.
 central and eastern: Clapp, C. H., 2.
 Crow Indian Reservation: Thom, 4.
 Fergus County: Freeman, O. W., 1.
 Kevin-Sunburst oil field: F. R., 3.
 Melrose phosphate field: Richards, R. W., 2.
 Quadrant formation: Freeman, O. W., 2; Hammer, 2.
 Soap Creek oil field: Thom, 1.
 Stanford hematite district: Westgate, 1.
 Sweet Grass Hills: Kemp, 8.
 Muscogee shales, western interior coal field: Keyes, 51.
 Nebraska, Pennsylvanian: Condra, 2.
 Nevada: Keyes, 128; Nolan, 4.
 Manhattan district: Ferguson, H. G., 5.
 Muddy Mountains: Longwell, 1, 3, 15.
 southern: Longwell, 11.
 New Brunswick: Bailey, L. W., 1; Bell, W. A., 8; Dyer, 8.
 Burnthill Brook area: Young, G. A., 1.
 Kings County, Sussex area: Hayes, A. O., 7.
 Minto coal basin: Dyer, 2.
 Moncton area: Wright, W. J., 2.
 Newfoundland, Deer Lake district: Landell-Mills, 1.
 west coast: Brunton, 3.
 western: Schuchert, 16.
 New Mexico: Darton, 11, 26; Keyes, 14.
 Artesia oil field: Rich, A., 1.
 Carlsbad region: Meinzer, 16.
 Chaves County: Merritt, J. W., 2.
 eastern: Baker, C. L., 1; Lee, W. T., 3; Rich, 5.
 Gallup-Zuni Basin: Sears, 6.
 Manzano group: Lee, W. T., 2.
 northeastern: Garrett, 1.
 Pecos Valley: Semmes, 4.
 Roswell artesian basin: Fiedler, 2.
 Permian: Darton, 20; Keyes, 268.
 Puertecito district: Wells, E. H., 2.
 Rio Grande regions: Keyes, 68.
 Rio Penasco Basin: Renick, 10.
 Sandia Mountains: Ellis, R. W., 1.
 southeastern: Hoots, 1.
 Taos Range: Gruner, 1.
 New York, Allegany State Park: Loebck, 8.
 North Carolina, Permian at base of Newark: Cobb, C., 2.

Carboniferous—Continued.

- Nova Scotia: Bell, W. A., 8.
 Cape Breton Island, Lake Ainslie region: Bell, W. A., 12; Trask, 6;
 North Mountain: Guernsey, 2;
 Sydney district: Bell, W. A., 1.
 coal-bearing formations: Bell, W. A., 7.
 Horton-Windsor district: Bell, W. A., 2.
 Minto coal horizon: Bell, W. A., 6.
 Northumberland Strait: Bell, W. A., 10.
 Pictou County, New Glasgow, conglomerate: Bell, W. A., 9.
 Sydney coal field: Hayes, A. O., 6.
 Ohio: Stout, 3.
 Camp Sherman quadrangle: Hyde, 1.
 Columbiana County: Stout, 5.
 Delaware County: Westgate, 5.
 Dunkard series: Stauffer, 1.
 Muskingum County: Stout, 1.
 Summerfield and Woodsfield quadrangles: Condit, 3.
 Vinton County: Stout, 6; Mississippian: Hyde, 3.
 Wayne County: Conrey, 1.
 Oklahoma: Aurin, 2; Bloesch, 1; Cooper, 4; Gould, 9, 12; Greene, 1; Powers, 26; Rogers, G. S., 7; Ulrich, 18.
 Arbuckle Mountains: Taff, 7; Pontotoc series: Birk, 2; Morgan, G. D., 3.
 Ardmore quadrangle, Glenn formation: Goldston, 1.
 Beaver County: Gould, 15.
 Beckham County: Gouin, 2.
 Bristow quadrangle: Fath, 6.
 Caddo and Grady counties: Becker, 1.
 Caddo County: Clapp, F. G., 1; Cement field; Reeves, F., 1.
 Carter County: Roth, 2; Tomlinson, 4; Hewitt oil field: Roark, 1.
 Cleveland and McClain counties: Anderson, G. E., 4.
 Coal and Pittsburg counties: Clawson, 1.
 Comanche County: Gouin, 3.
 Creek County: Merritt, J. W., 4.
 eastern: Shannon, C. W., 4; Trager, 3.
 Fort Scott-Wetumka correlation: Bloesch, 3.
 Franks and Seminole formations, stratigraphic position: Morgan, G. D., 7.
 Garvin County: Dott, 2.
 Glenn formation: Girty, 5.
 Glenn oil pool: Wilson, W. B., 1.
 Healdton field, Carter County: Bartram, 1.
 Henryetta district: Reed, R. D., 2.
 Hogshooter gas sand: Berger, 1.
 Jefferson County: Robinson, H. M., 3.

Carboniferous—Continued.

Oklahoma—Continued.

- Kay, Grant, Garfield, and Noble counties: Clark, G. C., 3.
 Kingfisher and Canadian counties: Kite, 1.
 Logan County: Bale, 1.
 Love County: Bullard, 2.
 McIntosh County: Clark, R. W., 4.
 Mannsville area: Tomlinson, 2.
 Mississippian, distribution and correlation: Buchanan, 2.
 Muskogee County: Soyster, 1.
 northeastern: White, L. H., 3; Williams, D. W., 1.
 northwestern: Clifton, 1.
 Nowata and Craig counties: Bloesch, 4.
 Okmulgee district: Clark, R. W., 1, 2; White, L. H., 1.
 Osage County: Beckwith, H. T., 1.
 Osage Reservation: Bowen, C. F., 3; Goldman, 2, 3, 4; Heald, 1-4; Hopkins, O. B., 1; Robinson, H. M., 1, 2; Ross, C. S., 2; Roundy, 1.
 Ouachita Mountains: Miser, 29.
 paleogeography: Wilson, R. A., 8.
 Papoose oil field: Roark, 2.
 Pawnee County: Greene, 10.
 Payne County: Koschmann, 1.
 Pennsylvanian: Dott, 1.
 Pershing oil and gas field: Rubey, 2.
 Pontotoc County: Conkling, 1.
 Pontotoc series: Morgan, G. D., 2.
 Robberson field: Denison, A. R., 1.
 Seminole area: Dwyer, 1.
 Seminole County: Levorsen, 2.
 southeastern: Honess, C. W., 6.
 southern: Burton, G. E., 2; Dunbar, 7; Moore, R. C., 10, 11.
 southern Ouachita Mountains: Honess, C. W., 4.
 southwestern: Gould, 5; Sawyer, 1.
 Stanley shale: Honess, C. W., 2.
 Stanley-Jackfork series: Honess, C. W., 5.
 Stephens County: Gouin, 1.
 Stonewall quadrangle: Greene, 6; Morgan, G. D., 5, 6.
 Sycamore limestone: Cooper, 1, 2.
 Texas County: Gould, 11.
 Thomas oil field, Kay County: Clark, S. K., 1.
 Tonkawa field: Hosterman, 1.
 upper Paleozoic rocks: Gould, C. N., 19.
 Verden sandstone: Reed, 3; Stephenson, C. D., 1.
 Wagoner County: Boyle, 1.
 Washington County: Carpenter, E., 2.
 Weatherford area, Permian: Evans, N., 1.
 western: Gould, 16; Patton, 7.
 Wichita Mountains: Taff, 7.
 Wildhorse area: Brockway, 1.

Carboniferous—Continued.

Oklahoma—Continued.

Wreford and Foraker limestones:
Twenhofel, W. H., 1.

Oregon: Smith, J. E., 1.

central: Packard, 6.

Paleozoic, late: Case, E. C., 2.

Pennsylvania: Miller, B. L., 4; Sisler,
1.

Broadtop Basin: Reger, 13.

Greensburg quadrangle: Johnson, M.
E., 1.

Loyalhanna limestone: Butts, 4.

lower Allegheny-Pottsville section:
Renick, 2.

Permian: Keyes, 182.

Pittsburgh area: Leighton, H., 2.

Punxsutawney quadrangle: Ashley,
18.

Pennsylvanian, taxonomic rank: Keyes,
149.

Pennsylvanian unconformities: Hinds,
H., 2.

Permian: Beede, 7; Case, 20; Keyes,
77, 268; Schuchert, 52.

Arizona and New Mexico: Darton,
20.

correlation, Kansas, Oklahoma, and
Texas: Gould, 10.

in America: Keyes, 192.

investigations: Case, 6, 13.

of the Plains: Gould, 8, 14.

revolution: Finlay, 2.

Texas and Oklahoma: Anon., 50.

West Virginia: Tilton, 10.

Plattsmouth limestones: Keyes, 287.

Pottsville formation, Ohio: Morning-
star, 1.

Pre-Moenkopi unconformity, Colorado
Plateau: Dake, 4.

Quebec, Bonaventure formation:
Clarke J. M., 26.

Red beds and faunas of the Appala-
chian and Kansas-Texas sections:
Beede, 7.

Red beds near base of Cherokee shales:
Tarr, Rus. S., 1.

Red beds of Chester age, Mid-Continent
region: Greene, 4.

Redwall limestone, Grand Canyon:
Keyes, 104.

St. Louis formation breccias: Grawe, 2.

South Dakota, central Black Hills:
Darton, 14.

Black Hills region, Minnekahta
limestone: O'Harra, 4.

Talladega phyllite, Clay County, Alaba-
ma, age: Prouty, 4.

Talladega slates, Alabama: Prouty, 5.
Tennessee: Nelson, 16.

Chattanooga shale: Swartz, J. H., 1.

Crossville quadrangle: Butts, 6.

Herbert Domain: Nelson, 21.

northern: Glenn, 6; Mississippian:
Bassler, 17.

Overton County: Butts, 1.

Carboniferous—Continued.

Tennessee—Continued.

Rutherford County: Galloway, J.
I., 1.

southern: Nelson, 20.

Sumner County: Mather, 3.

Waynesboro quadrangle: Miser, 6.

Texas: Rogers, G. S., 7; Udden, J. A.,
3, 12.

Amarillo region: Gould, 1.

Archer County: Hubbard, W. E., 1.

Bend series: Girty, 1, 2; Moore,
R. C., 2; and contiguous forma-
tions: Goldman, 8.

Big Lake oil field: Sellards, 21.

Burkburnett: Glenn, 2.

Bissett formation, Permian: King, 4.
central: Matteson, 1.

Coke County: Beede, 6; Jones, R.
A., 4.

Coke County red beds: Beede, 6, 7.

Crockett County: Liddle, 2.

Culberson County: Udden, 18; Uni-
versity Block: Beede, 8.

Diablo Plateau: Beede, 3.

Ellenburger formation: Sellards, 9.

Foard County: Beede, 10.

Fort Stockton quadrangle, Permian:
Adkins, 4.

Glass Mountains: King, 2, 6; Gap-
tank-Wolfcamp problem: Keyte, 2.
Hudspeth County: Beede, 5.

Lacasa area, Ranger district: Ross,
C. S., 3.

Marathon Basin: Baker, C. L., 10.

Marathon fold: Liddle, 1.

north central: Gould, 12; Udden,
Jon. A., 1; Pennsylvanian forma-
tions: Moore, R. C., 13; Plummer,
F. B., 1, 4.

northern: Pratt, W. E., 1.

Panhandle: Gould, 16.

Permo-Carboniferous red beds: Ro-
mer, 13.

Potter County: Patton, L. T., 2.

Ranger oil field: Eckes, 1; Reeves.
F., 2.

San Angelo formation: Beede, 10.

Solitario uplift: Powers, 9.

Tom Green County: Henderson,
G. G., 1.

western: Hoots, 1; Schuchert, 39;
Permian: Edwards, E. C., 2.

Wiles area, Ranger district: Dobbin,
1.

Utah: Butler, 4; Keyes, 152.

Grand and San Juan counties: Prom-
mel, 1.

Kaibab Gulch, Kaibab limestone:
Noble, 8.

La Sal Mountains: Gould, L. M., 4.

Moab region: Baker, A. A., 1.

Ophir district: Olmstead, 1.

San Juan Canyon: Miser, 14, 17.

San Rafael Swell: Gilluly, 4.

Carboniferous—Continued.

Utah—Continued.

- southeastern: Longwell, 6; Prommel, 4.
- southern: Moore, R. C., 17.
- southwestern: Reeside, 4.
- Tintic district: Lindgren, 2.
- Wasatch front: Stillman, 1.
- Washington County: Bassler, H., 2.

Virginia: Giles, 10.

- Dickenson County: Giles, 3.
- Giles County: Hubbard, G. D., 6.
- Lee County: Giles, 4.
- Russell County, Wentworth, 6.
- Scott County, Early Grove: Butts, 9.
- southwestern, black shale: Stose, 22.
- Valley coal fields: Campbell, M. R., 10.

Wise and northern Scott counties: Eby, J. B., 1.

Tazewell County: Harnsberger, 1.

Washington, San Juan Islands: McLellan, 2.

West Virginia, conglomerate rocks: Reger 12.

Fayette County: Hennen, 1.

Hampshire and Hardy counties: Tilton, 15.

Mercer, Monroe, and Summers counties: Reger, 9.

Mineral and Grant counties: Reger, 7.

Nicholas County: Price, W. A., 7; Reger, 3.

Pendleton County: Tilton, 14.

Permian: Tilton, 10.

Tucker County: Reger, 6.

Webster County: Reger, 1.

Whitehorse sandstone, correlation, Kansas, Oklahoma, Texas: Clifton, 2, 4.

Wyoming: Heald, 5.

Baxter Basin gas field: Sears, 7.

Bell Springs district, Carbon County: Dobbin, 5.

central: Lee, W. T., 19.

Lost Soldier-Ferris district: Fath, 5.

Maverick Springs: Collier, 6.

Thermopolis district: Collier, 4.

Tensleep formation: Brainerd, 2.

Wind River Mountains: Condit, 4.

Caribbean region: Vaughan, 3.

Cariboo gold fields, British Columbia: MacKay, B. R., 1.

Carlyle-Centralla folio, Illinois (no. 216): Shaw, 9.

Carnotite. See also Radium.

Arizona, Aguila: Hewett, 15.

Colorado, near Denver: Wilson, J. H., 1.

southwestern: Burwell, 1.

Nevada, southern: Hewett, 9.

Cartography.

Barometric surveying in petroleum mapping: Lahee, 3.

Canada, mapping pre-Cambrian areas: Bruce, 6.

Cartography—Continued.

Canadian Cordillera, geological mapping: Dunn, R., 1.

Field mapping for oil geologist: Warner, C. A., 1.

Maps, a field method of reducing to scale: Armstrong, 3.

interpretation and use: Smith, G. O., 20.

Military and geologic mapping: Bateman, A. M., 1.

Plane table: Bateman, A. M., 1.

Plane-table methods: English, W. A., 2.

Radian measures in plane-table mapping: Palmer, H. S., 3.

Reconnaissance mapping: Fuller, M. L., 2.

Caves.

California, Samwel Cave: Merriam, 23.

Carlsbad Cavern, New Mexico: Lee, 12, 14-16.

Cavern deposits in Permian: Udden, 13.

General: Reeds, 16.

Indiana, Marengo Cave: Addington, 3; Speckman, 1.

Porter's Cave: Addington, 2.

Kentucky: Jillson, 66.

Edmonson County: Weller, J. M., 1.

Mammoth Cave: Lobeck, 10; Randolph, 1; Weller, J. M., 1; bibliography: Jillson, 40.

southern: Miller, A. M., 13.

Lehman Cave, White Pine County, Nevada: Hastings, 1.

Mexico, Naica selenite caves: Foshag, 29.

Pedregal, caves in lava: Wittich, 1.

Missouri, Ozarks: Dake, 10.

New Mexico, Guadalupe Mountains: Baker, C. L., 4.

Ohio: White, G. W., 1.

Put-in-Bay, origin: Cuttingham, 1.

Oregon, Josephine County: Williams, I. A., 1.

lava river tunnel: Williams, I. A., 3.

South Dakota, Black Hills: Darton, 14; Johnson, J. H., 3.

Virginia, Endless Caverns: Edwards, I., 4.

Shenandoah Valley: Anon., 21.

Cayman Islands: Matley, 7, 8, 13, 14.

Celestite, Ontario, Renfrew County, Bagot township: Wilson, M. E., 2.

Cement materials: Burchard, 1, 8, 11, 13, 19; Eckel, 1, 2.

Idaho, Pocatello area: Anderson, A. L., 3.

Indiana: Logan, 9, 10.

Kentucky: Richardson, C. H., 13.

New York, Catskill region: Jones, R. W., 1.

Pennsylvania, Allentown quadrangle: Miller, B. L., 5.

- Cenozoic formations of the Pacific region : Vaughan, 28.
- Cenozoic Plantae, catalog : Knowlton, 2.
- Central America. See also Costa Rica, Guatemala, etc.
- Mesozoic history : Stanton, 1.
- Swamps, coastal : MacDonald, D. F., 3.
- Tectonic features : Vaughan, 26.
- Economic geology.*
- Oil reserves : Redfield, 5.
- Petroleum : Milner, 2; Redfield, 9.
- Historical geology.*
- Geologic history : Ihering, 1.
- Geologic mapping : Vaughan, 12.
- Paleogeography : Sapper, 7.
- Tertiary, correlation : Vaughan, 13.
- Petrology.*
- Lavas : Putnam, P. C., 2.
- Magma mass underlying Central America : Putnam, P. C., 2.
- Physical geology.*
- Volcanoes : Putnam, P. C., 2; Sapper, 3, 5.
- Physiographic geology.*
- General : Sapper, 6.
- Cephalopoda. See also Mollusca.
- Actinoceras, Trenton limestone, Montreal : Clark, T. H., 16.
- Actinosiphonate, trochoceroïd, and other cephalopods : Foerste, 21.
- Adaptations : Berry, 99.
- Alberta, Fernie formation, Ammonoidea : McLearn, 15.
- Ammonite evolution : Trueman, 1.
- Ammonite opercula, Cuba : O'Connell, 5.
- Ammonites, Cretaceous, Texas : Scott, G., 6; Texas and Mexico : Böse, 9.
- history : Diener, 2.
- Jurassic, Pacific region : Crickmay, 2.
- Texas, Eagle Ford formation : Moreman, 2; Fredericksburg formation : Scott, G., 5; Weno and Pawpaw formations : Adkins, 2.
- Anticosti, Ordovician : Foerste, 26.
- Arctic and related forms : Foerste, 24.
- Arctic Ordovician and Silurian : Foerste, 11.
- Arkansas, Fayetteville, Carboniferous : Croneis, 3.
- Beudanticeras breweri and Coloboceras stantoni, California : Crickmay, 4.
- British Columbia, Parson Bay, Jurassic : Crickmay, 9.
- Cardioceratidae : Reeside, 1.
- Colorado group, Montana : Reeside, 6.
- Cuba, Jurassic ammonites : O'Connell, 3.
- Viñales, Jurassic : Sánchez Roig, 1, 2.
- Cycloceras and associated genera : Cronis, 2.
- Devonian, Nova Scotia : Foerste, 27.
- Eagle sandstone : Reeside, 12.
- Eutraphoceras, Eocene, South Carolina : Reeside, 9.
- Cephalopoda—Continued.
- Gastrioceras, coal measures, Iowa : Thomas, A. O., 6.
- Gerontic ammonites, Duck Creek formation, Texas : Scott, G., 1.
- Goniatites of Iowa : Thomas, 19.
- Greenland, eastern, Eotriassic ammonites : Spath, 1.
- northern, Ordovician : Troedsson, 2.
- Habits : Raymond, 17.
- Holochoanites, genetic relations : Grabau, 4.
- Hudson Bay area, Ordovician and Silurian : Foerste, 22.
- Jurassic Ammonoides, Canada : McLearn, 13.
- Metaplacenticeras Spath and Placenticeras Meek : Reeside, 11.
- Mexico, Coahuila, Turonian ammonite fauna : Böse, 3.
- Guerrero, Cretaceous : Burckhardt, 1.
- Jurassic : Burckhardt, 3; Zacatecas : Burckhardt, 1.
- Lower Cretaceous : Burckhardt, 2.
- Michigan, Devonian : Ehlers, 5; Alpena : Foerste, 23.
- Minnesota : Sardeson, 17.
- Mortoniceras : Yabe, 1.
- New Mexico, Abo sandstone ammonoids : Böse, 4.
- Northwest Territories, Ordovician and Silurian : Foerste, 20.
- Ochetoceras, phylogeny : O'Connell, 6.
- Ontario, Timiskaming area : Foerste, 18.
- Toronto area : Parks, 9.
- Ordovician and Silurian : Foerste, 17, 28.
- Orthoceras, color bands : Ruedemann, R., 3.
- Orthoconic, Silurian : Foerste, 30.
- Ozarkian : Walcott, 8.
- Perisphinctinae, costal development : O'Connell, 2.
- Permo-Carboniferous ammonoids, Glass Mountains, Texas : Böse, 1.
- Phases of adaptation : Dunbar, 5.
- Primitive cephalopods, mode of life : Ruedemann, 4.
- Prosiphon in Cretaceous ammonites : Crickmay, 1.
- Rayonoceras, Fayetteville, Arkansas : Cronis, 1.
- Salterella, nature : Clark, T. H., 5, 12.
- Sex distinction : Ruedemann, R., 3.
- Scaphites, Upper Cretaceous : Reeside, 14.
- Silurian and Ordovician : Foerste, 19.
- Silurian, northern Michigan : Foerste, 16.
- Spirulirostra, Mexico : Berry, 39.
- Tetrabranchiate cephalopods, evolution : Raymond, 27.
- Wyoming, Oregon Basin, Cody shale : Reeside, 13.

- Ceratopsia, carriage and use of head: Tait, 1.
- Cerium: Watson, T. L., 2.
- Cetacea. See Mammalia.
- Chagrin formation, Ohio: Chadwick, 14.
- Chalcedony veins, south Dakota: Lawler, 1.
- Chalcopyrite deposits, northern Manitoba: Bruce, 5.
- Chalk: Ward, 3; origin: Tarr, 14.
- Chandalar district, Alaska: Mertie, 12.
- Champlain sea, decreasing salinity southward: Goldring, 3.
- Changes of level. See also Beaches; Shore lines; Terraces.
- Alaska: Dall, 2.
- Atlantic coast: Johnson, D. W., 18.
- Bermuda: Sayles, 14.
- British Columbia, Fraser River Delta: Johnston, W. A., 17.
- Vancouver region, Pleistocene: Johnston, W. A., 4.
- Cause: Bowie, 19; Dutton, 1.
- Causes, major: Ulrich, 3.
- Champlain submergence, depth along Maine coast: Meserve, 1.
- Coastal Plain, Quaternary: Vaughan, 7.
- Colorado River delta: Waldorf, 1.
- Columbia Valley, Pleistocene submergence: Bretz, 1.
- Coal reefs and the glacial period: Daly, 2.
- General: Bowie, 21; Daly, 21.
- Hawaii: Jaggard, 22.
- Hawaiian Islands, Oahu: Pollock, 1.
- Isostasy, relation of: Bowie, 4.
- Lower Mississippi Valley, sinking: Sci. Serv., 6.
- Maine, late Quaternary: Antevs, 16.
- Manitoba, Pleistocene: Johnston, W. A., 2.
- Mexico, coast regions: Wittich, 21.
- Lower California: Wittich, 8.
- New England, southern, Quaternary: Antevs, 14.
- Newfoundland: Daly, 11; postglacial: Daly, 10.
- New Hampshire, Quaternary: Goldthwait, 1.
- New York, eastern: Fairchild, H. L., 1.
- Genesee River region: Fairchild, 5.
- Nova Scotia: Daly, 11; Goldthwait, 5.
- sea coast near Wolfville: Churchill, 2.
- Paleozoic oscillations: Ulrich, 2.
- Pleistocene: Daly, R. A., 1, 4, 7, 19.
- Postglacial uplift of New England coastal region: Fairchild, 7.
- Post-Pleistocene: Daly, 7.
- Quebec, Anticosti Island: Twenhofel, 9.
- Recent sinking of sea level: Daly, 6, 9.
- Recent sinking of ocean level, lack of evidence of, in western Canada: Johnston, W. A., 24.
- Sea-level changes due to glaciation and deglaciation: Daly, 18.
- Changes of level—Continued.
- Sea-level surfaces and coastal subsidence: Johnson, D. W., 14.
- Texas, coast region: Jones, R. A., 11.
- Goose Creek oil field: Johnson, D. W., 16; Pratt, W. E., 10, 13, 15; Snider, 2.
- Tilting in the Great Lakes region: Freeman, J. R., 1.
- Vermont, postglacial uplift: Fairchild, 2.
- Vertical earth adjustments, rate of movement: Hobbs, 15.
- Chapeño salt dome, Tamaulipas, Mexico: Belt, 1.
- Charcos, origin: Bryan, K., 5.
- Chattanooga shale, southwestern Virginia: Swartz, J. H., 5; Tennessee, age: Swartz, J. H., 1.
- Chemung group, stratigraphy in western New York: Chadwick, 10.
- Chert. See also Flint.
- Definition: Glock, 1.
- Indiana: Bennett, L. F., 2.
- Newfoundland, ferruginous chert formations: Sampson, 7.
- Origin: Price, W. A., 6; Sampson, 7; Tarr, 14, 17; Twenhofel, W. H., 1.
- West Virginia: Price, W. A., 6.
- Wreford and Foraker limestones: Twenhofel, W. H., 1.
- Chester series in Illinois: Weller, 2.
- Chibougamau district, Quebec: Mawdsley, 2.
- Chignik region, Alaska: Martin, G. C., 14.
- Chilko Lake area, British Columbia: Dolmage, 15.
- Chink faceting, new process of pebble shaping: Wentworth, 20.
- Chitina Valley, Alaska: Moffit, 1, 5.
- Chitons, fossil, of western North America: Berry, S. S., 1.
- Chlorophenocite, Franklin, New Jersey: Foshaq, 28.
- Chrome, magnetic and nonmagnetic: Lewis, J. V., 1.
- Maryland: Singewald, 5.
- Chrome iron ore.
- Cuba, Burch, 2.
- occurrences: Ross, J. G., 1.
- Chromite: Diller, 1, 2.
- Alaska: Mertie, 3.
- Kenai Peninsula: Gill, A. C., 1, 2.
- British Columbia, Clinton district: Reinecke, 2.
- Lillooet-Prince George region: Reinecke, 3.
- California, Klamath Mountains: Diller, 9.
- Cuba: Burch, 1; Burchard, 4, 10.
- San Miguel de los Baños: Suárez Murias, 3.
- General: Diller, 6; Sampson, 3, 6, 12.
- Maryland: Singewald, J. T., 1, 2.
- northeastern: Knopf, E. B., 2.

Chromite—Continued.

- Montana, Stillwater and Sweet Grass counties: Westgate, 5.
 North Carolina: Lewis, J. V., 3, 6.
 Oregon, eastern: Westgate, 3.
 Klamath Mountains: Diller, 9.
 Pennsylvania: Pennsylvania G. S., 1.
 southeastern: Knopf, E. B., 2.
 Washington: Pardee, 7.
 Chronology in geology: Udden, 11.
 Chulitna region, Alaska: Capps, 4.
 Cincinnati anticline, dimensions: Hubbard, G. D., 5.

Cirques.

- Multiple level cirques: Fuller, M. B., 10.

Cirripedia.

- British Columbia, Sooke formation: Cornwall, 2.
 Cuba, Miocene: Withers, 7.

Classification.

- Cheilostomatous Bryozoa: Canu, 7.
 Coal: Ashley, 20; Campbell, M. R., 15; Fisher, D. J., 5; Thiessen, 13; Thom, 21; use classification: Ashley, 41.
 Cycadophyta: Wieland, 1.
 Fire clays: Parmelee, 1.
 Geologic time: Wilmarth, 2.
 Gypsum deposits: Wilder, 1.
 Igneous rocks: Hodge, E. T., 2-4, 7; Matthews, 1; Pirsson, 4; quantitative: Hodge, E. T., 11; quantitative mineralogical: Johannsen, 3.
 Magmatic ore deposits: Zavaritsky, 1.
 Mimetic crystals: Wherry, 1.
 Minerals, sulpho-salt: Wherry, 13.
 Oceanic islands: Davis, 23.
 Ore deposits: Tovote, 2.
 Peat deposits: Dachnowski, 2.
 Pisces: Jordan, 10.
 Pre-Cambrian: Wilson, M. E., 18; Miller, W. G., 12.
 Reptilia: Broom, 1; Williston, 1.
 Proboscidea: Osborn, 15.
 Rock classification for engineering: Pirsson, 1; Smith, W. D., 2.
 Rocks, genetic classification: Sen, 1.
 Springs: Bryan, K., 2.

Clay. See also Fire clay; Kaolin.

- Alberta, Athabasca River: Hume, 9.
 Bauxite deposits, enrichment: Thiel, 10.
 Bentonite: Davis, C. W., 2; mineralogy: Ross, C. S., 15.
 Bibliography of clay deposits: Ries, 14.
 British Columbia, Clinton district: Reinecke, 2.
 Lillooet-Prince George region: Reinecke, 3.
 California: Boalich, 1; Dietrich, 1, 2.
 Riverside County, Alberhill: Hill, J. H., 1.
 Tertiary: Linton, 1.
 Composition: Somers, 1.

Clay—Continued.

- Diaspore clay, Arkansas and Missouri: Wyssor, 1.
 Fire clays, northern Appalachian coal basin: Ashley, 2; Lovejoy, 1.
 Florida: Bell, O. G., 1.
 General: Ries, 5, 15, 17; Stout, 3.
 Georgia: Ries, 5; Stull, 2.
 High-grade American clays, occurrence: Ries, 1, 2.
 Idaho: Skeels, 1.
 Illinois, Union County, Mountain Glen: St. Clair, 2.
 refractory clays: Parmelee, 2.
 Indiana: Logan, 10, 19; Ries, 5.
 Monroe County: Logan, W. N., 2.
 Iowa: Galpin, 2.
 Kansas, Arkansas City: Teetor, 1.
 Kentucky: Jillson, 76; Ries, 5, 6.
 Louisiana: Whittemore, J. W., 2.
 Shreveport area: Whittemore, J. W., 1.
 Manitoba, Lake Agassiz basin: Wallace, 11; Maynard, J. E., 1.
 Michigan: Brown, G. G., 1.
 Microscopic examination: Somers, 1.
 Mineralogy: Ross, C. S., 24, 27.
 Mineralogical examination of coal formation clays: McCaughey, W. J., 2.
 Minnesota: Grout, 1, 11.
 Mississippi: Ries, 5.
 Missouri: Thornberry, 1.
 diaspore and flint clays: McQueen, 1.
 North Carolina: Ries, 5.
 North Dakota: Badge, 1.
 Ohio, coal formation clays: Stout, 3.
 Columbiana County: Stout, 5.
 Ontario: Keele, 8.
 Abitibi and Mattagami rivers: Keele, 2.
 Missinaibi River: Keele, 6, 7.
 northern: Keele, 1, 3, 4; Mesozoic: Dyer, 11.
 Origin of coal formation clays: Stout, 4.
 Pennsylvania: Pa. G. S., 1; Ries, 5.
 Monroe County, Saylorsburg, white clays: Peck, F. B., 1.
 white clay: Hice, 1.
 Pennsylvanian fire clays, origin: Hodson, F., 2.
 South Carolina: Ries, 5.
 white clays: Neumann, F. R., 2.
 Tennessee: Ries, 5.
 western, ball clays: Schroeder, 1.
 Texas, eastern: Dumble, 1.
 Texture and composition, relation: Grout, 11, 16.
 United States: Ries, 5.
 Vermont: Jacobs, 5.
 Virginia: Ries, 3.
 Washington: Burkhalter, 1; Glover, 1; Wilson, H., 2.
 White clays and bauxite, origin: Woolnough, 2.

- Clay balls, formation: Haas, 2.
 Cleavage and grain of slates: Behre, 6.
 Climate.
 Factors of climatic control: Humphreys, 4.
 Climate, geologic. See Paleoclimatology.
 Climatic changes, nature and causes: Huntington, 1.
 Climatic environment of extinct animals, determination: Case, 9.
 Climatic fallacy, venerable: Chamberlin, T. C., 19.
 Clinkertill: Dove, 4.
 Clinton district, British Columbia: Reinecke, 2.
 Clinton iron ore, origin: Galloway, J. J., 4; Smyth, 1.
 Coal. See also Anthracite; Lignite.
 Age characteristics: Stevenson, 3.
 Alabama: Butts, 7.
 analyses: Fieldner, 3.
 Bessemer-Vandiver quadrangle: Butts, 13.
 Alaska: Evans, G. W., 2.
 Alaska Railroad region: Capps, 6.
 Cold Bay-Chignik district: Smith, W. R., 1.
 Matanuska field: Chapin, 8, 11; Martin, G. C., 3.
 Nenana field: Martin, G. C., 1.
 Point Barrow region: Paige, 5.
 upper Matanuska Valley: Capps, 11.
 Alberta: Allan, 17; Rutherford, 3.
 analyses: Stansfield, E., 1.
 Blackstone, Brazeau, and Pembina rivers foothills, Allan, 13.
 Bow River coal basin: Dowling, 20.
 Brule Lake region: MacVicar, 1.
 Crownsnest area: Rose, 3.
 Drumheller district: Allan, 7.
 foothills belt between McLeod and Athabasca rivers: Rutherford, 4.
 Highwood area: Rose, 1.
 North Saskatchewan and McLeod rivers: Rutherford, 8.
 Saunders Creek and Nordegg coal basins: Allan, 9.
 Smoky, Hay, and Berland rivers: MacVicar, 2.
 Smoky River field: McEvoy, 1; Anon., 33.
 Allegheny formation, correlation of coal beds: Thiessen, 9.
 Anthracite, low-temperature origin: Roberts, J., 1.
 microstructure: Kelly, S. F., 2; Turner, H. G., 3.
 origin: Jeffrey, 5.
 Anthracite basins, Pennsylvania, structural features: Kemp, 10.
 Appalachian field: Bryan, P. W., 1.
 Arkansas: Branner, G. C., 4.
 analyses: Fieldner, 10.
 Atmospheric dust in coal: Glock, 2.
 Boghead coals, origin: Thiessen, 12.
- Coal—Continued.
 British Columbia, Chu Chua, Eocene basin: Uglow, 7.
 Crownsnest Pass field: Strachan, 1.
 Hat Creek coal area, Kamloops district: MacKay, B. R., 5; North Thompson valley: Uglow, 3.
 Peace River canyon area: McLearn, 7.
 Vancouver Island: MacKenzie, J. D., 5; Alberni area: MacKenzie, J. D., 7.
 Canada: Gray, F. W., 2; Patton, M. J., 1; western: White, J., 1.
 Cape Breton, Great Bras d'Or coal district: Bell, W. A., 5.
 Carbon-ratio theory and Hilt's law: Reeves, F., 14.
 Classification: Ashley, 15; Campbell, M. R., 15; Thiessen, 13; Thom, 21.
 Cleat: Moore, E. S., 13.
 Climatic conditions when coal beds were formed: Brown, T. C., 2.
 Coalification process: Fisher, D. J. 5.
 Coking coals, structure and origin: Jeffrey, 8.
 Colorado, Axial and Monument Butte quadrangles: Hancock, 7.
 Mancos district: Collier, 3.
 Twentymile Park district of Yampa coal field, Routt County: Campbell, M. R., 5.
 Compilation and composition of bituminous coals: Thiessen, 3.
 Constitution: Jeffrey, 11; Stopes, 1; Thiessen, 2, 5, 9; Tideswell, 1; Anon., 43, 44.
 Coals, Kentucky, Illinois, and Indiana, correlation: Jillson, 108.
 Environmental conditions of deposition of coal: White, D., 23.
 Formation: Hackford, 1; Hixon, 1; Kendall, 2; Thiessen, 11, 13; White, D., 20; and origin: Thiessen, 5.
 General: Jeffrey, 10; Moore, E. S., 4; Stevenson, 1, 2; White, D., 27.
 Geology: Finlay, 1.
 Idaho, eastern: Mansfield, G. R., 8.
 Teton basin, Horseshoe district: Evans, G. W., 1.
 Hydrocarbons, inorganic origin: Young, J. W., 6.
 Identification of coals: Williams, T. B., 6.
 Idaho, Horseshoe Basin field: Evans, G. W., 4.
 Illinois: Culver, 5.
 Carbondale quadrangle: Lamar, 3.
 Avon and Canton quadrangles: Savage, 6.
 analyses: Hawley, G. W., 1.
 Carlyle-Centralia district: Shaw, 9.
 Colchester and Macomb quadrangles: Hinds, H., 1.
 District IV: Cady, 7.

Coal—Continued.

Illinois—Continued.

Edgington-Milan area: Savage, 5.
Equality-Shawneetown area: Butts, 5.

Gillespie and Mount Olive quadrangles: Lee, W., 1.

Hennepin quadrangle: Cady, 3.

Herscher quadrangle: Athy, 1.

Knox County: Jelliff, 2.

La Salle quadrangle: Cady, 3

low-sulphur coal: Cady, 9.

Milan quadrangle: Savage, 5.

Morris quadrangle: Culver, 2.

New Athens-Okawville area: Shaw, 8.

Perry County. Herrin coal: Fisher, D. J., 3.

Saline and Gallatin counties: Cady, 4.

Saline County: Cady, 12.

southern: Cady, 13.

western: Culver, 6.

Williamson and Saline counties: Cady, 11.

Indiana: Barrett, E., 8; Logan, 10.
coal seams, distribution: Logan, 11.

Monroe County: Logan, W. N., 1.

Vigo County: Logan, 6.

Iowa: Lees, 17; Rice, G. S., 1.

Lucas County: Lugin, 6.

Isostatic adjustment in formation of coal beds: Kemp, 13.

Kansas: Allen, H. C., 2; Young, C. M., 1.

Kentucky: Campbell, M. R., 4; Jillson, 21, 37, 52; Miller, A. M., 1.

asphalt coal: Jillson, 55.

bibliography: Jillson, 14.

cannel coal: Jillson, 62.

Clay County: Hodge, J. M., 3; Sexton Creek area: Russell, P. G., 1.

eastern, Buckhorn region; Jillson, 27.

Elkhorn field: Hudnall, 1.

Goose Creek region: Hodge, J. M., 3.

Kentucky River, north fork: Hodge, J. M., 2.

Leslie and Harlan counties: Hodge, J. M., 1.

low-sulphur coals: Jillson, 11.

Magoffin County: Browning, I. B., 1.

Martin County: Hudnall, 2.

Middlesboro Basin: Wentworth, 28.

Morgan County: Robinson, L. C., 1.

Ohio County, Elm Lick coal bed: Gardner, J. H., 5.

production: Jillson, 15.

Stinking Creek region: Jillson, 3.

Webster County: Glenn, 4, 5.

western coal field: Burroughs, W. G., 2.

Maryland: Swartz, C. K., 3.

Mexico: Obregon, 1.

Sonora: Paredes, 6.

Microscopic study: Thiessen, 6.

Coal—Continued.

Microscopy of anthracite: Turner, H. G., 2.

Microstructure: Seyler, 1.

Missouri: Brodie, 2; Thom, 14.

analyses: Fieldner, 7.

Vernon County: Greene, 8.

Moisture in coals: Thom, 12.

Montana: Rowe, 4.

Tullock Creek coal field: Rogers, G. S., 8.

New Brunswick: Dyer, 8.

Gloucester County: Young, G. A., 2.

Minto basin: Dyer, 2.

Newfoundland: Haliburton, 1.

St. George's coal field: Baker, H. A., 2.

New Mexico, O'Mara field: Keyes, 110.

Raton field: Lee, 10.

Raton-Brilliant-Koehler area: Lee, W. T., 6.

San Juan County: Bauer, C. M., 1.

North Carolina, Triassic coal field:

Pratt, J. H., 5.

North Dakota: Dove, 2; Leonard, 7.

Nova Scotia: Gray, 3; Hayes, A. O., 1, 3.

Sydney coal field: Hayes, A. O., 6.

Occurrence, composition, and origin: Fettke, 3.

Ohio: Campbell, M. R., 6; Stout, 2.

analyses: Fieldner, 1.

Columbiana County: Stout, 5.

Muskingum County: Stout, 1.

Pittsburgh coal bed: Bownocker, 8.

Summerfield and Woodfield quadrangles: Condit, 3.

Vinton County: Stout, 6.

Wayne County: Conrey, 1.

Oil resources in coal: Fettke, 3.

Oklahoma: Cooper, 3; Fuller, M. L., 4.

analyses: Fieldner, 9.

eastern: Shannon, C. W., 4.

Origin: Campbell, M. R., 10; Hippard,

1; Jeffrey, 4, 12; Runner, 1.

and constitution: Thiessen, 8.

and formation of coal: Jeffrey, 9.

Pan-Pacific region: Johnson, B. L., 6.

Pennsylvania: Ashley, G., 26; Kuhn,

1; Pennsylvania G. S., 1; Sisler, 1, 2.

Allegheny Valley: Rayburn, 1.

analyses: Fieldner, 2.

anthracite region: Parker, E. W., 1.

bituminous coal fields: Sisler, 3.

cannel coal: Fettke, 4.

coal resources: Reese, 1.

'Greensburg quadrangle: Johnson, M. E., 1.

low-sulphur coals: Chance, 1.

Pittsburgh coal bed: Ashley, 21;

White, I. C., 9.

Punxsutawney quadrangle: Ashley, 18.

Resources of the Americas: Miller, B. L., 2.

Coal—Continued.

- Regional carbonization : White, D., 24.
- Saskatchewan, Souris field : Dowling, 11.
- "Soot" in coal : Scheffel, 2.
- South's coal fields : Thom, 10.
- Spore exines, use in correlation : Thiessen, 4.
- Structure in Paleozoic bituminous coals : Thiessen, 2, 3.
- Sulphur in coal : Thiessen, 1; geological aspects : Ashley, 6.
- Use classification : Ashley, 1.
- Tennessee : Fieldner, 5; Forbes, 1; Nelson, 25.
- Crossville quadrangle : Butts, 6.
- Herbert Domain : Nelson, 21.
- northern : Glenn, 6.
- southern : Nelson, 20.
- Utah : Spieker, 2.
- Castlegate, Wellington, and Sunny-side quadrangles : Clark, F. R., 4.
- Salina Canyon district, Sevier County : Spieker, 6.
- Virginia : Eby, 5.
- analyses : Fieldner, 6.
- Dickenson County : Giles, 3.
- Lee County : Giles, 4.
- Russell County : Wentworth, 6.
- southwestern : Davenport, 1.
- Tazewell County : Harnsberger, 1.
- Triassic : Roberts, J. K., 8.
- Valley coal fields : Campbell, M. R., 10.
- Wise and northern Scott counties : Eby, J. B., 1.
- Washington : Evans, G. W., 3; Shedd, 2.
- Skagit County : Jenkins, 8.
- southwestern : Culver, 1.
- West Virginia : Eby, J. B., 6; Reger, 11; White, I. C., 8.
- Abram Creek-Stony River field : Ashley, 4.
- analyses : Fieldner, 8.
- Cheat Mountain coal field, Randolph County : Reger, 16, 17.
- Fayette County : Hennen, 1.
- Harrison, Thomas bed : Campbell, M. R., 1.
- Nicholas County : Reger, 3.
- Mercer and Summers counties : Reger, 9.
- Mineral and Grant counties : Reger, 7.
- sulphur in coals : White, I. C., 3.
- Tucker County : Reger, 6.
- Webster County : Reger, 1.
- Wyoming, Gillette coal field : Dobbin, 3; Thom, 19; Minturn district : Thom, 19.
- Green River field : Van Lennep, 1.
- Pumpkin Buttes coal field : Wegemann, 2.
- Oregon Basin, Meeteetse, and Grass Creek quadrangles : Hewett, 16.
- Coal balls : Feliciano, 1; Noé, 4.
- Coal Measures. See Carboniferous.

Coalification process : Fisher, D. J., 5.

Coast erosion.

- California, San Diego region : Leonard, 6.
- North Carolina, Cape Hatteras : Rude, 1.
- Coast line changes, Nova Scotia : Churchill, 5.
- Coastal Plain terraces, origin and age : Hay, 22.
- Cobalt : Drury, 1; Hess, 2, 7, 8, 12, 13, 16, 19, 21.
- Idaho, Lemhi County : Hess, 5.
- Ontario : Drury, 1; Cobalt : Whitehead, 1.
- Oregon, Jackson County : Kellogg, A. E., 4.

Cobaltite.

- British Columbia, North Thompson Valley : Uglow, 15.
- Cobble abrasion : Wentworth, 1.
- Cobble of peculiar shape : Wentworth, 14.
- Cobbles, striated, southern States : Wentworth, 36.
- Coelenterata. See Anthozoa; Hydrozoa; Invertebrates (general).
- Colchester-Macomb folio, Illinois (no. 208) : Hinds, H., 1.
- Cold Bay district, Alaska : Capps, 5; Smith, W. R., 4.
- Cold Bay-Chignik district, Alaska : Smith, W. R., 1.
- Cold Bay-Katmai district, Alaska : Smith, W. R., 3.
- Colemanite, Clark County, Nevada : Noble, 2.
- Colemanite deposits, origin : Foshag, 10.

Collections.

- Colorado Museum, fossil mammals : Cockerell, 21.
- Harvard College, Museum of Comparative Zoology, report on geological collections : Sayles, 5, 9, 10; on invertebrate paleontology : Raymond, 14, 20, 22, 25, 32, 33, 38; Stetson, 3.
- U. S. National Museum : Merrill, 25, 26, 27, 35, 44, 48, 51, 58.
- Colloidal geology : Wallace, 9.
- Colloids in geologic problems : Hubbard, G. D., 2.
- Collophane : Rogers, A. F., 9.
- Color in polished sections, diagnostic value : Talmage, 1.
- Color of red beds, origin : Dorsey, 2.
- Color markings, Orthoceras : Ruedemann, R., 3.
- Color printing of geological maps : Senécal, 1.
- Colorado.
- Alkalies : Headden, 1.
- Atlas of Colorado : Margerie, 2.
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- northwestern Colorado : Johnson, J. H., 7, 18.
- south-central Colorado : Johnson, J. H., 21.

Colorado—Continued.

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Moffat Tunnel: Lovering, 7.

Areas described.

Axial and Monument Butte quadrangles, Moffat County: Hancock, 7.

Big Thompson River valley: Fuller, M. B., 8.

Brilliant quadrangle: Lee, W. T., 6.

Creede district: Emmons, W. H., 4.

Cripple Creek district: Van Tuyl, 3.

Crowley and Otero counties (parts): Toepelman, 3.

Delta and Mesa counties: Weeks, L. J., 1.

Golden area: Johnson, J. H., 12.

Grand, Jackson, and Larimer counties (parts): Spock, 1.

La Junta area: Patton, H. B., 3.

Las Animas, Otero, and Bent counties (parts): Duce, 1.

Leadville mining district: Emmons, S. F., 1.

Moffat County: Sears, 3.

Northeastern Colorado: Mather, 12.

Platoro-Summitville district: Patton, H. B., 1.

Raton quadrangle: Lee, W. T., 6.

Red Cliff district: Crawford, R. D., 3.

Tarryall district, Park County: Muilenburg, 2.

Twentymile Park district of Yampa coal field, Routt County: Campbell, M. R., 5.

Twin Lakes district: Howell, J. V., 1.

Wagon Wheel Gap area: Larsen, 8.

Economic geology.

Aspen district, Pitkin County: Knopf, A., 10.

Boulder County, Ward region: Worcester, 1.

Camp Bird compound vein-dike: Boydell, 8; Spurr, 18; Thoreau, 1.

Carnotite near Denver: Wilson, J. H., 1.

Gateway district: Farnum, 1.

southwestern Colorado: Burwell, 1.

Coal, Mancos district: Collier, 3.

Creede, ore deposition: Lunt, 2.

Cripple Creek district, ore at deep levels: Loughlin, 32.

Evergreen copper ores, Gilpin County: McLaughlin, D. H., 2.

Fluorspar deposits: Aurand, 1; Boulder County: Hibbs, 1.

Colorado—Continued.

Economic geology—Continued.

Gas and oil, Fort Collins: Ball, M. W., 2.

Hahns Peak region, Routt County: Lakes, 1.

Gold, Platoro-Summitville district: Patton, H. B., 1.

Gypsum: Stone, 11.

Jefferisite: Alderson, 5.

Manganese: Jones, Ed. L., 6; Muilenburg, 1.

Mineral deposits, western slope: Aurand, 2.

Mineral resources: Colorado, 1.

Mineral zones, Hinsdale County: Brown, W. H., 3.

Mining districts: Johnson, J. H., 9.

Mining in Colorado: Henderson, 1.

Molybdenite, Climax: Haley, D. F., 1.

Natural gas, Fort Collins: Ball, M. W., 3.

Oil accumulation in Rocky Mountain region: Harrison, T. S., 2.

Oil and gas, northeastern Colorado: Anon., 39.

Oil and gas prospects, Moffat County: Sears, 3.

northeastern Colorado: Mather, 12.

Oil possibilities, Routt County: Crawford, R. D., 1.

Oil shale: Alderson, 1, 2, 4; Chase, R. L., 1; De Beque, 1; George, R. D., 2; Hoskin, 1; Jenson, 1; Lunt, 1; Winchester, 5; organic matter: Franks, 1.

De Beque: Trager, 4.

Ore deposits, Leadville district: Loughlin, 31.

Petroleum: Wheeler, H. A., 7.

Outlook for ores: George, R. D., 7.

Pyrite, Leadville: Lee, H. S., 1.

Radium, uranium, and vanadium deposits: Coffin, 3; Hess, 15.

Secondary enrichment, Eagle mine, Bonanza: Wuensch, 2.

Silver, Aspen: Bastin, 2.

Silver enrichment, San Juan Mountains: Bastin, 5.

Silver-bearing petrified wood, Creede: Hills, V. G., 1; Ring, 1.

Telluride district: Bell, C. N., 1.

Twentymile Park district of Yampa coal field, Routt County: Campbell, M. R., 5.

Southwestern Colorado: Coffin, 3.

Telluride area, San Miguel County: Hurst, 2.

Historical geology.

Aspen district, Pitkin County: Knopf, A., 10.

Book Cliffs coal field: Forrester, J. B., 1.

Boring, Fort Collins: Ball, M. W., 2.

Boulder County, Ward region: Worcester, 1.

Browns Park formation: Peterson, 11; and Bishop conglomerate: Sears, 4.

Buried Mountain range of Permian age: Rich, J. L., 2.

Colorado—Continued.

Historical geology—Continued.

- Camp Bird district: Spurr, 18.
 Carlile shale and Timpas limestone, merging in southeastern Colorado: Patton, H. B., 2.
 Central City district: Hirschi, 1.
 Cretaceous, northeastern Colorado: Henderson, J., 1.
 Dakota group: Lee, 8.
 Denver formation: Hares, 3.
 Foothills formations, north central Colorado: Henderson, J., 2.
 Fox Hills sandstone, Larimer County: Johnson, J. H., 20.
 Front Range, physical history: Van Tuyl, 5.
 Geologic formations, correlation: Lee, W. T., 19.
 Green River formation and its oil shale, origin: Bradley, W. H., 3.
 Gunnison tillite of Eocene age: Atwood, 7.
 Igneous rocks, central Colorado: Crawford, R. D., 2.
 Italian Mountain, Gunnison County: Cross, W., 7.
 Laramie beds, absence in southern Colorado: Keyes, 79.
 Laramie formation, central Weld County: Toepelman, 4.
 Laramie hiatus, southern Rocky Mountains: Keyes, 147.
 Mancos district: Collier, 3.
 Moffat tunnel: George, R. D., 3.
 Montezuma County, McElmo anticline: Coffin, 2.
 Morrison formation, type section: Lee, W. T., 1.
 North central Colorado, Big Thompson schist: Fuller, M. B., 6.
 Northeastern Colorado: Mather, 12; Anon., 41.
 Otero County, geologic map: Lupton, 6.
 Pawnee Creek beds, Weld County: Loomis, F. B., 2, 7.
 Permian formation: Gould, C. N., 27.
 Permo-Carboniferous correlation: Melton, 3.
 Pre-Cambrian, Gunnison River: Hunter, J. F., 1.
 northern Colorado: Fuller, M. B., 7.
 Pre-Cambrian structure along Big Thompson River: Fuller, M. B., 2.
 Red beds of Front Range, sedimentary features: Tieje, 3.
 Routt and Moffat counties, anticlines: Perini, 1.
 Routt County: Crawford, R. D., 1.
 Sangre de Cristo Range: Melton, 4.
 San Juan region: Basin, 5; Reeside, 8.
 South-central Colorado: Knowlton, 12.
 Southwestern Colorado: Coffin, 3.
 Telluride area, San Miguel County: Hurst, 2.
 Tillite, ancient, near Gunnison: Atwood, 6.

Colorado—Continued.

Historical geology—Continued.

- Wasatch and Green River formations, relations: Sears, 5.
 Western Colorado: Harrison, T. S., 3.

Mineralogy.

- Anglesite, Gunnison County: Shannon, 17.
 Alaskaitite, San Juan region: Brown, W. H., 4.
 Beidellite: Larsen, 16.
 Calcites, luminescence: Headden, 7.
 Carnotite and tyuyamunite: Hillebrand, 2.
 Carnotite region minerals: Hess, 20.
 Cancrinite, Uncompahgre quadrangle: Larsen, 19.
 Creedite, Creede quadrangle: Fosbarg, 9.
 Gilpinite, Gilpin County, identity with Johannite: Larsen, 17.
 Jefferisite: Alderson, 5; Waldschmidt, 6.
 Meteorite, Johnstown, Weld County: Hovey, 12.
 Mesa Verde Park: Merrill, 29, 30.
 Mount Ouray, Chaffee County: Palache, 17.
 Washington County: Palache, 34.
 Mineral localities: Over, 1.
 Phosgenite, Ilse, Custer County: Waldschmidt, 5.
 Pyrite, Bald Mountain: Whitlock, 4.
 Quartz, Pikes Peak: Hawkins, A. C., 2.
 Rossite and metarossite, San Miguel County: Fosbarg, 31.
 Table Mountain zeolites: Johnson, J. H., 12.
 Weissite, Gunnison County: Crawford, W. P., 1.

Paleontology.

- Acanthoceras rhotomageuse fauna: Reeside, 15.
 Amphicoelias: Osborn, 5.
 Amphicyon, Pawnee Creek beds: Cook, H. J., 19.
 Animas formation, flora: Knowlton, 13.
 Beetles, Florissant: Cockerell, 32.
 Birds, Oligocene: Wetmore, 12.
 Brachyruscus, Florissant: Cockerell, 14.
 Browns Park formation: Peterson, 11.
 Camarasaurus: Osborn, 5, 6.
 Catmint, Florissant: Cockerell, 38.
 Colorado Museum, fossil mammals: Cockerell, 21.
 Cretaceous, northern central Colorado: Reeside, 5.
 mollusks: Reeside, 17.
 northeastern Colorado: Henderson, J., 1.
 Culex winchesteri, Cathedral Bluffs: Cockerell, 3.
 Diatryma, plumage: Cockerell, 17.
 Dinosaur tracks, Cretaceous: Peterson, W., 1.
 Dinosauria: McKelvey, 1.
 Diplodocus, skull: Holland, W. J., 3.

Colorado—Continued.

Palaeontology—Continued.

- Dragon fly, Eocene: Cockerell, 42.
- Entelodonts: Troxell, 3.
- Eocene insects: Cockerell, 2.
- Eocene Insecta: Cockerell, 24.
- Eomyza Holoptera, Green River beds, Roan Mountains: Cockerell, 26.
- Epoecodonts, White River beds: Thorpe, 23.
- Florissant fossils: Cockerell, 6.
- insects: Cockerell, 36, 41.
- Footprints in Pennsylvanian sandstone: Henderson, J., 5.
- Fox Hills sandstone, Larimer County: Johnson, J. H., 20.
- Fulgoridae, Eocene, Roan Mountain: Cockerell, 9.
- Green River flora: Knowlton, 11.
- Hepatica, Florissant: Howe, M. A., 3.
- Hymenoptera, Florissant: Cockerell, 23; parasitic: Cockerell, 4.
- Hyopsodus, Eocene: Abel, 2.
- Hyracodon: Troxell, 8.
- Inocellia (Neuroptera), Florissant: Cockerell, 28.
- Insecta, Eocene: Cockerell, 8.
- Laramie flora, Denver Basin: Knowlton, 8.
- Lithospermum nutlets: Berry, 101.
- Macluritella, Ordovician: Kirk, E., 8.
- Mammalia, Brown's Park: Peterson, 6.
- Matonidium americanum: Berry, 11.
- Morrison flora: Knowlton, 4.
- Mosquito, Eocene: Cockerell, 3.
- Moth, Hydiromena, Florissant: Cockerell 13.
- Myriapod, Parajulus, Florissant: Miner, 2.
- Orontium, Florissant: Cockerell, 31.
- Palaeospiza bella, Florissant: Wetmore, 7.
- Paleocene mammals, new genera: Matthew, 16.
- Palmoxylon cannoni, Denver: Stevens, N. E., 1.
- Pennsylvanian crinoids, western Colorado: Keyte, 1.
- Phenacocladus, Eocene alga: Cockerell, 34.
- Plant and insect fossils, Green River Eocene: Cockerell, 27.
- Pleistocene Vertebrata, Denver: Hay, 9.
- Pliocene Mammalia, Yuma County: Cook, H. J., 2.
- Quercus, Green River Eocene: Cockerell, 39.
- Ranunculus florissantensis: Cockerell, 11.
- Rhinoceros (Trigonias), Oligocene: Gregory, W. K., 19.
- Sauropoda, Canyon City: Osborn, 10.
- Sawflies, Florissant: Cockerell, 12.
- Scorpion-fly, Green River Eocene: Carpenter, F. M., 3.
- Scutellaster cretaceus Cragin: Reeside, 10.

Colorado—Continued.

Palaeontology—Continued.

- Siphurites, Miocene May fly, Florissant: Cockerell, 22.
- Taphacris bittaciformia, Florissant: Cockerell, 30.
- Teleoceras, Yuma County: Cook, H. J., 11.
- Tertiary lake beds flora: Knowlton, 12.
- Ticholeptus rusticus: Loomis, F. B., 3.
- Titanotheres, Eocene, Moffat County: Cook, H. J., 8.
- Huerfano formation: Osborn, 7.
- Trilophodon: Cook, H. J., 1.
- Trigonias, Weld County: Gregory, W. K., 19.
- Uintacolotherium, Moffat County: Cook, H. J., 7.
- Wasp, Hoplisus, Green River formation: Cockerell, 15.

Petrology.

- Central City district: Hirschi, 1.
- Fortification dike rocks: Ross, C. S., 19.
- Igneous rocks, central Colorado: Crawford, R. D., 2.
- Italian Mountain, Gunnison County: Cross, W., 7.
- North central Colorado, Big Thompson schist: Fuller, M. B., 6.
- Pre-Cambrian, Gunnison River: Hunter, J. F., 1.
- Twin Lakes district: Howell, J. V., 1.
- Zeolite beds in the Green River formation: Bradley, W. H., 8.

Physical geology.

- Algal reefs in Green River formation: Bradley, W. H., 7.
- Building of Rockies: Chamberlin, R. T., 1.
- Carbonization of coals by igneous intrusion, Yampa field: Eby, 3.
- Colorado Plateau, structural features: Moore, R. C., 21.
- Contact metamorphism in Big Thompson schist, north central Colorado: Fuller, M. B., 6.
- of some coals: Eby, 4.
- Crustal shortening of Colorado Rockies: Chamberlin, R. T., 8.
- Erosion, Mesa Verde: Haas, 1.
- Faulting, Rocky Mountain region: Irwin, 2.
- Horizontal compression in Rockies: Shepard, 5.
- Moffat Tunnel: Lovering, 7.
- Montezuma County, McElmo anticline: Coffin, 5.
- Paradox Valley, origin: Powers, 18.
- Northeastern Colorado, structure: Anon., 41.
- Red beds of Front Range, sedimentary features: Tieje, 3.
- Rocky Mountains, southern: Lee, 9.
- Routt and Moffat counties, anticlines: Perini, 1.
- Routt County anticlines: Crawford, R. D., 1.

Colorado—Continued.

Physical geology—Continued.

Salt domes, western Colorado: Harrison, T. S., 3.

Sangre de Cristo Range: Melton, 4.

Southwestern Colorado: Coffin, 3.

Thrust faulting, San Luis Valley: Burbank, 2.

Williams thrust fault: Lovering, 6.

Physiographic geology.

Ancestral Rocky Mountains: Melton, 1.

Big Thompson River valley, physiographic development: Fuller, M. B., 1.

Eocene glaciation: Atwood, 8.

Fossil glacier: Brown, W. H., 1.

Front range, erosional cycles: Little, 4.

northern Colorado: Mather, 8.

General: Worcester, 2.

Glacial deposits, Pine River valley: Reagan, 3, 6.

Glaciation, Front Range: Fuller, M. B., 5.

Grand Mesa, glacial geology: Henderson, J., 4.

Green and Yampa rivers, origin: Sears, 4.

Gunnison River, course: Branson, 7.

Mesa Verde: Haas, 1.

Moraines, Estes Park region:

Wooster, 1.

Mountain front: Vestal, 1.

Multiple level cirques: Fuller, M. B., 10.

Peneplains, Front Range and Rocky Mountain National Park: Lee, W. T., 7.

Quaternary drainage changes around Mount Olympus: Fuller, M. B., 4.

Raton Mesas: Lee, W. T., 4.

Rocky Mountains: Chamberlin, R. T., 1.

San Juan Mountain region and Front Ranges, physiographic correlation: Atwood, 5.

San Juan Mountains: Atwood, 3.

San Luis Valley, physiographic history: Atwood, 4.

Underground water.

Crowley and Otero counties (parts): Toepelman, 3.

La Junta area: Patton, H. B., 3.

Elbert, El Paso, and Lincoln counties: Coffin, 4.

Lincoln and Crowley counties: Tjeje, 1.

Mineral waters: George, R. D., 1.

San Luis Valley, hydrology: Headden, 2.

Colorado Plateau, structural features: Moore, R. C., 21.

Columnar and buttress structures: Branson, 20.

Columnar structure in lavas: James, A. V. G., 1.

Comagmatic regions: Washington, 4; distribution: Washington, 15.

Comanchean formation underlying Florida: Sellards, 6.

Commercial control of mineral resources: Spurr, 1.

Commercial geology, world atlas: U. S. G. S., 3; water power: U. S. G. S., 4.

Composition of earth: Adams, L. H., 8.

Concretions.

Calcareous concretions in streams: Roddy, 1.

California, Kettleman Hills, aragonite: Reed, 9.

southern: Haase, 1.

Clay balls, formation: Haas, 2.

Coal balls: Feliciano, 1.

Coal seams, concretions in adjoining strata: Feliciano, 1.

Formation: Cook, C. W., 10; and distribution: Kindle, 24.

Indiana, Monroe County, Knobstone: Tucker, W. M., 2.

Iron sulphide in coal and other sedimentary rocks: Newhouse, 3.

Iron sulphide pseudomorphs of plant structure: Schwartz, 20.

Labrador, Lake Melville district: Kindle, 25.

Missouri, Boone County, origin: Tarr, 5.

New York, western: Alexander, A. E., 1.

Ohio, Delaware County: Westgate, 5.

Elyria, lake deposits: Hubbard, G. D., 1.

Origin: Patton, L. T., 1.

Petroleum-bearing concretions: Binney, 1.

Rhizocretions: Kindle, 36.

Septaria, Pennsylvanian shale, Missouri: Grawe, 2.

South Dakota, Black Hills, geode concretions: Schwartz, 14.

Syngenetic origin in shale: Tarr, 10; of pyrite concretions in Pennsylvanian shales: Mathias, 1.

Cone-domes: Sardeson, 20.

Cone-in-cone: Tarr, 20.

Cone-in-cone structure, origin: Tarr, 10; 11; use in correlation: Tester, 2.

Conglomerate.

British Columbia, Silurian tillite: Shepard, 1.

Chemical study: Walker, 12.

Cobalt conglomerate, origin: Coleman, 4.

Edgewise conglomerate: Clarke, J. M., 5.

Marine and terrestrial: Barrell, 19.

Pennsylvania, Nittany Valley, conglomeratic limestone: Eaton, H. N., 2.

Congresses. See Associations.

Coniferales, anatomy and physiology: Torrey, R. E., 1.

Connecticut.

Guilford quadrangle: Foye, 6.

Middletown region: Cleland, 4.

Report of survey: Britton, 1; Conn, G. S., 1; Gregory, H. E., 5; Robinson, H. H., 1.

Areas described.

Stonington region: Martin, L. H., 1.

Middletown area: Rice, W. N., 1.

New Haven area: Brown, J. S., 9.

Connecticut—Continued.

Areas described—Continued.

Shepaug Aqueduct Tunnel area, Litchfield County: Agar, 4.

Economic geology.

Bristol copper mine: Bateman, A. M., 2.
Granite: Dale, T. N., 4; Gregory, H. E., 8.

Lime belt, western Connecticut: Dale, T. N., 5.

Historical geology.

Eastern Highland: Foye, 13.
Meriden area: Waring, 2.
New Haven region: Foye, 16.
Norwalk, Suffield, and Glastonbury areas: Palmer, H. S., 4.
Quaternary, New Haven region: Ward, 5.
Southington-Granby area: Palmer, H. S., 5.
Triassic, southern Connecticut: Longwell, 5, 18; Russell, W. L., 1.

Mineralogy.

Apatite, Branchville: Whitlock, 19.
Chatham: Shannon, 12, 29.
Datolite, Meriden: Shannon, 17.
Lithiophilite, Portland: Schaller, 3.
Meriden: Shannon, 7.
Middletown area: Foye, 4.
Mineral localities: Eaton, F. S., 1.
Pickeringite, Portland: Schaller, 2.
Portland, Strickland's quarry: Shannon, 11.
Rhodonite, Portland: Foye, 1.
Thulite, Haddam: Foye, 15.
Triplite, Chatham: Shannon, 17.
Trumbull, Long Hill: Shannon, 18.
Trumbull tungsten mine: Shannon, 31.

Paleontology.

Footprints, Connecticut Valley: Abel, 4.
North Branford: Lull, 19.

Petrology.

Camptonite dikes in Triassic: Russell, W. L., 2.
Pillow structure in Triassic basalts: Foye, 11.
Stonington region: Martin, L. H., 1.

Physical geology.

Camptonite dikes in Triassic: Russell, W. L., 2.
Faulting in Triassic: Foye, 9.
Shapes of beach pebbles, New Haven: Wentworth, 10.
Triassic fault, southern Connecticut: Russell, W. L., 1.
Triassic trough, origin: Foye, 7.

Physiographic geology.

Connecticut River near Middletown, post-glacial history: Bissell, 2.
preglacial course: Bissell, 3.
Danbury region, drainage modifications and glaciation: Harvey, R. S., 1.
Eskers and crevasse fillings: Flint, 6.
Postglacial uplift: Fairchild, 7.
Quaternary, New Haven region: Ward, 5.
Terraces, Barrell, 6.
lower Connecticut Valley: Flint, 8.
Stonington region: Martin, L. H., 1.

Connecticut—Continued.

Underground water.

Coastal ground water: Brown, J. S., 5.
Meriden area: Waring, 2.
New Haven region: Brown, J. S., 2.
Norwalk, Suffield, and Glastonbury areas: Palmer, H. S., 4.
Southington-Granby area: Palmer, H. S., 5.

Connecticut basin during the Newark epoch: Foye, 5.

Conodonts.

Bibliography: Holmes, G. B., 1.
Classification and stratigraphic use: Bassler, 16, 18.
Devonian and Mississippian: Ulrich, 13.
Genesee: Bryant, 2.
Literature: Roundy, 2.
Mississippian, Alabama: Holmes, G. B., 1.
New York, Portage group: Hibbard, R. R., 1.

western: Hibbard, R. R., 2.

Texas, San Saba County, Mississippian: Roundy, 3.

Continental displacement hypothesis: Schuchert, 50, 51.

Continental drift, theory of: Van der Gracht,

Continental drifting: Ingalls, A. G., 2.

Continental fragmentation: Barrell, 11.

Continental movement and tidal forces: Taylor, 5.

Continental shelf: Shepard, 12, 13.

differential tilting: Moon, 1.

off the coast of California: Lawson, 6.

Continental shifting: Coleman, 17; Hamilton, G. H., 1.

Continents, origin: Richarz, 2.

Continents and oceans, origin: Ruedemann, 24; Wegener, 1.

Cooper limestone, central Missouri: Greger, 2.

Copley oil pool, West Virginia: Reger, 14.

Copper: Bengzon, 1; Butler, 5, 6.

Alaska: Brooks, 5, 12, 14; Martin, G. C., 4.

Alaska Railroad region: Capps, 6.

Beatson mine: Bateman, 12.

Chichagof and Baranof islands: Buddington, 8.

Chichagof Island, western part: Overbeck, 1.

Chitina district: Birch, 1; Moffit, 5.

Jack Bay district: Johnson, B. L., 2.

Juneau and Ketchikan districts: Mertie, 5.

Kennebec: Bateman, 3, 4; Anon., 3.

Knik-Matanuska district: Landes, K. K., 2.

Kotsina-Kuskulana district: Moffit, 4.

Prince of Wales Island, Salt Chuck mine: Mertie, 4.

Prince William Sound: Birch, 2; Johnson, B. L., 1; Moffit, 6.

Arctic Canada: O'Neill, 3.

Copper—Continued.

- Arizona : Crampton, 1; Tovote, 1.
 Aravaipa-Stanley region : Ross, C. P., 5.
 Bisbee district : Elsing, 1.
 central : Ettlinger, 1.
 Courtland-Gleeson region : Wilson, E. D., 2.
 Globe district : Schwartz, 1.
 Jerome and Bradshaw Mountains quadrangles : Lingren, 17.
 Jerome district : Mitchell, W. G., 1; Reber, 1; Rickard, 9; Smith, A. H. D., 1.
 Palomas Range : Keyes, 153.
 Payson district : Lausen, 1.
 Pima district : Ransome, 9.
 Ray quadrangle : Ransome, 11.
 Ray-Miami region : Ransome, 1.
 Saddle Mountain and Banner districts : Ross, C. P., 14.
 Superior district : Short, 1.
 Warren district : Mitchell, G. J., 1, 2, 4.
 Bornite and pyrrhotite, antipathy : Gilbert, G., 3.
 British Columbia, Anyox : Clapp, L. R., 1, 2.
 Britannia mines : Schofield, 16.
 Copper Mountain : Camsell, 4.
 coast region : Dolmage, 9.
 Coquihalla area : Cairnes, 4.
 Hidden Creek mine : Campbell, E. E., 1.
 Lasqueti Island : MacKenzie, J. D., 3.
 Texada Island, Marble Bay mine : Dolmage, 7.
 Vancouver Island, Barkley Sound : Dolmage, 2; Sunloch district, Dolmage, 3.
 California : Logan, C. A., 3.
 Shasta County : Tucker, W. B., 4.
 Canada : Browning, C. P., 1.
 Arctic regions : O'Neill, 3.
 central Arctic coast : Douglas, G. M., 1; O'Neill, 5.
 Capping as a guide to copper deposits : Mitchell, 9.
 Central States : Dunlop, 1, 4, 6, 9, 12, 16.
 Chalcocite, primary, Bristol copper mine, Connecticut : Bateman, A. M., 2.
 Colorado, Boulder County, Ward region : Worcester, 1.
 Red Cliff district : Crawford, R. D., 3.
 Cuba : Allende, 6, 7.
 Pinar del Rio : Corral, 1.
 Santa Clara, Malezas : Corral, 2.
 Deposition from ascending solutions, chemistry : Wells, 11.
 Disseminated copper ores in porphyry : Emmons, W. H., 11.
 Eastern States : Dunlop, 3, 7, 11, 15, 18.

Copper—Continued.

- General : Calkins, F. E., 1; Davis, W., 1; Siebenthal, 27.
 Idaho : Gerry, 1, 3, 5, 8, 10, 13.
 Adams County, I. X. L. prospect : Bell, R. N., 3.
 Birch Creek district : Shenon, 2.
 Mineral and Cuddy Mountain mining districts : Livingston, 4.
 Salmon : Ross, C. P., 3, 7.
 Seven Devils district : Livingston, 3.
 Shoshone County : Umpleby, 3.
 Leached outcrops : Locke, 6.
 Magnetic surveying on copper-bearing rocks in Wisconsin : Aldrich, H. R., 2.
 Manitoba : Wallace, 22.
 Flinflon ore body : Wallace, 5.
 Maskwa River : McCann, 1.
 northern : Bruce, 5; Hanson, 1; Wallace, 2.
 Oiseau and Maskwa areas : Wright, J. E., 7.
 Oiseau River area : Wright, J. F., 10.
 Metalliferous deposits in red beds : Finch, J. W., 2.
 Mexico, Cananea : Mitchell, 9; supergene enrichment : White, C. H., 3.
 Nacozari district, Sonora, Pilares mine : Wade, W. R., 1.
 Sonora : Tovote, 1; Carida Mine : Wandke, 5.
 Zacatecas : Keyes, 153.
 Michigan : Guck, 1; Lang, S. S., 1; Woods, 1.
 Lake Superior region : Lang, S. S., 2; Spurr, 3; Winchell, A. N., 2.
 geophysical methods : Broderick, 4.
 genesis : Singewald, 3.
 Minnesota, Susie Island, Lake Superior : Schwartz, 26.
 Montana : Gerry, 2, 4, 7, 12, 15.
 Butte district : Daly, W. B., 1.
 Park County : Lovering, 2.
 Native copper, Nonsuch, formation, Michigan : Nishio, 1.
 Nevada, Santa Fe district, Mineral County : Clark, C. W., 2.
 New Hampshire, Ammonoosuc district : Ross, C. P., 2.
 New Jersey, Belleville mine : Black, G. F., 2.
 New Mexico : Tovote, 1.
 Mogollon district : Scott, D. B., 1.
 Santa Fe County : Berryman, 1.
 Tyrone district : Paige, 2.
 Oklahoma, Garfield County : Reiter, 1.
 Ontario, Parry Sound : Schwartz, 8.
 Sudbury : Bell, J. M., 1.
 Oregon, southwestern : Kellogg, A. E., 9.
 Organic precipitation : Lovering, 5.
 Pennsylvania : Pennsylvania G. S., 1.
 Adams County : Stose, 25.
 Porto Rico, Barrio Pasto district : Colony, 9.

Copper—Continued.

- Quebec, eastern townships: Dresser, 5.
 Eastman, Huntingdon deposit: Hore, 2.
 Gaspé Peninsula: Alcock, 16.
 Horne and Aldermac mines: Cooke, H. C., 32.
 Papineau County: Wilson, M. E., 11, 14.
 Richardton meteorite: Quirk, 3.
 Rouyn area: Cooke, H. C., 20; James, 8.
 western: Cooke, H. C., 26; Dufresne, 7.
 Red Bed ores: Bains, 1.
 Replacement copper ore deposits in quartzite: Kato, 2.
 South Atlantic States: Watson, 15.
 Superficial deposits: Weed, 2.
 Tennessee, Ducktown district: Emmons, W. H., 8; Gilbert, G., 1; Nelson, 18, 19.
 Utah: Butler, 4.
 Bingham district: Hunt, R. N., 1.
 Tintic district: Lindgren, 2.
 Washington: Gerry, 1, 3, 6, 9, 11, 13.
 Wyoming, Chewelah district: Armstrong, L. K., 1; Howard, L. O., 1.
 Stevens County: Weaver, 2.
 Yukon, Whitehorse belt: Cockfield, 23.
 Coprolites, Conemaugh series, West Virginia: Price, P. H., 1.
 Coquihalla area, British Columbia: Cairnes, 3; Camsell, 6.
 Coquina, Florida: Brodie, 1.
 Coral islands and reefs: Vaughan, T. W., 2.
 Atoll, tilted-up, beveled-off: Davis, 19.
 Depth of coral-reef lagoons: Davis, 14.
 Drowned coral reefs: Davis, 12.
 Formation: Davis, W. M., 36; Vaughan, 4.
 General: Davis, 17.
 Glacial control: Davis, 20.
 Hawaiian Islands, Oahu: Pollock, 3.
 Indiana, northern, Silurian: Cumings, 3.
 Marginal belts of coral seas: Davis, 13, 15.
 Niagaran coral reefs: Cumings, 4.
 Origin: Davis, W. M., 1, 35, 37; Hobbs, 20; Vaughan, T. W., 2, 32.
 Reef-encircled islands, subsidence rate: Davis, 30.
 Texas, Oligocene: Ellisor, 3.
 Tutuila, bearing on coral reef problem: Chamberlin, R. T., 6.
 Coral reefs and the glacial period: Daly, 2.
 Corals. See Anthozoa.
 Cordillera in Canada, geological record: Schofield, 13.
 Cordilleran belt, Montana and Wyoming, structural features: Thom, 2.
 Cordilleran ice sheet: Read, 1.
 Cordilleran shield: Lawson, 10.
 Correlation.
 Alaska, southern and southwestern: Moffit, 4.

Correlation—Continued.

- Arizona, Fort Apache region: Reagan, 1.
 northeastern: Hagar, D., 6; Moore, 11, 19.
 Bentonite in correlation: Sardeson, 36.
 Big Stone Gap shale, Chattanooga age: Swartz, J. H., 10.
 Boring core, mineralogic analysis: Roth, 2.
 California: Vander Leek, 1.
 Cambrian - Ozarkian - Ordovician: Walcott, 7.
 Canadian Rockies: Burwash, 2.
 Carboniferous: Beede, 7.
 Carboniferous: Keyes, 275.
 Kansas and Oklahoma: Goldman, 4.
 Oklahoma region: Ulrich, 18.
 Texas and Oklahoma: Bullard, 2.
 Caribbean region: Vaughan, 21.
 Central American and West Indies, Tertiary: Vaughan, 13.
 Chagrin formation: Chadwick, 14.
 Chester formations: Ulrich, 5.
 Coal measures, Maryland: Swartz, C. K., 2.
 Coastal Plain area: Brantley, 1.
 Colorado, Wyoming, and Montana: Lee, W. T., 19.
 Colorado River region: Longwell, 4.
 Cone-in-cone structure, use in correlation: Tester, 2.
 Cretaceous: Berry, 23; Böse, 9; Stanton, 5.
 Alaska: Martin, G. C., 14.
 basal, southeastern States: Cooke, C. W., 14.
 Great Plains region: Twenhofel, 6.
 Gulf region: Berry, 4.
 Texas: Scott, G., 4.
 Texas and Mexico: Böse, 8.
 Upper: Stanton, 2; Atlantic and Gulf Coastal Plain: Stephenson, 4.
 Cretaceous-Tertiary boundary, vertebrate evidence as to: Matthew, 18.
 Dakota group, Colorado and Wyoming: Lee, 8.
 Devonian: Grabau, 6.
 Illinois: Bassett, 1.
 Mississippi Valley: Savage, 14.
 western Tennessee: Dunbar, 1.
 Dundas formation: Parks, 17.
 Eocene: Berry, 12.
 Alabama and Mississippi: Cooke, C. W., 14.
 New Jersey and Maryland: Cooke, C. W., 17.
 Tennessee, Mississippi, and Alabama: Roberts, J. K., 9.
 Evolutionary changes, use in correlation: Thomas, N. L., 2.
 General: Berry, 65; Keyes, 144, 153, 194; Schuchert, 13.
 Geologic time classification: Wilmarth, 2.
 Glacial: Keyes, 222.
 Glacial lakes, New York: Chadwick, 9.

Correlation—Continued.

- Glacial stages: Osborn, 19.
 Glaciation, North America and Europe: Antevs, 17.
 Gulf series: Stephenson, 15.
 Hudson Bay area, Ordovician and Silurian: Foerste, 22.
 Huronian and Grenville rocks: Quirke, 12.
 Illinois, Pennsylvania: Culver, 4; Savage, 11.
 coal beds: Culver, 9.
 Interior coal fields: Keyes, 2.
 Iowa, Missouri series: Tilton, 7.
 Cambrian: Keyes, 89.
 Jackson and Vicksburg deposits, Mississippi and Alabama: Cooke, C. W., 5.
 Jurassic rocks, Alaska: Martin, G. C., 15.
 La Plata formation in plateau country: Paige, 7.
 Lebo member of Fort Union and Cannonball member of Lance: Thom, 7.
 Lithology, subsurface: Goldman, 5.
 Mackenzie River basin: Hume, 8.
 Maquoketa and Richmond rocks, Iowa and Illinois: Savage, 13.
 Maryland, coal measures: Swartz, C. K., 4.
 Mesozoic, Pacific coast: Goranson, 1.
 Mesozoic and late Paleozoic, Montana and adjacent States: Clapp, C. H., 2.
 Michigan, Huronian formations: Allen, R. C., 2; Lane, 4.
 Micro-fossils in correlation: Decker, 9; Schuchert, 24.
 Minnesota, Cuyuna range: Thiel, 12.
 Miocene: Olsson, 1.
 Mississippian: Butts, 3; Keyes, 262.
 Appalachian region: Reger, 13.
 Rocky Mountain States and Mississippi Valley States: Branson, 11.
 West Virginia: Girty, 4.
 New Mexico, Texas, and Oklahoma: Gould, C. N., 18.
 New York, Ordovician: Ruedemann, R., 3, 16.
 pre-Cambrian: Kemp, 23.
 Oklahoma, Okmulgee district: White, L. H., 1.
 Ordovician: Edson, 3.
 Oligocene, Pacific coast: Clark, B. L., 8.
 Ontario, Credit River section: Dyer, 4.
 Ordovician: Foerste, 5, 15; Raymond, 18.
 Mississippi Valley: Dake, 6.
 Organic and physical criteria: Ulrich, 16.
 Pacific region, Cenozoic: Vaughan, 28.
 post-Cretaceous formation: Vaughan, 13.
 Paleontology, by Foraminifera: Gallo-way, J. J., 7.

Correlation—Continued.

- Pennsylvania, lower Allegheny-Pottsville section: Renick, 2.
 Pennsylvanian formations: Glenn, 4; McCoy, 5.
 eastern Oklahoma: Levorsen, 1.
 Oklahoma: Dott, 1.
 Oklahoma and Texas: Goldston, 2.
 Permian: Dunbar, 4; Schuchert, 52.
 southern Great Plains: Gould, C. N., 27.
 Texas, Oklahoma, and Kansas: Beede, 10; Gould, 8, 10, 14.
 Permo-Carboniferous, Colorado and New Mexico: Melton, 3.
 Pleistocene: Hay, 27.
 Porto Rico, Tertiary formations: Maury, 1, 3.
 Pre-Cambrian: Collins, 11; Cooke, H. C., 19; Keyes, 209.
 Lake Superior region: Leith, 16.
 northern Ontario and Quebec: Cooke, H. C., 7.
 northern Quebec: Cooke, H. C., 2.
 Sutton Lake area, Ontario: Hawley, J. E., 1.
 Pre-Cambrian and Cambro-Ordovician: Berkey, 3.
 Representation: Keyes, 144.
 Silurian: Alling, 14; Cumings, 4; Savage, 16; Tharp, 1; Ulrich, 8, 9; Williams, I. A., 1.
 Maryland: Swartz, C. K., 8.
 Subsurface correlation by heavy minerals: Hoots, 3; Reed, R. D., 12.
 Tertiary: Cushman, 8; Vaughan, 3, 29, 34.
 Anthozoa: Vaughan, 36.
 Bighorn Basin: Hewett, 4.
 Bryozoa: Canu, 5.
 Echinoidea: Stefanini, 1.
 Mollusca, Eocene and Oligocene: Cooke, C. W., 10.
 Miocene and Pliocene: Gardner, J. A., 4; Woodring, 9.
 Oregon-California: Howe, H. V. W., 9.
 pelagic mammals: Kellogg, R., 8.
 terrestrial plants: Berry, 62.
 Triassic rocks, Alaska: Martin, G. C., 15.
 Volcanic ash beds: Keyes, 243.
 Tertiary, West Coast: Clark, B. L., 4, 5.
 Texas, Bend formation: Girty, 1.
 Comanchean, Adkins, 2.
 Hudspeth County, Carboniferous: Beede, 5.
 northeastern, Cretaceous: Fohs, 2.
 Pennsylvanian: Plummer, 4.
 Triassic, eastern North America: Roberts, J. K., 8.
 Trinity group: Vanderpool, 3.
 Upper Cretaceous (Gulf series), Texas and Arkansas: Stephenson, 8.
 Utah: Dake, 3.
 San Rafael Swell: Gilluly, 4.
 southeastern: Hager, D, 6.

Correlation—Continued.

- Vermont, south central, and Massachusetts, western: Hubbard, G. D., 4.
 Vertebrates, use in correlation: Hay, 42.
 Vicksburg group: Cooke, C. W., 7a.
 West Coast Tertiary: Clark, B. L., 4, 5.
 West Indies, Tertiary: Vaughan, 17.
 Whitehorse sandstone, Kansas, Oklahoma, and Texas: Clifton, 4.
 Wyoming, oil-producing areas: Morgan, G. B., 4.
 Rock Springs area, Sweetwater County: Schultz, 1.
 Yegua, marine, type sections: Gardner, J., 12.
- Tables.*
 Canada, maritime provinces, Carboniferous: Bell, W. A., 13.
 Carboniferous: Keyes, 275; Schuchert, 52.
 Cretaceous, basal, southeastern States: Cooke, C. W., 14.
 Mexico, northern: Cummings, 2.
 Devonian: Branson, 5.
 Gulf Coastal Plain: Prettyman, 1.
 Gulf series: Stephenson, 15.
 Kansas, Oklahoma, Texas, and southeastern New Mexico: Powers, 26.
 Mississippi, Paleozoic: Morse, W. C., 4.
 Mississippian: Moore, 41.
 Oklahoma, Mississippian, distribution and correlation: Buchanan, 2.
 Paleozoic: Ulrich, 18.
 northern Texas, southern Kansas: Gould, 9.
 Ontario, Ordovician: Parks, 32.
 Ordovician: Foerste, 15.
 Paleozoic (earlier), Europe and America: Ulrich, 15.
 Pennsylvania, Texas-Oklahoma: Levorsen, 1.
 Permian: Schuchert, 52.
 southern Great Plains: Gould, C. N., 27.
 western Texas: Schuchert, 39.
 Pre-Cambrian: Cooke, H. C., 19; Wilson, M. E., 18.
 Silurian, Illinois and adjoining area: Athy, 1.
 Tertiary: Berry, 51.
 Oregon: Schenck, 12.
 Triassic, eastern North America: Roberts, J. K., 8.
 Upper: Smith, J. P., 3.
 Triassic and Jurassic formations: Branson, 17; Mansfield, G. R., 29.
 Utah, San Rafael Swell: Gilluly, 4.
 Wyoming, Bighorn Basin: Hewett, 16.
 Corrosion by saline waters: Rutherford, 1.
 Corundum: Eardley-Wilmot, 7.
 North Carolina, Macon County: Gordon, S. G., 8.
 origin: Cobb, M. C., 1, 2.
 Corundum and albitite bodies, hydrothermal origin: Larsen, 21.

Costa Rica.

- General: Branson, 3; MacDonald, 4.
 Middle-eastern Costa Rica: Branson, 18.
- Economic geology.*
 Manganese: Sears, 1.
 Petroleum possibilities: Redfield, 7.
- Historical geology.*
 General: Redfield, 7; MacDonald, D. F., 2.
 Guanacaste: Sears, 1.
 Miocene, northern Costa Rica: Olsson, 1.
- Paleontology.*
 Foraminifera and Mollusca: Palmer, K. V. W., 4.
 Plantae, Tertiary: Berry, 27.
- Physical geology.*
 Volcanoes, Irazu: Tristan, 2, 3.
 Poas Volcano, eruptions: Tristan, 1.
- Coteau des Prairies, glacial formations: Leverett, 9.
 Cotton Valley oil and gas field, Webster Parish, Louisiana: McDonald, W. W., 1; Powers, 14.
 Courtland Gleeson region, Arizona: Wilson, E. D., 2.
 Craters of the Moon, Idaho: Stearns, N. D., 3.
 Cratering of mountain massifs, Lower California: Keyes, 25.
 Creede district, Colorado, geology and ore deposits: Emmons, W. H., 4.
- Cretaceous. See also Paleontology, Cretaceous.
 Alabama: Jones, W. B., 13; Stephenson, 5.
 Coastal Plain: Brantley, 1; Jones, W. B., 10.
 eastern: Berry, 50.
 Alaska: Martin, G. C., 13, 15.
 Anvik-Andreafski region: Harrington, 1.
 Cold Bay-Chignik district: Smith, W. R., 1.
 Chignik region: Martin, G. C., 14.
 Kiwalik-Koyuk region: Harrington, 5.
 Knik-Matanuska district: Landes, K. K., 2.
 Nixon Fork country: Brown, J. S., 7.
 Point Barrow region: Paige, 5.
 Ruby-Kuskokwim region: Mertie, 11.
 upper Matanuska Valley: Capps, 11.
- Alberta: Allan, 8, 12; Berry, 74; Hume, 28; McLearn, 14.
 area between Athabaska and Embarras rivers: Rutherford, 5.
 Battle River: Hume, 20.
 Belly River formation, conifer: Bell, W. A., 15.
 Blackstone, Brazeau, and Pembina rivers foothills belt: Allan, 13.
 Bow River between Cochrane and Kananaskis: Rutherford, 6.

Cretaceous—Continued.

Alberta—Continued.

- Bragg Creek area: Hume, 30.
- Brule Lake region: MacVicar, 1.
- Crowsnest coal field, northern part: Rose, 1.
- Colorado shale: Warren, P. S., 8.
- Coloradoan: McLearn, 10.
- Cypress Hills: Dyer, 9.
- Drumheller district: Allan, 7.
- foothills belt between McLeod and Athabaska rivers: Rutherford, 4.
- Hilghwood area: Rose, 2.
- Kananaskis Lakes-Palliser River area: Marshall, 2.
- Lower Smoky River: McLearn, 1.
- North Saskatchewan and McLeod rivers: Rutherford, 8.
- Paskapoo formation: Allan, 20.
- Peace and Athabaska valleys: McLearn, 2.
- Saunders Creek and Nordegg coal basins: Allan, 9.
- Sheep River area: Slipper, 2.
- southern, artesian area: Dowling, 9.
- southern and central: Slipper, 1.
- southwestern: Stewart, J. S., 1.
- Swan Hills, Lesser Slave Lake district: Allan, 1.
- western: Purdy, 1.
- Turner Valley oil area: Hume, 22.
- Wainwright-Vermillion area: Hume, 19.

Arizona: Darton, 17; Keyes, 83.

Aravaipa-Stanley region: Ross, C. P., 5.

Black Mesa region: Reagan, 15, 18.

Hopi Buttes volcanic field: Reagan, 8.

Navajo country: Reagan, 20.

Papago country: Bryan, 7.

Saddle Mountain and Banner mining districts: Ross, C. P., 6.

Arkadelphia formation, Arkansas and Louisiana: Howe, H. V. W., 3, 4.

Arkansas: Miser, 4, 11.

El Dorado oil fields, Gilluly, 1.

Pike County: Miser, 12.

Smackover oil field sands: Schneider, H. G., 2.

south central: Rubey, 1.

southern: Hull, 10; Schneider, H. G., 1.

southwestern: Miser, 27; volcanic: Miser, 19.

White Cliffs chalk, age and correlation: Ellisor, 2.

Basal Cretaceous, southeastern States, correlations: Cooke, C. W., 14.

British Columbia, Chilko Lake area: Dolmage, 15.

Coquihalla area: Cairnes, 4; Cam-sell, 6.

Dease Lake area, Cassiar district: Kerr, F. A., 1.

Eutsuk Lake district: Brock, 1.

Cretaceous—Continued.

British Columbia—Continued.

Hudson Bay Mountain, Coast district: Jones, R. H. B., 1.

Kitsault River to Skeena River: Hanson, 3.

Lillooet-Prince George region: Reinecke, 3.

northeastern: Stewart, J. S., 2.

Peace River canyon area: McLearn, 7.

Prince Rupert to Burns Lake: Hanson, 10.

Skeena River to Stewart: Hanson, 6.

southwestern: Cairnes, 2.

Taseko Lake-French Bar Creek: MacKenzie, J. D., 2.

upper Peace River region: McLearn, 6.

Vancouver Island: Dolmage, 5; MacKenzie, J. D., 5; Barkley Sound: Dolmage, 2.

Zymoetz River area, Coast district: Hanson, 11.

California: Vander Leek, 1.

Kern County: English, W. A., 1.

La Jolla quadrangle: Hanna, M. A., 3.

Los Angeles and Ventura counties: Kew, 6.

Los Angeles Basin: Vickery, 11.

Moreno shale, age and correlation: Taft, 4.

Mount Diablo: Clark, B. L., 13.

Point Sur quadrangle: Trask, 5.

Puente Hills region: English, W. A., 3.

Sacramento Valley: Bryan, 10.

San Benito County: Kerr, P. F., 4.

San Diego County: Ellis, A. J., 1.

Santa Barbara County, Santa Ynez River district: Kew, 2; Nelson, R. N., 1.

Santa Rosa Island: Kew, 10.

Simi Valley: Kew, 1.

southern: Kew, 4.

Ventura County: Taliaferro, 1; Matilija overturn: Kerr, 7.

Cannonball fauna: Stanton, 6.

Cavern deposits in Permian, western Texas: Udden, 13.

Cheyenne sandstone, Kansas: Berry, 37.

Colorado: Keyes, 162.

Acanthoceras rhotomagense fauna: Reeside, 15.

Axial and Monument Butte quadrangles: Hancock, 7.

Crowley and Otero counties (parts): Toepelman, 3.

Delta and Mesa counties: Weeks, H. J., 1.

east-central: Lee, W. T., 19.

Fort Collins: Ball, M. W., 3.

Golden area: Johnson, J. H., 13.

Cretaceous—Continued.

Colorado—Continued.

- Grand, Jackson, and Larimer counties (parts): Spock, 1.
 La Junta area: Patton, H. B., 3.
 Larimer County, Fox Hills sandstone: Johnson, J. H., 20.
 Las Animas, Otero, and Bent counties (parts): Duce, 1.
 Mancos district: Collier, 3.
 Moffat County: Sears, 3.
 Morrison formation: Lee, W. T., 1.
 north central, foothills formations: Henderson, 2.
 northeastern: Henderson, J., 1;
 Mather, 12.
 Routt and Moffatt counties: Perini, 1.
 Routt County: Crawford, R. D., 1.
 San Juan Basin: Reeside, 8.
 southeastern: Coffin, 4; Carlile shale and Timpas limestone, merging: Patton, H. B., 2.
 southwestern: Coffin, 3; Forrester, J. B., 1.
 Tarryall district: Muilenburg, 2.
 Twin Lakes district: Howell, J. V., 1.
 Weld County, Laramie formation: Toepelman, 4.
 Comanche series: Stanton, 14.
 Comanche succession, taxonomic rank: Stanton, 7.
 Correlation: Berry, 23.
 Cretaceous, Upper: Stanton, 2.
 Great Plains region: Twenhofel, 6.
 Gulf region: Berry, 4.
 Gulf series: Stephenson, 15.
 Costa Rica: Redfield, 7.
 Cretaceous-Eocene boundary: Thom, 8.
 Cretaceous-Tertiary boundary: Matthew, 15, 18.
 Cuba: Rutten, 1.
 western: Wright, A., 1.
 Dakota formation: Gress, 1.
 Dakota group, Colorado and Wyoming: Lee, 8.
 Dakota sandstone problems: Stanton, 5.
 Delaware, Wilmington quadrangle: Bascom, 2.
 District of Columbia, excavation on Connecticut Avenue: Wentworth, 13.
 Dominican Republic: Vaughan, 16.
 Edmonton formation, Alberta: Sternberg, C. M., 7.
 Florida, Comanchean (underlying): Sellards, 5, 6.
 underlying limestones: Cushman, 2, 4.
 in borings: Gunter, 4.
 Georgia: McCallie, 1; Teas, 1.
 Coastal Plain: McCallie, 7; Prettyman, 1.
 Greenland: Böggild, 1.
 western: Seward, 4.
 Gulf region: Berry, 4.

Cretaceous—Continued.

- Gulf Coastal Plain: Brantly, 2; Shaw, 4; Spooner, 3; Stephenson, 14.
 Haiti: Woodring, 5.
 Idaho, Bingham, Bonneville, and Caribou counties: Kirkham, 3.
 southeastern: Kirkham, 1; Mansfield, G. R., 29.
 Illinois, southern: Parmalee, 1.
 Interior formation, stratigraphic position: Ward, 19.
 Iowa, Keyes, 240, 245.
 Adair County: Gow, 1.
 Cass County: Tilton, 3.
 Cherokee County: Cable, 10.
 Comanchean fossils in glacial drift: Tester, 3.
 southwestern: Keyes, 68; Smith, G. L., 1.
 Jamaica: Hawkins, H. L., 3; Stockley, 1; Trechman, 1, 5, 8.
 Barrettia beds: Trechman, 2.
 St. Ann Parish: Matley, 11.
 Kansas: Moore, R. C., 4; Snider, 1; Stanton, 8; Twenhofel, 5, 17.
 central, Comanchean: Twenhofel, 24.
 central and western: Twenhofel, 19.
 Comanchean and Dakota strata: Twenhofel, 6.
 Dakota sandstone: Bass, 1.
 Lower Cretaceous: Bullard, 4.
 Russell County: Rubey, 3.
 Syracuse and Lakin quadrangles: Darton, 2.
 western: Bass, 2; Lupton, 2; subsurface Comanchean: Twenhofel, 20.
 Kentucky: Miller, A. M., 1.
 Cave in Rock quadrangle: Weller, 16.
 Tuscaloosa formation: Roberts, J. K., 7.
 western: Jillson, 56.
 Lance and Fort Union formations, age: Cross, C. W., 4; Knowlton, 5; Schuchert, 15, 19.
 Lance formation, southern Saskatchewan: Sternberg, C. M., 3.
 Lance-Fox Hills contact, eastern Montana and Dakotas: Dobbin, 2.
 Laramie hiatus, southern Rocky Mountains: Keyes, 147.
 Laramie problem: Knowlton, 8.
 Late Cretaceous Gulf series: Stephenson, 13.
 Lebo member of Fort Union, correlation with Cannonball member of Lance: Thom, 7.
 Louisiana, Monroe gas field: Spooner, 1.
 northern: Hull, 10; Spooner, 2.
 northwestern: Hammill, 1.
 Sabine uplift: Powers, 2.
 Lower Cretaceous or Comanche series: Stanton, 14.
 MacKenzie, Great Slave Lake region: Cameron, 1.

Cretaceous—Continued.

- Mackenzie River region: Camsell, 1; Dowling, 15; Whittaker, 2.
- Mackenzie River between Norman and Beaver River: Hume, 5; Providence to Simpson: Whittaker, 5.
- Manitoba: Ellis, 2; Wallace, 14.
- Turtle Mountain region: Dowling, 12.
- Maryland, Elkton quadrangle: Bascom, 2.
- Federal Hill: Berry, 18.
- Kent County: Miller, B. L., 6.
- Mesozoic-Cenozoic boundary: Keyes, 202, 203.
- Mexico, Aguascalientes, Asientos-Tepezala district: Anderson, G. E., 2.
- Chapala region: Palmer, R. H., 1.
- Coahuila, northern: Cummings, 2.
- Coahuila and Nuevo Leon: Mullerried, 2.
- eastern: Ver Wiebe, 1; oil fields: Staub, 4.
- eastern coast: Wittich, 24.
- Guerrero, Zumpango: Burckhardt, 13.
- Hidalgo, Atotonilco el Grande: Wittich, 10.
- Hidalgo-Vera Cruz region: Palmer, R. H., 4.
- Lower California: Darton, 10; Maryland Oil Co., 1.
- Lower Cretaceous: Burckhardt, 2.
- northeastern: Böse, 5.
- northern: Böse, 8; Hill, R. T., 5; Tatum, 1.
- Panuco oil field: Baker, C. L., 8.
- Panuco River valley: Trager, 5.
- San Felipe formation: Stanton, 4.
- southern: Ver Wiebe, 2.
- southern Oaxaca: Palmer, R. H., 9.
- Tabasco: Jones, W. F., 3.
- Tampico district: Belt, 2.
- Vera Cruz, Idolo Island: Dumble, 6.
- Vera Cruz and Puebla, Tecolutia-Misantla district: Hisazumi, 1.
- Zacatecas, Durango, and Guerrero: Böse, 6.
- Mid-Cretaceous shale deposition: Keyes, 198.
- Minnesota: Grout, 2.
- northern: Allison, I. S., 4.
- Mississippi: Grim, 1; Lowe, 3, 4, 13; Morse, P. F., 1; Stephenson, 10.
- Missouri, Dakota sandstone: Keyes, 53.
- Montana: Bauer, C. M., 3; Hammer, 1; Keyes, 234.
- Beartooth Mountains: Bevan, 2.
- Cat Creek oil field: Lupton, 1.
- central: Bowen, C. F., 2; Reeves, F., 10.
- central and eastern: Clapp, C. H., 2.
- Crow Indian Reservation: Thom, 4.
- Ekalaka field, Bauer, 4.
- faulted area south of Bearpaw Mountains: Reeves, F., 8.

Cretaceous—Continued.

- Montana—Continued.
- Fergus County: Freeman, O. W., 1; Winifred area: Reeves, F., 6.
- Garfield County: Bauer, 6; Thom, 3.
- Huntley Field: Hancock, 2.
- Ingomar anticline, Treasure and Rosebud counties: Heald, 18.
- Kevin-Sunburst oil field: Clark, F. R., 3.
- Melrose phosphate field: Richards, R. W., 2.
- Musselshell and Golden Valley counties: Ellis, A. J., 5.
- Scobey lignite field: Collier, 9.
- Soap Creek oil field: Thom, 1.
- southern, Colorado group: Reeside, 6.
- Sweet Grass Hills: Kemp, 8.
- Tullock Creek coal field: Rogers, G. S., 8.
- Mowry shale, origin: Rubey, 7.
- Nacatoch formation: Howe, H. V. W., 5.
- Nebraska, Sioux County, Agate anticline: Schramm, 2.
- New Jersey: Mansfield, 12.
- glauconite beds: Mansfield, G. R., 2.
- New Mexico: Darton, 11, 26; Keyes, 14; Knox, J. K., 2.
- Alamosa Creek Valley: Winchester, 3.
- eastern: Baker, C. L., 1.
- Gallup-Zuni Basin: Sears, 6.
- northeastern: Garrett, 1.
- Pecos Valley: Semmes, 4.
- Puertecito district: Wells, E. H., 2.
- Raton coal field: Lee, 10.
- Raton-Brilliant-Koehler area: Lee, W. T., 6.
- Sandia Mountains: Ellis, R. W., 2.
- San Juan Basin: Reeside, 8.
- San Juan County: Bauer, C. M., 1; Reeside, 3.
- North America, southern: Stanton, 1.
- North Carolina: Stephenson, 4.
- North Dakota: Leonard, A. G., 1, 3.
- western: Stanton, 3.
- Marmarth field: Hares, 5.
- Oklahoma: Gould, 9.
- Arbuckle Mountains: Taff, 7.
- Beaver County: Gould, 15.
- Cimarron County: De Ford, 1; Rothrock, 4.
- Love County: Bullard, 3; Comanchean: Bullard, 1.
- Lower Cretaceous: Bullard, 4.
- Marshall County: Bullard, 3.
- northwestern: Clifton, 1; Comanchean: Clifton, 3.
- southeastern: Honess, C. W., 6; Miser, 27; volcanic rocks: Miser, 19.
- southern (part): Hopkins, O. B., 2.
- Ontario, northern: Keele, 3, 4.
- Oregon: Smith, W. D., 1.
- Cascade Mountains: Hodge, E. T., 14.

Cretaceous—Continued.

Oregon—Continued.

- central: Packard, 6, 7.
- eastern: Buwalda, 4.
- Riddle quadrangle: Diller, 12.
- western: Harrison and Eaton, 1.

Pacific coast: Goranson, 1.

Porto Rico, Coamo-Guayama district:

Hodge, E. T., 1.

Humacao district: Fetteke, 5.

Lares district: Hubbard, B., 3.

Ponce district: Mitchell, 7.

San Juan district: Semmes, 1.

Recedent lake shores: Wieland, 6.

Ripley formation: Berry, 63.

Ripley greensands, Mississippi: Needham, 1.

Saskatchewan, Battle River: Hume, 20.

Eastend area: McLearn, 16.

southern: Dyer, 10.

Wapawekka and Deschambault lakes area: De Lury, 6.

South Dakota, Badlands: Ward, 8.

Black Hills: Keyes, 31; O'Harra, 4;
central: Darton, 14.

Dewey County: Ward, 9.

Haakon County: Ward, 14, 16.

Lance formation: Ward, 12.

Meade County: Wilson, R. A., 6.

Newell quadrangle: Darton, 1.

Perkins County: Moulton, G. F., 1.

Ragged Butte area, Dewey County:
Wilson, R. A., 7.

western: Stanton, 3.

Ziebach County: Russell, W. L., 4,
6; Wilson, R. A., 3.

Tennessee: Wade, B., 3.

Upper Cretaceous: Wade, B., 1.

Waynesboro quadrangle: Miser, 6.

western: Schroeder, 1.

Texas: Adkins, 5; Böse, 2; Hill, R. T., 3, 5; Scott, G., 3; Stanton, 13; Udden, J. A., 3, 12.

Austin formation, San Antonio district: Sellards, 14.

Bexar County: Sellards, 7, 10; sub-surface section: Jones, R. A., 7.

Big Lake oil field: Sellards, 21.

Butler salt dome: Powers, 3.

central: Carsey, 1; Matteson, 1.

Caldwell County: Sellards, 16.

Coke County: Beede, 6.

Cooke County: Bybee, 3.

correlation: Scott, G., 4.

Crockett County: Liddle, 2.

Dallas County: Shuler, 1.

Denton County: Winton, 3.

Diablo Plateau: Beede, 3.

eastern: Dumble, 1; Renick, 12.

Fort Stockton quadrangle: Adkins, 4.

Fredericksburg and Washita formations: Adkins, 1.

Gulf Coastal Plain: Powers, 17.

Johnson County: Winton, 2.

Lacasa area, Ranger district: Ross, C. S., 3.

Cretaceous—Continued.

Texas—Continued.

Lower Cretaceous: Bullard, 4.

Luling oil field, Caldwell County:
Sellards, 19.

McLennan County: Adkins, 2;
Pace, 1.

Malone formation: Kitchin, 1.

Medina County: Liddle, 3.

northeastern: Ellisor, 2; Fohs, 2;

(part): Hopkins, O. B., 2.

Panola County: Sellards, 15.

Ranger oil field: Reeves, F., 2.

salt domes: Powers, 12.

San Marcos quadrangle: Brucks, 2.

Solitario uplift: Powers, 9.

southern: Böse, 8; Tatum, 1.

Tarrant County: Winton, W. M., 1.

Taylor and Navarro formations:
Dane, 1.

Terrell County: Christner, 1.

Tom Green County: Henderson, G. G., 1.

trans-Pecos Texas: Baker, C. L., 6.

Upper Cretaceous: Stephenson, 8.

Weno and Pawpaw formations: Adkins, 2.

western: Baker, C. L., 2; Hoots, 1.

Trinidad: Liddle, 4; Waring, 6.

southern: Carlson, 2.

Trinity group: Vanderpool, 3.

Upper Cretaceous Mississippi gulf:
Berry, 10.

Utah: Butler, 4; Keyes, 152.

Book Cliffs region: Fisher, D. J., 4.

Carbon County, Farnham anticline:
Clark, F. R., 2.

Castlegate, Wellington, and Sunnyside quadrangles: Clark, F. R., 4.

Colob Plateau: Richardson, G. B., 11.

eastern: Forrester, J. B., 1.

Green River valley: Reeside, 7.

La Sal Mountains: Gould, L. M., 4.

Moab region: Baker, A. A., 1.

Salina Canyon district, Sevier County: Spieker, 6.

San Juan Canyon: Miser, 17.

San Rafael Swell: Gilluly, 4.

southeastern: Prommel, 4.

southern: Moore, R. C., 17.

Upper Cretaceous shore line: Spieker, 5.

Wasatch Plateau: Spieker, 3.

Washington, San Juan Islands: McLellan, 2.

Whatcom County: Jenkins, 7.

West Indies: Vaughan, 22.

Windrow formation, upper Mississippi Valley: Thwaites, 2.

Woodbine sand, Texas: Berry, 36;
age: Scott, G., 3.

Wyoming, Baxter Basin gas field:
Sears, 7.

Bell Springs district, Carbon County:
Dobbin, 5.

Cretaceous—Continued.

Wyoming—Continued.

- Black Hills: Bradley, J. H., jr., 1.
 central: Lee, W. T., 19.
 Cody region: Hewett, 4.
 Fremont County, Big Sand Draw:
 Collier, 5; Rae, 3.
 Gillette coal field: Dobbin, 3.
 Grass Creek quadrangle: Hewett, 16.
 Green River valley: Reeside, 7.
 Lance Creek field: Hancock, 5.
 Lost Soldier-Ferris district: Fath, 5.
 Maverick Springs: Collier, 6.
 Meeteetse quadrangle: Hewett, 16.
 Mule Creek oil field: Hancock, 4.
 northwestern: Dake, 5.
 Oregon Basin quadrangle: Hewett, 16.
 Osage oil field, Weston County:
 Collier, 7.
 Rock Springs area, Sweetwater
 County: Schultz, 1.
 Upton-Thornton oil field: Hancock, 3.
 Wind River Mountains: Condit, 4.
 Crinerville oil field, Carter County, Okla-
 homa: Powers, 22.
 Crinoidea. See also Echinodermata.
 Apiocrinus, Tehuantepec, Mexico:
 Springer, 10.
 Balanocrinus: Springer, 6, 8.
 Calceocrinidae, derivation: Sardeson,
 31.
 Carboniferous crinoids, parasitism:
 Moodie, 5.
 Catillocrinidae: Springer, 7.
 Colorado, western Pennsylvanian:
 Keyte, 1.
 Cremacrinus, Minnesota: Sardeson, 31.
 Devonian, Mackenzie: Springer, 4.
 New York, Goldring, 4.
 Michigan: Ehlers, 9.
 Dolatocrinus and allies: Springer, 3.
 Flexibilia: Springer, 2; Keyes, 157.
 General: Keyes, 196.
 Herpetocrinus, Monticello, Iowa:
 Thomas, A. O., 4.
 Heterocrinidae, revision: Ulrich, 10.
 Indiana, Crawfordsville: Ehrenberg, 1.
 Lichenocrinus, crinidal affinities: Bas-
 ler, 24.
 Mackenzie River valley, Devonian:
 Springer, 14.
 Mysticocrinus: Bather, 1.
 New York, Hamilton crinoids: Gold-
 ring, 8.
 Utica and Lorraine formations:
 Ruedemann, 17.
 Pentacrinus, Alaska: Springer, 11.
 Scyphocrinus roots: Ehrenberg, 2.
 Silurian: Springer, 12.
 Strophocrinus and Carabocrinus, Ordo-
 vician, Minnesota: Sardeson, 16.
 Unusual forms: Springer, 13.
 Crocodile vertebrae, mechanics: Troxell, 25.
 Crossville quadrangle, Tennessee: Butts, 6.

Crustacea. See also Ostracoda; Trilobita.

- Anguilla, Oligocene: Withers, 4.
 Apus, Permian, Oklahoma: Ruede-
 mann, 8.
 Barbados, Callianassa: Withers, 6.
 Bibliography of Paleozoic Crustacea:
 Vogdes, 1.
 Bunalia, Silurian, New York: Clarke,
 J. M., 4, 7.
 Callianassa and Rania, Oligocene, Wash-
 ington: Withers, 3.
 Carcineretes, Cretaceous, Jamaica,
 Withers, 1.
 Caryocaris: Ruedemann, 3.
 Cirripede, Niobrara, Kansas: Withers,
 5.
 Dominican Republic, Tertiary deca-
 pods: Rathbun, 2.
 Eobalanus, Ordovician, New York:
 Ruedemann, 13.
 Haiti, crabs: Rathbun, 4.
 Hemiaspidan crustacean, Bertie water-
 lime, New York: Clarke, J. M., 24.
 Iowa: Walter, 3.
 Jamaica, Cretaceous and Tertiary:
 Withers, 2.
 New York, Staten Island, Cretaceous,
 crab: Davis, W. T., 1.
 Utica and Lorraine formations:
 Ruedemann, 18.
 North Carolina, Upper Cretaceous de-
 capods: Rathbun, 3.
 Nova Scotia, coal measures, Merosto-
 mata: Bell, W. A., 4.
 Ontario, Pleistocene: Kindle, 48.
 Pacific slope, stalk-eyed: Rathbun, 5.
 Ranina trechmanni, Cretaceous crab,
 Jamaica: Withers, 8.
 West Indies, Tertiary decapod: Rath-
 bun, 1.
 Crustal shortening of Colorado Rockies:
 Chamberlin, R. T., 8.
 Cryolite: Burchard, 5; Ladoo, 5.
 Greenland: Gordon, S. G., 19.
 Cryptogams. See Paleobotany.
 Cryptozoon: Rothpletz, 2.
 Crypto-volcanic regions: Bucher, 16.
 Crypto-volcanic structures: Bucher, 10;
 Adams County, Ohio: Bucher, 1.
 Crystal symmetry, mathematical study:
 Rogers, A. F., 27.
 Crystal structure, analysis by X-rays:
 Bragg, 1.
 Crystalline rocks of the plains: Gould, 3.
 Crystallography.
 Addition and subtraction rule in geo-
 metrical crystallography: Rogers,
 A. F., 28.
 Alabandite, crystal structure: Wyckoff,
 3.
 Amphibole group: Winchell, 6.
 Analcite structure determined by os-
 cillation method: Gruner, 12.
 Anorthite: Parsons, A. L., 1.
 Apatite: Whitlock, 19.

Crystallography—Continued.

- Apatite, epidote, and hematite from Rhode Island: Hawkins, A. C., 2.
 Axinite, British Columbia: Poitevin, 3.
 Babingtonite: Washington, 26.
 Barite: Whitlock, 2.
 Boleite, crystal form: Gossner, 1.
 Boulangerite, Idaho: Shannon, 28.
 Calculations in monoclinic system: Palache, 10.
 Cerusite, British Columbia: Poitevin, 4.
 Chalcopyrite, Bergen Hill, New Jersey: Wherry, 2.
 Columbite, Boothwyn, Pennsylvania: Smith, I. F., 1.
 Creedite, Colorado: Foshag, 9.
 Crystal structure, bibliography: Morse, J. K., 1.
 Crystal structure data: Wyckoff, 4.
 Crystal structure model: Whitlock, 7.
 Crystal structure of some metallic sulphides: Ramsdell, 1.
 Crystal structures of calcites: Wyckoff, R. W. G., 1.
 Crystal symmetry, mathematical study: Rogers, A. F., 27.
 Crystallographic tables: Goldschmidt, V., 1.
 Cyanite, Manitoba: Wallace, 12.
 Datolite, Westfield, Massachusetts: Shannon, 23.
 Drawing crystals: Palache, 3; Porter, M. W., 1; Slawson, 1.
 Etch figures on crystals: Honess, A. P., 5.
 Euhedral oligoclase, Medicine Bow Mountains, Wyoming: Crawford, A. L., 1.
 Factors influencing crystal habit: Walcott, A. J., 1.
 Force of crystallization: Stillwell, 1.
 General: Wherry, 23.
 Glaucochroite, willemite, celestite, and calcite, Franklin: Gordon, S. G., 9.
 Gnomonic projection: Palache, 2.
 Goldschmidt two-circle method, calculations in hexagonal system: Palache, 6.
 calculations in isometric system: Palache, 4.
 calculations in orthorhombic system: Palache, 8.
 calculations in tetragonal system: Palache, 5.
 Goniometer, two-circle: Bascom, 88; Palache, 1.
 Hematite, New Mexico: Foshag, 7.
 Heulandite, thermo-optical properties: Slawson, 2.
 Higginsite: Palache, 9.
 Hopelite: Walker, T. L., 1.
 Hydromagnesite: Rogers, A. F., 15.
 Inyoite, New Brunswick: Poitevin, 5.
 Kempite, California: Rogers, A. F., 18.

Crystallography—Continued.

- Magnesite crystals, Orangedale, Nova Scotia: Dobbel, 1.
 Manganotantalite, Amelia, Virginia: Lee, O. I., 1.
 Marcasite, Racine dolomite, Wisconsin: Cook, C. W., 4.
 Mimetic crystals, classification: Wherry, 1.
 Model for demonstrating crystal structure: Whitlock, 7.
 Monazite, Boothwyn, Pennsylvania: Wherry, 3.
 Weymouth, Massachusetts: Palache, 10.
 Natural arrangement in crystal symmetry: Sen, 2.
 New crystal forms of minerals: Whitlock, 14.
 Optic angle of crystal, determination: Phemister, 1.
 Optical properties of minerals: Larsen, 6.
 Orientite, Cuba: Hewett, 7.
 Plans and elevations in study of geometrical crystallography: Rogers, A. F., 13.
 Potassium fluozirconate: Kerr-Lawson, 1.
 Pucherite, pyrite, trichalcite, and wavellite: Shannon, 34.
 Pyrite: Whitlock, 15.
 Bald Mountain, Colorado: Whitlock, 4.
 Cornwall, Pennsylvania: Hawkins, 8.
 French Creek, Pennsylvania: Wherry, 5.
 New York City: Whitlock, 3.
 Tucson, Arizona: Ayres, 1.
 Pyrite group: Ramsdell, 2.
 Radio crystal detectors: Hawkins, 6.
 Refractive indices, determining: Winchell, 18.
 Searlesite: Rogers, A. F., 17.
 Spencerite: Walker, T. L., 1.
 Stephanite, epidote, and calamine: Poitevin, 2.
 Stephanite, Sultepec, Mexico: Shannon, 41.
 Structure of crystals: Wyckoff, 2.
 Struvite: Palache, 12.
 Sulphur: Bichowsky, 1.
 Sundry minerals: Shannon, 17.
 Surface of a crystal: Wherry, 24.
 Tabulation of crystal classes: Rogers, A. F., 32.
 Teaching: Fisher, D. J., 1.
 Thomsonite, optical notes: Gordon, S. G., 13.
 Triclinic system: Palache, 11; Parsons, A. L., 1.
 Vivianite, Idaho: Shannon, 22.
 Wavellite: Gordon, S. G., 10.
 Whewellite: Wherry, 17.
 X-ray analysis of crystal structure: Bragg, 1.

Crystallography—Continued.

X-ray analysis of crystals, oscillation method: Gruner, 11.

Crystule: Keyes, 187, 268.

Cuba. See also West Indies.

Oriente province: Bonazzi, 1.

Rio Almendares valley: Allende, 5.

Santa Clara, Trinidad: Lorenzana, 1.

Santiago region: Calvache, 3, 4.

Economic geology.

Asphalt and petroleum: Allende, 15.

Bibliography of carbonaceous materials: Ortega, P., 1.

Camaguey, Caridad, and Lola mines: Allende, 4.

Canteras, finca "La Viuda"; Corral, 5.

Chrome ore: Burch, 1, 2; Burchard, 4, 10.

Chromite, San Miguel de los Baños, Matanzas: Suárez Murias, 3.

Copper: Allende, 6, 7.

Pinar del Rio: Corral, 1.

Investigations concerning petroleum: Corral, 3.

Iron ores: Kuhn, 2; Weld, 1; Santiago: Kimball, 1.

Isle of Pines: Allende, 1; Suárez Murias, 1.

Jurassic as source of oil in western Cuba: Wright, A., 1.

Manganese: Burch, 1, 2; Burchard, 3, 7.

Bueycito: Calvache Dorado, 1.

Mineral resources: Suárez Murias, 4.

Mineral resources: Calvache, 2.

Mina "Celia Gregoria"; Lago, 1.

Oriente, mineral resources: Aguilera, E., 1.

Petroleum investigations: Corral, 4.

Pinar del Rio: Allende, 2, 3.

Bahía Honda y La Palma: Suárez Murias, 2.

Potash, Santa Clara: Montolieu, 1.

Pyrite, Sierra de Trinidad: Allende, 10.

Santa Clara, Malezas, San Jose mine: Corral, 2.

Historical geology.

Geologic relations: Rutten, 1.

Guantanamo Basin: Darton, 18.

Granite, Habana province: Allende, 12.

Jurassic: O'Connell, 4; western Cuba: Brown, B., 2.

Oriente province: Bonazzi, 1.

Oxfordian, western Cuba: Brown, B., 1.

Pinar del Rio, Bahía Honda y La Palma: Suárez Murias, 2.

Western Cuba: Wright, A., 1.

Minerology.

Cubanite: Merwin, 5.

Orientite: Hewett, 7.

Paleontology.

Ammonite opercula: O'Connell, 5.

Cirripede, Miocene: Withers, 7.

Echinoderms: Sánchez Roig, 16.

Echinoidea: Sánchez Roig, 4.

Cuba—Continued.

Palaeontology—Continued.

Jurassic ammonite fauna: O'Connell, 3; Sánchez Roig, 1, 2.

Jurassic fish fauna, western Cuba: Gregory, W. K., 8.

Orthaulax, Tertiary: Woodring, 3.

Oyster, Cretaceous: Raymond, 31.

Rudistids, central Cuba: Sánchez Roig, 15.

Squalidae, Miocene and Pliocene, Havana: Sánchez Roig, 3.

Tertiary Mollusca: Cooke, C. W., 1.

Petrology.

Granite bed, Santiago de Cuba: Calvache, 5.

Underground water.

Aguada area: Allende, 8.

Meseta central: Montolieu, 2.

Santa Clara area: Allende, 9.

Cubist method in geological correlation: Keyes, 144.

Culebra Island: Vaughan, 22.

Currie oil and gas field, Navarro County, Texas: Lahee, 9.

Cuyamaca region, California: Hudson, F. S., 1.

Cyanite: Seagle, 1.

Cycadeoidea, distribution and relationships: Wieland, 3.

Cycadeoids, monocarpy: Wieland, 8.

Cycadophyta, classification: Wieland, 1.

Cycads. See Paleobotany.

Cystoidea. See also Echinodermata.

Carnyella valcourensis, Chazy limestone: Clark, T. H., 2.

Caryocrinites, appearance of additional arms: Foerste, 8.

Dendrocystis: Bather, 8.

Habits and structure: Bather, 6.

Holocystites: Foerste, 7.

Lipsanocystis traversensis, Devonian, Michigan: Ehlers, 6.

Michigan, Escanaba River, Trenton: Hussey, 3.

Stromatocystites, Newfoundland: Schuchert, 3.

Dalmanella: Mansfield, W. C., 4.

Dakalite, North Dakota: Dove, 6.

Dakota flora, age: Berry, 22.

Dakota sandstone problems: Stanton, 5.

Dallas type of river channel: Bretz, 7.

Damon Mound oil field, Texas: Bevier, 1.

Data of geochemistry: Clarke, F. W., 1, 5.

Decomposition of rocks. See Weathering.

Dease Lake area, Cassiar district, British Columbia: Kerr, F. A., 1.

Deep Spring Valley, California: Miller, W. J., 35.

Deep wells. See Borings.

Deflation process: Keyes, 174.

Definitions.

Chert: Glock, 2.

Flint: Glock, 2.

Fossil: Field, 3; Miller, A. M., 6.

Talus and shingle: LaForge, 2.

Delaware.

Areas described.

Wilmington quadrangle: Bascom, 2.

Mineralogy.

Canbyite, Wilmington: Hawkins, A. C., 3.

Delta building: Nevin, 2.

Deltas.

Colorado River: Sykes, 1.

Fraser River, British Columbia, Johnston, W. A., 8, 9.

age: Johnston, W. A., 7.

sandstone in delta, formation: Johnston, W. A., 6.

Mississippi River: Trowbridge, 7.

Demonstration material in geology: Cleland, 6.

Denudation. See Erosion.

Denudation of the desert: Keyes, 159.

Deposition. See Sedimentation.

Deposition of ores. See Ore deposits, origin.

Desert varnish: White, C. H., 2.

Des Moines ice lobe, map: Leverett, 10.

Deserts.

Arizona, Papago country: Bryan, 7.

Mexico, San Luis Potosi, desert phenomena: Wittich, 2.

Devonian. See also Paleontology, Devonian.

Acadia: Bailey, L. W., 2.

Alabama: Butts, 8, 11, 12; Jones, W. B., 13.

Bessemer-Vandiver quadrangle: Butts, 13.

Alaska, Chandalar district: Mertie, 12.

Ruby-Kuskokwim region: Mertie, 11.

Toklat-Tonzona River region: Capps, 12.

Wrangell district: Buddington, 4.

Alberta: Dowling, 5.

Banff area: Warren, P. S., 4.

Crowsnest Pass: Warren, P. S., 7.

Lake Minnewanka section: Shimer, 6.

Arctic regions, Ellesmere Land: Holte-dahl, 1.

Arizona: Darton, 17; Keyes, 83, 106; Stoyanow, 1.

Aravaipa-Stanley region: Ross, C. P., 5.

central: Ettlinger, 1.

Grand Canyon: Keyes, 94; Moore, R. C., 26; Noble, 3.

Payson district: Lausen, 1.

Pinal Creek: Stauffer, 11.

Ray quadrangle: Ransome, 11.

Ray-Miami region: Ransome, 1.

Saddle Mountain and Banner mining districts: Ross, C. P., 6.

Santa Rita limestone: Stauffer, 8, 12.

Arkansas: Miser, 4, 7, 11.

Batesville district: Miser, 8.

Hot Springs district: Purdue, 1.

Big Stone Gap shale, southwestern Virginia: Swartz, J. H., 4; Chattanooga age: Swartz, J. H., 10.

Devonian—Continued.

British Columbia, Beaverfoot-Brisco-Stanford Range: Walcott, 9.

Bow River section, Banff: Kindle, 30.

Rocky Mountain trench: Shepard, 3.

Taseko Lake-French Bar Creek: MacKenzie, J. D., 2.

Windermere area, Kootenay district: Walker, J. F., 1.

Chagrin formation: Chadwick, 14.

Chattanooga shale, southwestern Virginia: Swartz, J. H., 6.

Chemung group, stratigraphy in western New York: Chadwick, 10.

Colorado: Keyes, 162.

Red Cliff district: Crawford, R. D., 3.

Early Devonian hiatus in Mississippi Valley: Keyes, 215.

Georgia: McCallie, 1.

Greenland: Bøggild, 1.

northwestern: Koch, 1.

Idaho, Fort Hall Indian Reservation: Mansfield, G. R., 3.

southeastern: Mansfield, 29.

Illinois: Savage, 3.

Alto Pass quadrangle: Bassett, 1.

Calhoun County: Lamar, 6.

Equality-Shawneetown area: Butts, 5.

Edgington-Milan area: Savage, 5.

Hardin County: Weller, S., 1.

Mississippi Valley: Krey, 2.

Oriskany limestone: Savage, 10, 15.

southwestern: Savage, 4.

western: Savage, 7.

Illinois and Missouri rocks compared: Savage, 14.

Indiana: Cumings, 1; Logan, 15.

Iowa, Jackson County: Ladd, H. S., 3.

eastern: Norton, W. H., 1.

Hackberry stage: Fenton, C. L., 2, 3, 4.

Independence shale, Brandon: Thomas, A. O., 5.

Lake Calvin region: Schoewe, 6.

Linn and Jackson counties, outliers: Norton, W. H., 4.

Shellrock stage: Belanski, 1.

State Quarry beds: Stainbrook, 2, 3.

Kansas, Salina Basin: Barwick, 1.

Kentucky: Jillson, 35; Miller, A. M., 1.

Allen County: Miller, A. M., 5; Shaw, E. W., 1.

Barren County: Butts, 2.

Berea region: Burroughs, W. G., 5.

Knob region: Burroughs, W. G., 4.

Mackenzie, Franklin Mountains: Williams, M. Y., 14, 16.

Great Slave Lake region: Cameron, 1.

lower Mackenzie Valley: Kindle, 9.

Mackenzie River district: Bosworth, 3; Hume, 3; Whittaker, 2; Williams, M. Y., 13.

Devonian—Continued.

Mackenzie—Continued.

Mackenzie River basin: Camsell, 1.
Mackenzie River between Norman
and Beaver River: Hume, 5.

Providence to Simpson: Whit-
taker, 5.

Maine, Moose River sandstone: Per-
kins, E. H. 4.

Rangeley conglomerate: Smith, E.
S. C., 2.

Manitoba: Wallace, 14.

Michigan, Alpena County: Ver Wiebe, 10.
southeastern: Ehlers, 12.

Minnesota: Grout, 2; Stauffer, 2, 3.

Mississippi: Lowe, 2; Morse, P. F., 1;
Morse, W. C., 4.

Tishomingo County: Bramlette, 4.

Missouri: Branson, 1, 2, 5; Wilson,
Mal. E., 1.

Bailey limestone: Tansey, 1.

central: Greger, 1.

Cooper limestone: Greger, 2.

Mississippi Valley: Krey, 2.

Ozark region: Keyes, 87.

Ozark uplift, Devonian outlier:
Bridge, 1.

Ste. Genevieve County: Weller, 19;

Little Saline limestone: Stewart,
G. A., 1.

Missouri, Illinois, and Iowa: Branson,
16.

Montana: Keyes, 234.

Beartooth Mountains, Bevan, 2.

Melrose phosphate field: Richards,
R. W., 2.

Nevada: Keyes, 128.

Muddy Mountains region: Longwell,
1, 3, 15.

Pioche district: Westgate, 6.

New Brunswick: Bailey, L. W., 1.

Dalhousie area: Howard, W. V., 2.

Mispec group: Matthew, G. F., 3.

St. John: Matthew, G. F., 2.

Newfoundland, western: Schuchert, 16.

New Hampshire, Ammonoosuc district:
Ross, C. P., 2.

New Mexico: Darton, 26; Keyes, 14.

eastern: Baker, C. L., 1.

New York, Allegany State Park: Lo-
beck, 8.

Catskill region: Jones, R. W., 1.

Genesee County: Fairchild, 15.

Genesee Valley: Fairchild, 24.

Oriskany sandstone: Eaton, H. N., 3.

Portage stratigraphy: Chadwick, 3.

Sherburne sandstone: Grabau, 6.

western: Alexander, W. P., 1; Hus-
sakof, 1.

Ohio, Camp Sherman quadrangle:
Hyde, 1.

Delaware County: Carman, 4; West-
gate, 5.

Lucas County, Silica shale: Stewart,
G. A., 2.

Monroe division: Carman, 2.

Devonian—Continued.

Ohio—Continued.

Olentangy shale: Lamborn, 1.

Spirifer horizons: Ireland, 1.

Oklahoma: Gould, 9; Schuchert, 21.

Arbuckle Mountains: Taff, 7.

Carter County: Tomlinson, 4.

Mannsville area: Tomlinson, 2.

northeastern: White, L. H., 3.

southeastern: Honess, C. W., 6.

southern Ouachita Mountains: Ho-
ness, C. W., 4.

Stonewall quadrangle: Morgan, G.
D., 5.

Ontario, James Bay region: Savage, 2.

Mattagami and Abitibi rivers: Wil-
liams, M. Y., 7.

Moose River basin: Kindle, 26.

Pagwachuan, Kenogami, and Albany
rivers: Williams, M. Y., 10.

Orcas group, Washington: McLellan, 1.

Oregon: Smith, W. D., 1.

Riddle quadrangle: Diller, 12.

Pennsylvania: Miller, B. L., 4.

Quebec, Beauceville area: MacKay, B.
R., 4.

Bonaventure formation: Clarke, J.
M., 26.

Gaspe: Alcock, 29.

Gaspe County, Lemieux: Alcock, 14;
Mailhot, 1.

Mount Albert area: Alcock, 6.

Mount Serpentine, Gaspe County: Al-
cock, 22.

St. George: Clark, T. H., 6, 9.

Shickshock Mountains: Alcock, 21.

Tennessee: Nelson, 16.

Cheatham County: Jillson, 49.

Overton County: Butts, 1.

Sumner County: Mather, 3.

Waynesboro quadrangle: Miser, 6.

Texas, Solitario uplift: Powers, 9.

Utah: Butler, 4; Keyes, 152.

Tintic district: Lindgren, 2.

Virginia: Giles, 11.

Big Stone Gap shale, age: Swartz,
J. H., 7.

Giles County: Hubbard, G. D., 6.

Little North Mountain: Giles, 8.

Oriskany and Helderberg formations:
Holden, R. J., 1.

Scott County, Early Grove: Butts, 9.

southwestern, black shale: Stose, 22.

Valley coal fields: Campbell, M. R.,
10.

western: Stose, 16.

Wise and northern Scott counties:
Eby, J. B., 1.

West Virginia, conglomerate rocks:
Reger, 12.

Hampshire and Hardy counties: Til-
ton, 15.

Mercer, Monroe, and Summers
counties: Reger, 9.

Mineral and Grant counties: Reger,
7.

Devonian—Continued.

West Virginia—Continued.

Pendleton County: Tilton, 14.

Randolph County: Reger, 15.

Tucker County: Price, W. A., 9;
Reger, 6.Winters in Upper Devonian of New
York and Acadia: Schuchert, 34.

Wisconsin: Thwaites, 3.

Wyoming, Wind River Mountains:
Condit, 4.Yukon, Mayo district, Beaver River
area; Cockfield, 15.

Whitehorse district: Cockfield, 16.

Diagenesis in sedimentation: Schuchert, 12.

Diamonds: Ball, S. H., 2; Eardley-Wilmot, 7.

Arkansas, Pike County: Miser, 10, 12,
18; Mitchell, 8.

Diastrophic movements, table of: Shepard, 6.

Diastrophism.

Atlantic-Arctic region: Høltedahl, 2.

Cause: Chamberlin, T. C., 10.

General: Cotton, 2.

Megadiastrophism: Chamberlin, T. C.,
12, 17; Jones, W. F., 2.Paleozoic crustal instability: Schu-
chert, 13.

Periodic diastrophism: Shepard, 6.

Planetary nuclei, physical phases:
Chamberlin, T. C., 20.Planetesimal growth: Chamberlin,
T. C., 21.

Quebec, northern: Cooke, H. C., 2.

Selective segregation of material form-
ing earth: Chamberlin, T. C., 19.Self-compression of the earth as a
problem of energy: Chamberlin,
T. C., 13.Shrinkage of the earth: Chamberlin,
T. C., 10.Vertical earth adjustments, rate of
movement: Hobbs, 15.

Wedge theory: Chamberlin, R. T., 11.

Diatomaceae. See also Diatomaceous earth.

Alaska, Pribilof Islands: Hanna, 27.

Biogenesis of hydrocarbons by diatoms:
Tolman, 2.California, Cretaceous: Hanna, G. D.,
33.Monterey shales: Gaylord, 2; Han-
na, G. D., 38.Santa Barbara County, Lompoc:
Yermoloff, 1.

Tertiary: Hanna, 31.

Canada: Eardley-Wilmot, 9; southern:
Boyer, 1.

Collection and preparation: Mann, 1.

District of Columbia, excavation on
Connecticut Avenue: Mann, 2.

General: Eardley-Wilmot, 9.

Mexico, Maria Madre Island, Miocene:
Hanna, 27.

Valle de Toxi: Diaz Lozano, 1.

Nebraska: Elmore, 1.

Oregon, western: Schenck, 7.

Diatomaceae—Continued.

Washington, Copalis Beach, "epidem-
ics": Becking, 1.

Diatomaceous earth. See also Diatomaceae.

British Columbia, Lillooet-Prince
George region: Reinecke, 3.

Canada: Eardley-Wilmot, 5, 9.

General: Eardley-Wilmot, 5.

Nova Scotia: Burroughs, R. W., 1.

Oregon, eastern: Smith, W. D., 17.

Diceratheres: Peterson, 2.

Diffusion in silicate melts: Bowen, 9.

Diffusion in vein genesis at Cobalt: Whit-
man, 1.

Dikes.

Alberta, sandstone dikes: Williams,
M. Y., 17.Arkansas, Scott County, peridotite
dikes: Miser, 9.Association of faulting with dike in-
trusion: Sheldon, 3.Basic dike injections in magmatic vein
sequences: Spurr, 20.California, Orange County, sandstone
dike, genesis indicated by heavy
minerals: Meek, 2.Camptonite dikes in Connecticut Trias-
sic: Russell, W. L., 2.

Idaho, Boise Basin: Ballard, 3.

Coeur d'Alene district: Shannon, 14.

Illinois, Hardin County: Weller, S., 1.

Kentucky, western: Currier, 2.

Maine, Ogunquit: Keeley, 2.

Portsmouth Basin: Wandke, 2.

Mechanics of dike intrusion: Billings, 1.

New Mexico, Pecos Valley: Semmes, 4.

New York, Adirondacks, Lyon Moun-
tain region: Miller, W. J., 3.New York, Ithaca region: Martens,
3; Sheldon, 1.Lake Placid quadrangle: Miller, W.
J., 1.Lyon Mountain quadrangle: Miller,
W. J., 26.Schroon Lake quadrangle: Miller,
W. J., 2.

Ontario, Michipicoten area: Collins, 15.

Oregon, Cornucopia, inclusions in por-
phyry dikes: Goodspeed, 1.Pegmatite dikes, southeastern Ontario:
Sine, 3.Pennsylvania, southwestern: Honess,
A. P., 3.South Dakota, sandstone dikes: Lawler,
1.Black Hills region, sandstone dikes,
origin: Russell, W. L., 13.Tennessee, Union County, mica-perido-
tite dike: Gordon, G. H., 4.Texas, Bandera County: Dawson,
J. M., 1.Rockwall, sandstone dikes: Patton,
5; Stephenson, 7.

Vermont, Braintree: Richardson, C. H., 5.

Cuttingsville: Eggleston, 1.

southern: Bray, 1.

Dikes—Continued.

- Washington, eastern, clastic: Jenkins, 14.
 southeastern, clastic: Jenkins, 11.
 Dilatancy, geologic rôle: Mead, 4.
 Dinosaur extinction: Wieland, 20.
 Dinosaur National Monument: Gilmore, 23.
 Dinosauria. See Reptilia.

Dip.

- Apparent-dip protractor: Smith, W. S., T., 3.
 Chart and protractor: Gaby, 2.
 Components, determination: Higgins, 1; Lahee, 1; Palmer, H. S., 3.
 Protractor for plotting dips: McKinstrey, 4.
 Readings on low rock dips: Filmer, 1.
 Dip and strike, determination: Longwell, 2; Smith, W. S. T., 2.
 graphic determination: Crider, 1.
 symbols for: Dreher, 2.
 Dip needle: Stearn, 2.
 Discoidal structure of the lithosphere: Willis, B., 2, 6.
 Dislocation. See Faulting.
 Distribution. See Geographic distribution.
 Distribution of land and water on the earth: Reid, 5.

District of Columbia.

- General: Palmer, E. C., 1.

Historical geology.

- Excavation at Connecticut Avenue: Cuno, 1; LaForge, 3; Wentworth, 13.

- Pleistocene deposits: Anon., 23.

- Walker Hotel swamp deposit, age: Hay, 22.

Mineralogy.

- Travertine, Rock Creek Park: Stose, 3.

Paleontology.

- Diatoms, excavation on Connecticut Avenue: Mann, 2.

- Pleistocene flora, excavation at Connecticut Avenue: Berry, 51.

Petrology.

- Granites: Washington, 12.

Physical geology.

- Earthquakes, registration: Tondorf, 1-6.
 Divide silver district, Nevada: Knopf, A., 3.
 Dixon quadrangle, Illinois: Knappen, 1.

Dolomite.

- Chemical study: Knight, N., 1.
 Crystal structure: Wyckoff, 6.
 Formation: Raymond, 26.
 Iowa: Smith, J. E., 11; and New York, composition: Reed, B. B., 1.
 Nature and origin: Steidtmann, 5.
 Occurrence: Van Tuyl, 10.
 Origin: Tarr, 2, 6.
 Wood, replacement by dolomite: Adams, S. F., 1.
 Wisconsin: Steidtmann, 5.
 Dolomitization: Walker, T. L., 55.
 and ore deposition: Hewitt, 22.
 in Paleozoic horizons, Manitoba: Birse, 1.

Dolomitization—Continued.

- in southern Nevada: Hewett, 11.
 of limestones: Birse, 1.

Domes.

- Gulf coast salt domes: Hills, R. T., 1.
 Dominica, Island of: Earle, 8, 11.

Dominican Republic.

- Geological reconnaissance: Vaughan, 16.

Historical geology.

- General: Cooke, C. W., 3.
 Miocene formations: Maury, 2.

Paleontology.

- Barbatia patricia: Woodring, 12.
 Corals: Vaughan, 37.
 Crustacea, Tertiary: Rathbun, 2.
 Mollusca, Tertiary: Pilsbry, 1.
 Plantae, Tertiary: Berry, 25

Drainage changes.

- Big Sandy River: Jillson, 80.
 British Columbia, Cariboo district: Tyrrell, 2.
 Rocky Mountain region: Schofield, 8.
 Buried Whirlpool-St. Davids gorge, origin: Forrester, G. C., 1.
 Colorado, Big Thompson River valley: Fuller, M. B., 1.
 Mount Olympus: Fuller, M. B., 4.
 Connecticut, Connecticut River near Middletown: Bissell, 2, 3.
 Danbury region: Harvey, R. S., 1.
 Glacial diversion of the Missouri River: Todd, J. E., 6.

- Great Basin: Keyes, 116.

- Great Lake region: Cook, C. W., 7.
 Hudson-Champlain Valley: Stoller, 3.
 Idaho, northern: Anderson, A. L., 2.
 Illinois, glacial Kankakee torrent: Ekblaw, 3.

Indiana: Malott, 6.

- Bell Creek-Fall Creek Valley: Carter, 1.
 Monroe County: Malott, 5.
 Owen County: Addington, 1.
 Raccoon Creek, Parke County: Bartle, 1.
 Randolph and Delaware counties: Breeze, 1.

Iowa, Boyer River: Lees, 5.

- Lee County: Wilson, B. H., 2.
 Mississippi River: Schoewe, 4.
 Moingona River, preglacial: Keyes, 3.
 Kentucky, Big Sandy River: Jillson, 93.

- Frankfort area: Jillson, 30.

- Tradewater River: Fowke, 2.

- Mackenzie River Basin, postglacial lakes: Cameron, 2.

- Maine, Androscoggin River: Crosby, I. B., 1.

- Massachusetts, central: Alden, 2.

- Minnesota, Minnesota and Mississippi rivers: Sardeson, 6.

- Mississippi River: Leverett, 8; Schoewe, 4.

Drainage changes—Continued.

Missouri, Ozark region : Tarr, 13.
 Missouri River : Greene, 2.
 Missouri River channel, age : Todd, J. E., 5.

Missouri Valley : Todd, J. E., 3, 4.
 New Hampshire, eastern : Crosby, I. B., 1.

New York : Fairchild, 16.
 Ausable quadrangle : Kemp, 23.
 east central : Stoller, 1.
 Finger Lake region : Monnett, 3.
 Salmon Creek : Long, 2.
 western : Fairchild, 21.

Nova Scotia, Kings County, Black and Gaspereau rivers : Churchill, 3.

Ohio, northern : Hubbard, G. D., 7.
 southeastern : Stout, 4.

Wayne County : Conrey, 1.

Ohio basin : Daly, 7.

Ohio River, genesis : Fowke, 1.

Ontario : Coleman, 11.

Pennsylvania : Williams, E. H., 1.

Preglacial drainage : Baker, F. C. 1.

Quebec, Gaspé : Alcock, 27.

Washington : Large, 3.

Drift deposits. See Glacial geology ; Ice ages (ancient).

Drifting of the continents : Termier, 2.

Driftless Area, erosional history : Trowbridge, 1.

Driftwood Creek area, Babine Mountains, British Columbia : Hanson, 9.

Drillite : Shead, 4.

Drumlins.

New York, Lake Placid : Upham, 2.

Origin : Millis, 1.

Ducktown mining district, Tennessee : Emmons, W. H., 8.

Dufresnoy, area, Abitibi district, Quebec : Harvie, 3.

Dunes.

Indiana, northwestern : Barrett, E., 2 ; Cressey, 1-3.

Michigan : Scott, I. D., 2.

Molokai, western : Wentworth, 17.

Texas, Red River valley : Sellards, 18.

Dunkard series of Ohio : Stauffer, 1.

Duparquet area, Quebec : James, W. F., 1.

Dust fall, March 9, 1918 : Winchell, A. N., 1 ; March 19, 1920 : Winchell, A. N., 4.

Dynamic geology. See Physical geology.

Dynamics of the lithosphere : Jones, O. C., 1.
 Earth.

Age : Bradley, J. H., 1 ; Bretz, 12 ; Clarke, J. M., 31 ; Duane, 2 ; Grant, U. S., 2 ; Hess, 22 ; Joly, 1 ; Kovarik, 1 ; Lane, 23, 25 ; Pompeckj, 1 ; Rayleigh, 1.

astronomical viewpoint : Brown, E. W., 1.

geologic time scale : Lane, 19.

geological viewpoint : Chamberlin, T. C., 15.

Earth.—Continued.

Age—Continued.

paleontological viewpoint : Clarke, J. M., 19.

radioactive point of view : Duane, 1.

radioactive determination : Swartz, J. H., 2.

uranium minerals, age : Davis, C. W., 1.

Amplitude of earth's motion : Sobon, 1.

Axis of rotation, changes of : Cotton, 2.

Composition : Adams, L. H., 7 ; Washington, 31, 34.

Compressibility : Woodward, R. S., 1.

Condensation, geological relations : Barrell, 10.

Constitution : Am. Geoph. Union, 1 ; Bowie, 24 ; Lamb, 1, 2 ; Washington, 32.

Crust.

Antilles, fault troughs : Taber, 6.

arcuate and lobate mountain structures : Taylor, 1.

California, Coast Ranges, mobility : Lawson, 1.

composition : Clarke, 4 ; Washington, 4.

condition : Putnam, G. R., 1 ; Reid, 9.

deformation caused by waning ice caps : Daly, 16.

deformation in Pacific and Atlantic regions contrasted : Hobbs, 9.

density of crust : Goranson, 5.

dynamics of the lithosphere : Jones, O. C., 1.

early conditions : Schuchert, 14.

earthquake frequency : Cotton, 1.

elastic yielding under load of sedimentary deposits : Lambert, W. D., 3.

framework of the continents, significance : Chamberlin, R. T., 10.

general : Coleman, 12 ; Longwell, 13.

isostatic adjustment : Bowie, 7.

isostatic equilibrium : Wood, H. O., 4.

lithosphere, tidal stresses : Cotton, 1.

localization of major geosynclines, cause : Bucher, 4.

major features of earth's surface : Diener, 1 ; Schaffer, 1.

mobile belts, pattern : Bucher, 8.

movements of crust : Leith, 6.

outer shells of the earth : Daly, 24.

resistance to change : Van Orstrand, 3.

role of isostatic stress : Willis, 8.

stability : Daly, 13.

Tertiary epeirogeny : Taylor, 13.

Tertiary mountain building, cause : Taylor, 2.

vertical movement of crustal material : Bowie, 28.

Crust and discontinuity beneath it : Adams, L. H., 9.

Density : Heyl, 1 ; Washington, 25 ; distribution in the earth : Williamson, 2.

Earth—Continued.

- Diminishing rate of rotation, effects: Keyes, 37, 71.
- Discoidal structure of the lithosphere: Willis, B., 2.
- Early history: Berkey, 13.
- Evolution: Chamberlin, T. C., 30; Hobbs, 5.
- Figure: Hayford, 3.
- changing sphericity of the earth: Keyes, 35.
- Formation: Emmet, 1.
- Framework: Cumings, 2; Davis, W. M., 2.
- Genesis: Chamberlin, T. C., 1, 19; Emmet, 2; Millis, 3, 4.
- nebular and planetesimal hypotheses compared: Fairchild, 22; Mehl, 16.
- planetesimal hypothesis: Chamberlin, T. C., 9, 27.
- Gravity on earth and moon: Wright, F. E., 10.
- Growth: Chamberlin, T. C., 38.
- History.
 - control zones of earth: Chamberlin, T. C., 11.
- Interior: Carstarphen, 1; Cotton, 2; Cumings, 2; Daly, 5, 17, 21; Day, A. L., 1; Longwell, 13; Macelwane, 6; Sosman, 13; Washington, 4; Willis, 6.
- chemistry of the earth's core: Barnett, 1.
- density and elasticity: Lambert, W. D., 1.
- elastasy vs. isostasy: Chamberlin, T. C., 33.
- intragology: Chamberlin, T. C., 33.
- iron, distribution: Adams, S. F., 1.
- rigid core in earth: Macelwane, 10, 16.
- seismic wave velocity and densities of crustal materials: Science Service, 1.
- X-raying the earth: Daly, 26.
- Magnitude of shrinkage: Chamberlin, T. C., 4.
- Megadiastrophism: Chamberlin, T. C., 17; Jones, W. F., 2.
- Nature of: Adams, L. H., 1.
- Ocean and atmosphere, origin: Humphreys, 5.
- Origin: Chamberlin, T. C., 41; and early stages: Chamberlin, R. T., 12.
- heliokleptic theory: Sardeson, 35.
- Pole wanderings: Cotton, 2.
- Radial distribution of certain elements: Washington, 29.
- Rate of rotation: Barrell, 10; Brown, E. W., 4.
- Rigidity: Michelson, 1.
- Rotational velocity of earth and its geological effects: Daly, 14.

Earth—Continued.

- Self-compression: Chamberlin, T. C., 14.
- Tectonic adjustment of a rotating straticulate spheroid: Keyes, C. R., 1.
- Tectonic form of the continents: Keyes, 7.
- Temperature: Sayles, 8; Van Orstrand, 2.
- apparatus for measurement of temperatures in deep wells: Van Orstrand, 5.
- deep borings: Van Orstrand, 1; White, I. C., 2; Anon., 5; West Virginia: White, I. C., 1.
- deepest wells: Van Orstrand, 10.
- earth temperatures and structural uplifts: Thom, 13.
- fluids in wells, temperature: Lahee, 7.
- geothermal data of United States: Darton, 6.
- geothermal gradient, Sunset-Midway oil field, California: Rogers, G. S., 1.
- Hawaii, volcanic borings: Jaggard, 23.
- internal heat: Clarke, F. W., 9.
- isogeothermal surfaces: Van Orstrand, 10.
- Keweenaw geothermal gradients: Lane, 11.
- Lake Superior region: Lane, 15.
- oil field temperatures: Washburne, 8.
- Oklahoma, boring: Miser, 15.
- temperature in deep mines: Lane, 14.
- temperatures at moderate depths: Adams, L. H., 6.
- Texas, Brazoria County, West Columbia field: Darton, 2.
- variation of temperature with geologic structure in oil districts: Van Orstrand, 7.
- Variable velocity hypothesis: Spearman, 1.
- Zone of flow: Hobbs, 8.
- Earth and its rhythms: Schuchert, 32.
- Earth's crust and evolution: Daly, 12.
- Earth's history, trend: Blackwelder, 4.
- Earth movements. See Changes of level; Landslides.
- Earth sciences as the background of history: Merriam, J. C., 3, 5.
- Earthquake insurance: Jaggard, 12.
- Earthquakes. See also Seismology.
 - Alaska, Katmai: Fenner, 7.
- Azimuth determination in earthquakes: Urrutia, 1.
- Bearing of distribution on origin: Taylor, 16.
- British Columbia, December 6, 1918: Denison, F. N., 1.

Earthquakes—Continued.

- California, Calaveras Valley, April 3, 1924: Macelwane, 20.
 Chittenden: Kemnitz, W., 1.
 Corralitos, September 19, 1923: Macelwane, 4.
 Crystal Springs, February 10, 1925: Macelwane, 19.
 Eagle Lake: Kemnitz, W., 2.
 Evergreen, July 19, 1925 and May 28, 1927: Byerly, 15.
 Inglewood, June 21, 1920: Kew, 5; Taber, 3.
 January 31, 1922: Macelwane, 3.
 July 19, 1925: Byerly, 13.
 Los Angeles region: Arnold, R., 1.
 Los Angeles, July, 1920: Taber, 5.
 northern, January 22, 1923: Anon., 37.
 recent: Macelwane, 9; Palmer, A. H., 3.
 registration: Bond, 1-3; Byerly, 6, 7, 10, 11, 12, 16-18; Davis, E. F., 1-4; Macelwane, 2, 7, 8, 11, 13, 14.
 Salinas, December 27, 1924; Kemnitz, L. E., 1.
 San Jose: Vickery, 1.
 Santa Barbara, June 29, 1925: Davis, W., 2; Kirkbride, 1; Willis, 21, 22; intensity: Byerly, 2.
 seismic force: Willis, 30.
 Sierra Nevada, March 30, 1925: Anon., 46.
 southern: Hill, R. T., 8; Mulholland, 1; Taber, 4; early records: Carpenter, F. A., 1; earthquake conditions: Hill, R. T., 9; July 22, 1923: Laughlin, 1.
 1918-1921: Palmer, A. H., 1, 2, 4, 5.
 Cause: Griggs, 8; Hobbs, 26; Macelwane, 15.
 Causes and prediction: Bowie, 16.
 Depth of focus of recent earthquakes in California: Byerly, 3.
 Distribution and origin: Taylor, F. B., 19.
 District of Columbia, registration: Tondorf, 1-6.
 Earthquake history of United States: Heck, 12.
 Earth movements in California: Day, 16.
 Eastern North America: Hobbs, 26.
 Elastic rebound theory: Lawson, 1.
 Epicenters, determining: Hodgson, 1; Neumann, F., 1, 2.
 north Pacific: Heck, 8.
 Eureka earthquake: Macelwane, 5.
 General: Chamberlin, R. T., 13; Daly, 21, 23; Heck, 4; Hoffman, F. L., 1; Hovey, 9; Jaggard, 21; Jones, E. L., 1, 3; Muñoz Lumbier, 5; Paige, 6; Reeds, 10; Willis, 14, 18, 23.

Earthquakes—Continued.

- Geologic theory: Montessus de Ballore, 1.
 Guatemala: Muñoz Lumbier, 3; Van de Putte, 1.
 Hawaii, earthquake prediction: Finch, R. H., 4.
 Kapoho, April, 1924: Finch, R. H., 5.
 Kilauea, eruptions, May, 1924, and seismic sequences: Finch, R. H., 3.
 Influence of weather: Reid, 16.
 Intensity of shock in alluvial areas: Vickery, 2.
 Isostasy, relation to earthquakes: Bowie, 22.
 Jamaica: Taber, 2.
 Katmai, Alaska, 1912: Tams, 1.
 Location of earthquakes: Heck, 6.
 Location of epicenters: Davis, W., 3.
 Massachusetts, Boston area: Crosby, I. B., 2.
 Mexico, Guadalajara, 1912: Waitz, 1.
 January 3, 1920: Salazar, 2.
 Orizaba: Friedlaender, 3.
 Sonora, 1887: Aguilera, 1.
 Montana, June 27, 1925: Byerly, 9; Pardee, 14; Willson, 1.
 Monthly reports: Humphreys, 1.
 Nevada, August 21, 1925: Byerly, 13.
 New England: Crosby, I. B., 4; Keith, 6; January 7, 1925: Porter, W. W., 1.
 New York City: Finch, 8.
 Oregon: Smith, W. D., 5.
 Pacific coast: Allen, M. W., 1; Townley, 1.
 Panama: Kirkpatrick, R. Z., 1.
 Porto Rico: Reid, H. F., 1, 2.
 October-November, 1918: Reid, H. F., 3.
 Prediction: Keyes, 142, 231; Lawson, 4.
 possibilities of prediction: Hodgson, 5.
 Research work on earthquakes: Sci. Serv., 3.
 St. Lawrence earthquake, February 28, 1925: Abbott, 1; Hodgson, 8, 10, 14; Anon., 60.
 geology: Keith, 4.
 rotation effects: Hodgson, 9.
 San Andreas rift: Noble, 7.
 San Salvador, September 6, 1915: Larde, 1.
 Seismological reports: Neumann, 4, 9-11.
 Southern Appalachian, October 20, 1924: Neumann, F. R., 1.
 Southwest earthquake, July 30, 1925: Udden, 22.
 Submarine changes in configuration: Heck, 5.
 Superficial factors: Sayles, 15.
 Texas, Panhandle, July 30, 1925: Neumann, F., 3; Pratt, 12.

Earthquakes—Continued.

- Twin earthquakes: Davison, 3.
 United States, 1919: Humphreys, 2.
 Utah, Elsinore: Pack, F. J., 3.
 Virgin Islands: Reid, H. F., 2.
 1867-68: Reid, 4.
 Virginia, Warren and Rappahannock counties, September 5, 1919: Watson, 4.
 Blue Ridge region, September 5, 1919: Woolard, 1.
 Volcanic earthquakes, so-called: Jaggar, 15.
 Washington, Dixie: Eby, G., 1.
 Western North America, January 22, 1923: Macelwane, 12.
 Wyoming, Bighorn Mountains, November 17, 1925: Pardee, 17.
 Jackson Hole: Blackwelder, 13.
 1918: Hodgson, 3.
 1925: Heck, 2; Neumann, F., 1.
- Echinodermata. See also Asteroidea; Blastoida; Crinoidea; Cystoidea; Echinoidea; Invertebrates (general).
 Cuba: Sánchez Roig, 16.
 General: Springer, 9.
 Iowa, Devonian: Thomas, A. O., 2, 12, 23.
 Maquoketa beds: Slocum, 1; Thomas, A. O., 22.
 Ohio, Brassfield formation: Foerste, 1.
 Cedarville: Foerste, 10.
 Ontario. Toronto area: Fritz, 1.
 Pelmatozoa, phylogeny and taxonomy: Jaekel, 1.
 Wisconsin, Racine: Foerste, 10.
- Echinoidea. See also Echinodermata.
 Anguilla, Neogene: Lambert, J., 1.
 California, Eocene echinoid: Schenck, 8.
 Carolinas, Cretaceous: Stephenson, 9.
 Cuba: Sánchez Roig, 4.
 Jamaica: Arnold, B. W., 1; Hawkins, H. L., 2.
 Cretaceous: Hawkins, H. L., 1.
 Mexico, eastern, Neogene: Lambert, 2.
 Tampico region: Israelsky, 2.
 North Carolina, Castle Hayne and Trent marls: Kellum, 2.
 Pacific coast region: Kew, 3.
 Scutellaster cretaceus, Colorado: Reece, 10.
 Tertiary: Stefanini, 1.
 Trinidad, Tertiary: Jeannet, 1.
 West coast: Israelsky, 1.
 West Indies: Jackson, 2.
 Wyoming, Sundance formation: Miller, A. K., 1.
- Ecology in interpretation of fossil faunas: Baker, F. C., 5, 7.
 Economic aspects of geology: Leith, 5.
 Economic geography, source book: Colby, 1.
 Economic geology (general). For areal see under the various States. See also Ore deposits, origin, and the particular products.

Economic geology (general)—Continued.

- Ants as prospectors: Johnston, W. D., 3.
 Application of geology to mining: Billingsley, 1.
 Applied geology, scientific by-products: Smith, G. O., 10.
 Asbestos veins, origin: Stillwell, 2.
 Association of ores and dikes: Crocker, 1.
 Bibliography of geophysical principles applied to prospecting: Johnson, J. H., 17.
 Canada, Arctic regions: Moore, E. S., 2.
 ore bodies in pre-Cambrian: Dougherty, 2.
 Capillary relationships of oil and water: Cook, C. W., 2.
 Carbon ratios: Woolnough, 1.
 Coal, oil, and gas, natural resources: Johnson, C. A., 1.
 Coals, Kentucky, Illinois, and Indiana, correlation: Jillson, 108.
 Colloid chemistry of minerals and ore deposits: Lindgren, 10.
 Commercial control of mineral resources: Spurr, 1.
 Concentration and circulation of the elements: Lindgren, 9.
 Correlative value of heavy minerals: Tickell, 1.
 Croppings of ore deposits: Bateman, 8.
 Crystallization temperature of veins near surface: Spurr, 29.
 Determination of ore minerals: Davy, 1.
 Direction of progress: Ransome, 18.
 Economic aspect: Porter, C. A., 1.
 Economic geologists and literature: Bateman, 6.
 Economic geology: Ries, 10.
 as a profession: Lindgren, 3.
 in mining: Boydell, 5.
 relation to general principles of geology: Penrose, 2.
 Economic limits to domestic independence in minerals: Smith, G. O., 3.
 Electrical conductivity and polished mineral surfaces: Harvey, R. D., 1.
 Electrical conductivity of ore minerals: Fairbanks, 8.
 Electrical prospecting: Leonardon, 1, 2.
 Electrical resistivity of rocks: Koenigsberger, 1.
 Eötvös torsion balance: Bateman, 11; Rybár, 1; Wagner, E., 1.
 Fertilizer minerals, distribution: Mansfield, G. R., 34.
 Filling of fissure veins: Perkins, T. A., 1; Young, J. W., 3.
 Finding ore: Locke, 10.
 Foraminifera, use in determining underground structure: Cushman, 15.
 Formation of ore bodies: Kendall, 1.
 Garnet: Myers, 2.
 Gels, function in formation of quartz and carbonate veins: Merritt, C. A., 2.

Economic geology (general)—Continued.

- General: Ekblaw, W. E., 1; Leith, 5;
Lewis, J. V., 16.
Geology applied to mining: Spurr, 24.
Geology of prospecting: Emmons, W. H., 5.
Geomagnetics: Stearn, 1.
Geophysical exploration: Ambronn, 1; Mason, M. S., 1.
Geophysical methods: Barton, 15; DeGolyer, 16; Jakosky, 2; in Michigan copper district: Broderick, 4.
Geophysical prospecting: Am. Inst. Min. Eng., 1; Eve, 1; Jakosky, 1; Kithil, 1; Miller, A. H., 3.
Glaciation, effects on mining: Kirkham, 6.
Ground water, relation to ore deposits: Loughlin, 22.
Gypsum and anhydrite: Wilder, 4.
Helium: Moore, R. B., 1.
International control of minerals: Leith, 1.
International mineral problems: Leith, 7.
Internationalization of mineral resources: Leith, 2.
Intersecting fracture zones and mineral districts: Porter, C. A., 3.
Investigation of ores: Fairbanks, 12.
Leached ore capping: Morse, H. W., 1.
Leached outcrops: Blanchard, R., 3.
Limestone contact zones, ferric oxide content: Butler, 8.
Magmatic ore deposits, classification: Zavaritsky, 1.
Magnesite deposits, types and origin: Bain, 4.
Manganese minerals: Thiel, 2.
Marcasite, paragenesis: Newhouse, 1.
Metal content, lode filling, and country rock, relations: Weston-Dunn, 1.
Metalliferous deposits: Knopf, A., 2.
Metals in intrusive magmas: Spurr, 12.
Methods for heavy mineral investigations: Reed, 4.
Microscope and ore geology: Wagner, P. A., 3.
Microscopical interpretation of folded structures: Graton, 1.
Mineral deposits: Lindgren, 1, 23.
present tendencies in the study of: Lindgren, 5.
Mineral resources: U. S. Geol. Survey, 3.
of world: Spurr, 2.
work of U. S. Geological Survey: Bastin, 3.
Mineral supplies, United States: McCaskey, 1.
Mineralized volcanic explosion pipes: Walker, R. T., 3.
Mineralography as an aid to milling: Thomson, E., 5.
Mining geology: Geijer, 5.
Mining geology methods at Butte, Montana: Billingsley, 1.

Economic geology (general)—Continued.

- Models for determining structure of bedded rocks: Mehl, 3.
Natural reduction of sulphates: Bastin, 15.
Nonmetallic mineral deposits: Grabau, 9.
Nonmetallic minerals: Ladoo, 4.
Ontario, Kirkland Lake area: Tyrrell, 7.
Opaque ore minerals, determination by X-ray diffraction patterns: Kerr, P. F., 1.
Ore, examination by reflecting microscope: Schwartz, 3.
Ore deposits of the Southwest: Tovote, 1.
Ore finding: Rogers, A. H., 1; Locke, 8.
Ore hunting: Campbell, J. M., 1.
Ore-hunting geology: Locke, 2.
Ore genesis studies, fifty years' progress: Miller, B. L., 12.
Ore problems and the microscope: Uglow, 13.
Oxidation of sulphides: Carmichael, 1.
Oxidation products from chalcopyrite: Blanchard, R., 2.
Oxidation subsidence at Bisbee, Arizona: Wisser, 1.
Pegmatites and their minerals: Ellsworth, 7.
Petroleum geology: Lahce, 14.
Phosphate rock an economic army: Stone, R. W., 1.
Physical exploration for ores: Mason, M. S., 1.
Polarized light in the study of ores and metals: Wright, Fred. E., 1, 2.
Polished sections of ores: Short, 2.
Polishing of ores: Vanderwilt, 2.
Profession of ore-hunting: Locke, 1.
Prospector's field book: Osborn, H. S., 1.
"Pseudomorphous" quartz: Morgan, P. G., 1.
Quantitative methods in applied geology: White, C. H., 1.
Radio-aeronautic prospecting: Shaw, H., 1.
Red bed ores: Bains, 1.
Relation of hardness to sequence of ore minerals: Gilbert, G., 2.
Rock prospects and the war: Loughlin, 3.
Schistose galena: Leonard, R. J., 3.
Scientific by-products of applied geology: Smith, G. O., 10.
Scientific ore finding: Brock, 8.
Sections of ores, preparation: Schwartz, 19.
Seismic prospecting: Helland, 3.
Standards for hardness of minerals: Talmage, 2.
Stone for concrete: Loughlin, 33.
Strategy of minerals: Smith, G. O., 2.
Studying mines with a microscope: Bayley, 8.

Economic geology (general)—Continued.

- Teaching economic geology: Ransome, 17.
 Tellurides: Thomson, E., 8.
 Tendencies in study of ore deposits: Knopf, A., 2.
 Terminology of mineral deposits: Lindgren, 6.
 Textbook: Emmons, W. H., 3.
 Torsional balance: Gradenwitz, 1.
 Types of magnesite deposits and their origin: Bain, 4.
 Vein quartz, microscopic study: Adams, S. F., 5.
 Veins, origin: Taber, 14.
 World view of mineral wealth: Umpleby, 1.
 Zonal deposition of ores, application of theory: Anderson, T. C., 2.
- Edgerly oil field, Calcasieu Parish, Louisiana: Minor, 3.
- Edgewise conglomerate: Bassler, R. S., 1.
- Educational. See also Textbooks.
 Applied paleontology: Weller, 3.
 Cooperation in advanced geologic instruction: Gregory, H. E., 1.
 Course in geology, outline: Glock, 4.
 Crystallography, teaching: Fisher, D. J., 1.
 Demonstration material in geology: Cleland, 2.
 Development stages in teaching paleontology: Jackson, 1.
 Dip and strike, laboratory determinations: Turner, W. M., 2.
 Field excursion, New York to Gettysburg: Johnson, D. W., 9.
 Field trips: Johnson, D. W., 13; Morse, W. C., 3.
 General: Buddington, 15.
 Geologic teaching in mining engineering: Dake, 11.
 Geology, use in education: Gregory, H. E., 3.
 Geology manual: Field, 6.
 Laboratory manual: Mather, 9.
 Lantern slides, use in geology courses: Shepard, 9.
 Mineralogic instruction, needed extension: Eakle, 8.
 Mineralogical laboratory, University of Michigan: Kraus, 1.
 Outline charts in teaching vertebrate paleontology: Mehl, 1.
 Paleontology: Schuchert, 10.
 Petroleum geology: Lahee, 14.
 Practical applications of geology and physiography: Cleland, 2.
 Relation of student and teacher: Mathews, 2.
 Selective teaching in geology: Sardeeson, 13.
 Structural and petrographic geology: Kemp, 3.
 Special significance of geology in teaching: Merriam, 4.

Educational—Continued.

- Summer school of geology and natural resources: Field, 7.
 Teaching economic geology: Ransome, 17.
 Teaching of geology: Gregory, H. E., 4.
 Teaching historical geology: Cleland, 3.
 Teaching paleobotany: Berry, 19.
- Ekalaka lignite field, Montana: Bauer, 4.
 Elaterite, Utah: Clark, A. F., 1.
 Elbow Lake area, northern Manitoba: Armstrong, P., 1.
 El Dorado oil field, Arkansas: Ley, 1.
 Eldorado oil and gas field, Butler County, Kansas: Fath, 2.
 Electrical prospecting: Crosby, I. B., 7; Rogers, A. H., 1.
- Elementary and popular books.
 A B C of geology: Hardy, 1.
 Brief physiography: Nelson, W. B., 1.
 Geology: Brewster, 1.
 Man and the earth: Leighton, H., 3.
 Ways of life: Lull, 17.
- Elephas jeffersonii: Osborn, 20.
- Elevation and subsidence. See Changes of level.
- Elk Basin oil field, Wyoming: Estabrook, 1.
- Elkton-Wilmington folio, Maryland-Delaware - New Jersey - Pennsylvania (no. 211): Bascom, 2.
- Ellenburger formation, north central Texas: Sellards, 7.
- Emery, Virginia: Watson, 13.
- Empire formation, Coos Bay, Oregon: Howe, H. V. W., 2.
- En échelon and arcuate mountains: Link, 5.
- Engineering geology: Ries, 4, 11.
 Catskill water supply: Berkey, 6.
 Illinois, Decatur dam site: Leighton, 11.
 Iron Canyon, Sacramento River, California: Hamlin, 1; Lawson, 3.
 New York, West Point quadrangle: Berkey, 3.
 St. Francis dam disaster: Longwell, 17.
- English River valley, Ontario: Bruce, 11.
- Entelodonts, White River Oligocene: Sinclair, 5.
- Eocene. See Tertiary.
- Eötvös torsion balance: Bateman, 11; Heiland, 2; Rybár, 1; Steiner, 1; Wagner, E., 1.
- Eolation. See Wind work.
- Eolian action. See Wind work.
- Eozoon canadense: Rothpletz, 2.
- Epeirogeny, Tertiary: Taylor, 13.
- Epi-anticlinal faults, origin and significance: Link, 1.
- Epsomite.
 British Columbia, Clinton district: Reinecke, 2.
 Lillooet-Prince George region: Reinecke, 3.

- Epsomite lakes, British Columbia, Ashcroft: Walker, 8.
- Equality-Shawneetown area, Illinois: Butts, 5.
- Erosion. See also Glacial erosion; Sedimentation.
- Arid regions: Fenneman, 2.
- Arizona, Papago country: Bryan, 7, 15.
- California, Los Angeles County: Wolff, J. E., 3.
- Cape Breton, coast erosion: Gray, F. W., 1.
- Changes in channel of Rio Puerco, New Mexico: Bryan, 30.
- Changes in water level and flotation as forces of erosion: Walker, 50.
- Channel trenching in Southwest: Bryan, 18; Swift, 1.
- Chemical denudation of soils: Whitney, M., 1.
- Cloudburst on San Gabriel Peak, Los Angeles County, California: Wolff, J. E., 3.
- Coast erosion: Patton, R. S., 1.
- Coast line changes, Nova Scotia: Churchill, 5.
- Cobble abrasion: Wentworth, 1.
- Colorado, Mesa Verde: Haas, 1.
- Corrosion and corrasion, Barton Creek, Austin, Texas: King, 5.
- Corrosion by saline waters: Rutherford, 1.
- Desert weathering: Hobbs, 1.
- Erosive processes: Malott, 10.
- General: Barrell, 9; Keyes, 39.
- Hawaii: Wentworth, 26.
- marine and fluvial erosion: Wentworth, 29.
- stream erosion: Wentworth, 37.
- Indiana, Jefferson County, Clifty and Butler ravines: Culbertson, 2.
- Michigan, Seul Choix Point Peninsula: Ehlers, 1.
- Sulphur Island: Ehlers, 8.
- New Mexico, Rio Salado: Bryan, 25.
- solution and fill: Lee, 13.
- Nomenclature: Glock, 6.
- Pedestal rocks, arid Southwest: Bryan, 13, 16, 17.
- Plateau region: Reagan, 9.
- Red River, Texas-Oklahoma: Sel-lards, 17.
- Red River of the North: Wallace, 15.
- Sea caves, Devil's Island, Wisconsin: Edwards, I., 2.
- Sierra Nevada, postglacial denudation: Muir, 1.
- Soil erosion: Bennett, H. H., 1.
- Solution and fill: Lee, 14.
- Southwest: Bryan, 34.
- Submarine denudation: Bucher, 12.
- Tennessee, erosion in clay beds: Schroeder, 2.
- Terms for erosion: Allison, I. S., 5.
- Erosion—Continued.
- Utah: Bryan, 28.
- débris of desert torrents: Pack, 6.
- San Juan Canyon: Miser, 20, 26.
- Vermont, Cavendish: Jacobs, 6.
- Washington, Columbia Valley: Bretz, 10.
- Wave erosion: Swinnerton, 2.
- Erosion cycle: Davis, 11.
- Eruptive rocks. See Igneous and volcanic rocks.
- Eskers.
- Crevasse theory of origin: Prest, 2.
- Indiana, Anderson: Reeves, J. R., 1.
- Iowa, central: Smith, J. E., 5.
- Minnesota: Sardeson, 8.
- New York, Adirondacks: Chadwick, 21.
- Nova Scotia: Prest, 1.
- Digby County: McIntosh, 1.
- Queen's County, Middlefield: Prest, 2.
- Origin and nature: Prest, 1.
- Eskers and crevasse fillings: Flint, 6.
- Essays. See addresses.
- Estival epoch: Keyes, 224.
- Etched potholes: Udden, 20.
- Etching tests on pyrrhotite: Boyde, 1.
- Eurypterida.
- Eurypterus, Cambrian, Iowa: Walter, 2.
- Habitat: Ruedemann, 14.
- New York, Utica and Lorraine formations: Ruedemann, 18.
- Eutsuk Lake area, Coast district, British Columbia: Marshall, J. R., 3.
- Evolution.
- Acorn barnacles, phylogeny: Ruedemann, 13.
- Air-breathing vertebrates: Pike, F. H., 1.
- Ammonite evolution: Trueman, 1.
- Arrested evolution: Ruedemann, 6; paleontology of: Ruedemann, 9.
- Cephalopod adaptation: Dunbar, 5.
- Cephalopoda: Berry, 99.
- Dentition: Gregory, W. K., 6.
- Dinosaurian climatic response: Lull, 15.
- Dinosaurs: Matthew, 4.
- Environment of early vertebrates: Berry, 68.
- Floras: Berry, 14.
- Flowering plants and warm-blooded animals: Berry, 15.
- Fossil plants as evidence for resistance to environment: Wieland, 14.
- General: Grabau, 11; Headstrom, 1; Johnson, J. H., 11; Keyes, 29; Mather, 4; Moodie, 12; Osborn, 42; Parks, 25; Savage, 9; Shimer, 2.
- Geologic climates: Knowlton, 3.
- Geologic evidence: Berry, 42.
- Geologic factors: Mathers, 6.
- Geology and evolution: Nelson, 25.
- Glass-sponge colonies: Clarke, J. M., 15.
- Horse: Loomis, 15; Matthew, 34.

Evolution—Continued.

- Human dentition: Gregory, W. K., 6, 15.
- Human face: Gregory, W. K., 1.
- Man: Baitsell, 1; Huntington, 5; Matthew, 14; Osborn, 9.
- Origin of species: Osborn, 37, 38, 40; speciation and mutation: Osborn, 46.
- Orthogenesis: Osborn, 17.
- Pre-Cambrian life: Brooks, W. K., 1.
- Primitive plants: Schuchert, 14.
- Proboscidea: Osborn, 34.
- Rectigradations and allometrons: Osborn, 39.
- Social evolution: Matthew, 12.
- Stropheodonta demissa, evolution in Snyder Creek shales: Branson, 4.
- Ways of life: Lull, 17.

Excursions.

- Field excursion, New York to Gettysburg: Johnson, D. W., 9.
- Kansas geological field conference: Anon., 67.
- Mississippi College field trip: Morse, W. C., 2.
- Missouri-Iowa: Folger, 1.
- New England intercollegiate geological excursions: Foye, 8, 12, 16-18; Anon., 22.
- sixteenth annual: Cleland, 4.
- New York State colleges: Eaton, H. N., 7.
- Ohio geologists' field trip: Swinnerton, 3.

Exfoliation, a phase of rock weathering: Blackwelder, 10.

Experimental investigations.

- Abstraction of potassium during sedimentation: Watson, J. W., 1.
- Accumulation of oil in sands: Emmons, W. H., 1.
- Bacteria as agents of chemical denudation: Thiel, 11.
- Batholiths: Chamberlin, R. T., 16.
- Bauxite deposits, enrichment: Thiel, 10.
- Bornite-chalcocite intergrowths: Schwartz, 24.
- Calcium carbonate, precipitation: Emmons, R. C., 8.
- Capillarity and oil migration: Russell, W. L., 3.
- Chalcopyrite and cubanite intergrowths: Schwartz, 17.
- Chester series limestones, sedimentary analysis: Lamar, 7.
- Clastic dike intrusion: Jenkins, 13.
- Delta building: Nevin, 2.
- Diffusion in ore genesis: Whitman, 5.
- Direction of stress producing strain: Hubbert, 2.
- Dolomitization: Walker, T. L., 55.
- Eu échelon and arcuate mountains: Link, 5.

Experimental investigations—Continued.

- Enrichment of tungsten ores: Gannett, 1.
- Eolian abrasion of quartz grains: Knight, S. H., 1.
- Epi-anticlinal faults: Link, 2; origin and significance: Link, 1.
- Folding: Chamberlin, R. T., 9.
- Folds, localization: Brown, R. W., 3.
- Fractionation of petroleum during capillary migration: Cook, C. W., 6.
- Fracturing of spheres: Bucher, 6, 8.
- Glacial anticyclone, mechanics: Hobbs, 4.
- Glaciers, model: DeLury, 7.
- Horizontal faulting: Brown, R. W., 4.
- Hydrothermal alteration of silicate minerals: Leonard, R. J., 1.
- Ice crystal markings: Allan, 19.
- Iron ores: Osborne, F. F., 2.
- Joint planes, formation: Wright, F. E., 3.
- Lava, oxidation by steam: Ferguson, J. B., 3.
- Magnetite-martite-hematite, oxidation of: Gruner, 8.
- Mechanics of geologic structures: Mead, 1.
- Molecular migration and mineral transformation: Wandke, 7.
- Motion of glaciers: Chamberlin, R. T., 18.
- Movements of oil and water through sands: Mills, R. V. A., 4.
- Oil shale, relation to petroleum: Van Tuyl, 13.
- Ore minerals, electrical conductivity: Kerr, P. F., 5.
- Over- and under-thrusting: Link, 4.
- Oxidation of iron in magnetite: Twenhofel, L. H., 1.
- Oxidation of sulphides and arsenides: Carmichael, 2.
- Petrifaction of wood: St. John, 1.
- Petroleum, fractionation and decomposition during capillary migration: Cook, C. W., 9.
- effect of pressure on migration and accumulation: Van Tuyl, 14.
- migration and accumulation: Van Tuyl, 12; Weeks, A. W., 1.
- Phosphate deposits, origin: Graham, W. A. P., 1.
- Precipitation of manganese from meteoric solutions: Thiel, 3.
- Pressure, effect on migration of oil: Thomas, E. T., 2.
- Pyrrhotite and pentlandite, relations: Newhouse, 4.
- Rigidity of the earth: Michelson, 1.
- Salt domes, origin: Torrey, P. D., 1.
- Sand grains, rate of wear: Anderson, G. E., 1.
- Shear-zone faulting: Kitson, 1.

Experimental investigations—Continued.

Studies on organic nature of sediments: Trask, 8.

Subsurface relationships in oil and gas fields, experimental studies: Mills, R. V. A., 2, 3.

Thermal stratification of water in sedimentation: Kindle, 45.

Thrust faulting, process: Quirke, 5.

Underthrusting: MacCarthy, 7.

Varves, formation: Fraser, H. J., 1.

Explorations.

Smithsonian: Smithsonian Inst., 1.

Faceted pebbles, North River, Virginia: Steidtmann, 6.

Falcon Lake district, Manitoba: DeLury, 2.

Fall line, eastern United States: LaForge, 1; Renner, 1, 2.

Farnham anticline, Carbon County, Utah: Clark, F. R., 2.

Fault troughs: Taber, 15.

Faulting.

Alaska, Kennecott: Lasky, 1.

Alberta, Rocky Mountains: MacKenzie, J. D., 4.

Anthracite basins, Pennsylvania: Kemp, 10.

Antilles, fault troughs: Taber, 6.

Appalachians: Chamberlin, R. T., 19.

Arizona, northwestern: Longwell, 12.

Ray quadrangle: Ransome, 11.

Ray-Miami region: Ransome, 1.

Association of faulting with dike intrusion: Sheldon, 3.

Basin Range faults: Buwalda, 16; in Oquirrh Range, Utah: Gilluly, 5.

Basin Ranges: Taber, 12.

Basin Range structure: Gilbert, G. K., 1.

Block faulting, St. Croix Valley, Minnesota: Peterson, E., 1.

southeastern Minnesota: Sarde-
son, 28.

British Columbia, Rocky Mountain
trench: Shepard, 2, 11.

California: Willis, 27.

Blackhawk Canyon, San Bernardino
Mountains: Woodford, 7.

Coast Ranges: Willis, 15, 20.

fault map: Willis, 10, 13, 17.

Haywards fault: Russell, R. J., 2.

Inglewood fault zone: Taber, 10.

Livermore region: Vickery, 3.

Matilija overturn: Kerr, P. F., 7.

Mohave Desert, thrust faulting:
Hewett, 18, 20.

Mount Diablo region, thrust fault-
ing: Clark, B. L., 10, 12.

Salton Basin: Brown, J. S., 1.

Salton Sea region: Brown, J. S., 3.

San Andreas rift: Noble, 9; Willis,
7.

San Benito County: Kerr, P. F., 4.

San Gabriel Mountains: Kew, 7.

San Gabriel Valley region: Johnson,
H. R., 1.

southeastern: Noble, 7.

Faulting—Continued.

California—Continued.

southern: Davis, W. M., 33; Hill,
R. T., 2, 8.

southwestern Sierra Nevada: Hake,
2.

Surprise Valley: Russell, R. J., 6.

Ventura County, Matilija overturn:
Kerr, 7.

Warner Range: Russell, R. J., 6.

Champlain Valley, northern: Hudson,
G. H., 1.

Colorado, Big Thompson River valley:
Fuller, M. B., 2.

Gunnison River: Hunter, J. F., 1.

Leadville mining district: Emmons,
S. F., 1.

San Luis Valley: Burbank, 2.

Williams thrust fault: Lovering, 6.

Connecticut, Triassic: Foye, 9; Rus-
sell, W. L., 1.

Curvature of faults: Washburne, 12.

Dynamics: Reid, 17.

Elastic rebound theory: Lawson, 1.

Epi-anticlinal faults: Higgins, 2; Link,
2; origin and significance: Link, 1.

Experimental investigation: Mead, 1.

Fault problems, solution: Douglas,
G. V., 5.

Fault surface: Geijer, 6.

Faults, active, criteria for recognizing:
Taber, 8.

Faults and folds, relation: Washburn,
10.

Fissure veins, cause: Keyes, 15.

Fracturing of incompetent beds: Lov-
ering, 8.

General: Chamberlin, R. T., 7, 11;
Taber, 15; Willis, 11.

Great Basin: Louderback, 7.

Great Basin faults, age: Louderback, 2.

Great Smoky overthrust: Keith, 5.

Greater Antilles: Taber, 11.

Horizontal faulting: Brown, R. W., 4.

Idaho, Fort Hall Indian Reservation:
Mansfield, G. R., 3.

northern: Umpleby, 4.

Osburn fault; Umpleby, 5.

Pine Creek district: Jones, Ed. L., 1.

southeastern: Mansfield, G. R., 4, 11,
29.

Illinois, Alto Pass area: Ekblaw, 2.

Hardin County: Weller, S., 1.

Intersection of faults: Washburne, 9.

Iowa: Keyes, 137.

Cass County: Tilton, 3.

southwestern, Thurman-Wilson
fault: Tilton, 1.

Isostatic compensation a cause of
thrusting: Lawson, 2.

Kansas, eastern: Fath, 1.

Kentucky: Jillson, 60.

Cave in Rock quadrangle: Weller, 16.

Golconda quadrangle: Weller, 4.

north central: Miller, A. M., 15.

western: Currier, 2.

Faulting—Continued.

- Keystone faults: Crosby, W. O., 4.
- Landslide origin of thrust faults around Bearpaw Mountains: Reeves, F., 11.
- Massachusetts, Mount Toby, postglacial: Loomis, F. B., 4.
- Missouri, southeastern, thrust faulting: Flint, 3.
- Mohave Desert, thrust faults: Hewett, 18, 20.
- Montana Bearpaw Mountains: Reeves, F., 9.
- belt of oblique faulting: Chamberlin, R. T., 2.
- Billings area: Moulton, 2.
- faulted area south of Bearpaw Mountains: Reeves, F., 8.
- Nevada, Muddy Mountain overthrust: Longwell, 3.
- southern: Keyes, 148; Longwell, 8, 12.
- western: Ferguson, H. G., 7.
- Newfoundland, Wabana ore deposits: Gillhatt, 1.
- western, thrust faulting: Mook, 9.
- New Hampshire, Ammonoosuc district: Ross, C. P., 2.
- New Mexico, Sandia Mountains: Ellis, R. W., 2.
- New York, Cayuga Lake region: Long, 1.
- Lake Placid quadrangle: Miller, W. J., 1.
- Orleans County: Chadwick, 6.
- Schroon Lake quadrangle: Miller, W. J., 2.
- West Point quadrangle: Berkey, 3.
- Normal faulting, cause: Shepard, 7; Washburne, 14, 15; on upthrust arches: Willis, 28.
- Oklahoma, Creek and Osage counties: Foley, 1; Ickes, 3.
- northeastern: Fath, 1.
- Ontario, French River district, postglacial: Hobbs, 10.
- Kirkland Lake fault: Tyrrell, 7.
- Sudbury nickel district: Hitchcock, 1.
- Over and under-thrusting: Link, 3, 4.
- Overthrusting, Green Mountains: Foye, 1.
- southeastern Idaho: Mansfield, G. R., 33.
- Overthrusts and underdrags: Davis, 7.
- Overthrusts in Appalachians: Keith, 7.
- Pennsylvania, Northampton County slate belt: Behre, 6.
- Rocky Mountain region: Irwin, 2; Mansfield, 15.
- overthrust faulting: Flint, R. F., 1.
- Rocky Mountain structure: Willis, 20.
- Shear-zone faulting: Kitson, 1.
- Tennessee, Emory River overthrust: Jillson, 43.
- Terminology: Hubbert, 1.
- Terrestrial and lunar faults compared: Schwarz, 1.

Faulting—Continued.

- Texas, Balcones fault zone: Sellards, 8.
- Balcones and Mexia faulting, mechanics: Foley, 2.
- northeastern: Fohs, 2.
- Thrust faulting: Keyes, 39.
- adjacent to Highwood Mountains, Montana: Reeves, F., 12.
- in Basin ranges: Keyes, 228.
- in Mojave Desert: Hewett, 20.
- process: Quirke, 4, 5.
- Underthrusting: MacCarthy, 7.
- Upthrust faulting: Willis, B., 1.
- Utah: Butler, 4.
- Bear River Range fault: Bailey, R. W., 1.
- Oquirrh Range: Gilluly, 7.
- Sevier Valley: Young, J. W., 2.
- Wasatch fault: Pack, 7.
- Wasatch front: Stillman, 1.
- Wasatch Mountains: Schneider, H., 2; Cottonwood district, thrust faulting: Calkins, F. C., 1.
- Wasatch region: Butler, B. S., 1.
- Veining along faults, Pennsylvanian sandstones, Oklahoma: Hoffman, M. S., 2.
- Velocity of slipping of normal faults: Washburne, 13.
- Vermont, western: Gordon, C. E., 1, 4.
- Virginia, Appalachians, broad thrust fault: Campbell M. R., 7.
- Russell Fork fault: Wentworth, 3.
- southwestern, overthrust and fensters: Butts, 10.
- Wyoming, Elk Basin: Washburne, 11.
- Heart Mountain overthrust: Hewett, 4.
- northwestern: Dake, 5.
- Faults, active, criteria for recognizing: Taber, 8.
- Feldspar.
- Canada: Eardley-Wilmot, 2; Spence, 8.
- Maryland: Singewald, 5.
- mineralogy: Alling, 3, 5.
- New York, Newland, 2.
- Ontario, Ottawa district: Davis, N. B., 1.
- Lanark County: Campbell, A. M., 1.
- Pacific Northwest: Wilson, H., 1.
- plagioclase, determination: Goranson, 2.
- Quebec, Buckingham district: Rowe, R. C., 1.
- Quetachou Manicouagan Bay region: Erlenborn, 1.
- Feldspar determination of metamorphic rocks: Carlson, 1.
- Fensters.
- Virginia, Powell Valley: Giles, 8, 9.
- southwestern: Butts, 10.
- Fiedmont and Dubuisson map areas, Quebec: James, 7.
- Field geology: Lahee, 8.

Field work.

- Airplane photographs, use in field work: Campbell, M. R., 8.
- Airplanes for geologic exploration: Renick, 7.
- Canada, mapping pre-Cambrian areas: Bruce, 6.
- Collecting in the bad lands: Johnston, W. D., 1.
- Compass: Plummer, 3.
- Dip and strike, determination: Smith, W. S. T., 2.
- Dip needle, use: Aldrich, H. R., 1.
- Field mapping for oil geologist: Warner, C. A., 1.
- Field methods in petroleum geology: Lahee, 6.
- Kodak adapted for detail work in field: Wentworth, 7.
- Loose-leaf system for field maps and notes: Rich, 4.
- Magnetic methods for exploration: Hotchkiss, 5.
- Measuring folded beds: Hewett, 6.
- Note book and symbols for petroleum geologists: Woodruff, 2.
- Phenol red, use of: Wherry, 4.
- Photography for the field geologist: Blackwelder, 12.
- Reconnaissance mapping: Fuller, M. L., 2.
- Recording machines: Dodge, 1.
- Recording underground data: Wilson, P. D., 4.
- Smithsonian Institution: Smithsonian Inst., 1.
- Stereoscopic photography in geologic field work: Wright, F. E., 6.
- Subsurface contouring: Bloesch, 2.
- Surveying methods: Taylor, 1.
- Working plans in field operations: Keyes, 178.
- Finger Lakes, origin: Fairchild, 20.
- Fjords.
 - Alaska, Lynn Canal: Martin, L., 2.
 - Greenland: Koch, 2.
- Fire clay.
 - Illinois: Parmelee, 1.
 - Kentucky, eastern coal field: Ries, 7.
 - northeastern: Jillson, 75.
 - Maryland: Hall, G. M., 2; Watts, A. S., 1.
 - western: Mathews, 4.
 - Pennsylvania: Shaw, J. B., 1.
 - Pennsylvanian fire clays, origin: Hodson, F., 2.
- Fishes. See Pisces.
- Fissility of shale: Lewis, 9.
- Fissures. See Faulting.
- Five Islands, Louisiana: Vaughan, F. E., 2.
- Flinflon area, Manitoba and Saskatchewan: Alcock, 11.
- Flinflon ore body, Manitoba: Wallace, 5.
- Flint.
 - Definition: Glock, 1.
 - Origin: Tarr, 15.

Florida.

- State geologist's report: Gunter, 1, 2, 5, 7, 9, 10; Sellards, 1.
- Sea beach observations: Kemp, 2.
- Southern Florida: Harper, 3.
- Economic geology.*
 - Clays: Bell, O. G., 1.
 - Coquina: Brodie, 1.
 - Gypsum: Stone, 11.
 - Ilmenite, zircon, and rutile beach deposits: Martens, 9.
 - Limestones and marls: Mossom, 1.
 - Mineral production: Gunter, 1, 2, 5, 7-10.
 - Mineral resources: Gunter, 6.
 - Oil possibilities: Hill, E. A., 2; Sellards, 12.
 - Phosphate deposits: Hess, 29; Sellards, 24.
 - Sand and gravel deposits: Martens, 8.
- Historical geology.*
 - Basement rocks in boring: Gunter, 12.
 - Comanchean formations underlying Florida: Sellards, 6.
 - Cretaceous age of underlying limestones: Cushman, 4.
 - Cretaceous formations of borings: Gunter, 4.
 - DeLand sections: Macbride, T. H., 1.
 - General: Gunter, 3, 11; Mossom, 1, 2; Sellards, 4, 5, 12.
 - Everglades, sections across: Sellards, 3.
 - Pleistocene deposits, stratigraphy and age: Cooke, C. W., 19.
 - Tertiary and Quaternary: Mansfield, W. C., 1.
 - Underlying rocks: Cushman, 2.
 - Vero deposits, age: Chamberlin, T. C., 3; Hay, 40.
 - Vero and Melbourne deposits: Gidley, 9; age: Hay, 36.
 - Vero, Melbourne, and St. Petersburg deposits: Cooke, C. W., 16.
- Paleontology.*
 - Alum Bluff group, molluscan fauna: Gardner, J. A., 7.
 - Artifacts associated with Elephas, Melbourne: Loomis, 12.
 - Bear, Pleistocene: Gidley, 12.
 - Beetles, Vero: Wickham, 1.
 - Cetacea, phosphate beds: Allen, G. M., 3.
 - Corbula, Miocene: Gardner, J. A., 8.
 - Coskinolina and Dictyoconus?: Moberg, 1.
 - Foraminifera: Cushman, 12.
 - Fresh-water mollusks: Marshall, W. B., 1.
 - Gavial: Mook, 1.
 - Gavialosuchus americana: Mook, 7.
 - Human remains, Vero: Gidley, 8; Hrdlička, 1; Loomis, 16; Sellards, 2; Sterns, 1.
 - Littonella and Coskinolina: Cushman, 31.

Florida—Continued.

Paleontology—Continued.

- Mammal faunas: Matthew, 31.
- Mammalian and fish remains: Hay, 1.
- Melbourne artifacts, antiquity: Holmes, W. H., 1.
- Miocene Foraminifera: Cushman, 9.
- Mollusca, St. Lucie Canal: Johnson, C. W., 1.
- Operculina and Discocyclina, Ocala limestone: Vaughan, 49.
- Operculina and Heterostegina: Cushman, 10.
- Physa, Pleistocene: Clench, 1.
- Pleistocene mammals, Citrus County: Simpson, G. G., 26.
- Pleistocene man, Vero: Hay, 44.
- Pleistocene vertebrates, Vero, age: Hay, 36.
- Sea cow, *Metaxytherium floridanum*: Hay, 11.
- Sperm whale, Miocene(?) : Cobb, C., 5.
- Tertiary and Quaternary: Mansfield, W. C., 1.
- Testudo sellardsi: Loomis, 17.
- Turtles, Pleistocene: Gilmore, 30.

Physical geology.

- Coquina: Brodie, 1.
- Humic-acid origin of asphalt: Hase-man, 1.

Physiographic geology.

- Central Florida: Harper, 2.

Underground water.

- Chemical character of waters: Collins, W. D., 6.

Fluorite, optical, southern Illinois: Pogue, 3.

Fluorspar.

- Arizona: Allen, M. A., 4.
- Canada: Eardley-Wilmot, 2.
- Colorado: Aurand, 1; Boulder County: Hibbs, 1.
- General: Allen, M. A., 4; Burchard, 5; Ladoo, 5.
- Illinois, Elizabethtown: Schwerin, 2.
- Hardin County: Weller, S., 1.
- Illinois-Kentucky field: Fay, 2; Fellman, 1; Schwerin, 1.
- Kentucky: Jillson, 25; Miller, A. M., 1.
- Mexico: Wittich, 13.
- San Luis Potosi, Guadalcazar: Wittich, 5.
- New Mexico: Johnston, W. D., 4.
- Ontario, Madoc district: Wilson, M. E., 6, 9.

Folding.

- Adirondacks: Buddington, 2.
- Anthraxite basins, Pennsylvania: Kemp, 10.
- Appalachians: Chamberlin, R. T., 19.
- British Columbia, Rocky Mountain trench: Shepard, 11.
- California, Livermore region: Vickery, 3.

Folding—Continued.

- Canadian Rocky Mountain front ranges: Keyes, 44.
 - En échelon and arcuate mountains: Link, 5.
 - Experimental investigation: Mead, 1.
 - Experiments in folding: Chamberlin, R. T., 9.
 - Faults and folds, relation: Washburne, 10.
 - Folds from vertically acting forces: Robinson, W. I., 1.
 - Folds of Osage type, occurrence: Brown, R. W., 2.
 - General: Chamberlin, R. T., 11; Willis, 27.
 - Idaho, southeastern: Mansfield, G. R., 11, 29.
 - Kansas, eastern: Fath, 1.
 - Lake Erie region: Decker, C. E., 1.
 - Measuring folded beds: Hewett, 6.
 - Minor folds: Decker, C. E., 1.
 - Montana, Bearpaw Mountains: Reeves, F., 7, 9.
 - Newfoundland, Wabana ore deposits: Gillatt, 1.
 - Oklahoma, northeastern: Fath, 1.
 - origin: Foley, 3.
 - Osage County: Millikan, 1; origin, Brown, R. W., 1; Kitson, 2.
 - Pennsylvania, Northampton County slate belt: Behre, 6.
 - Plains type of folding: Powers, 25.
 - Pre-Cambrian: Miller, W. J., 21; Ruedemann, R., 1.
 - Rocky Mountains: Flint, R. F., 1.
 - Siouan fold: Keyes, 44.
 - Types of folding: Ickes, 1.
 - Utah, Wasatch front: Stillman, 1.
 - Wasatch Mountains: Schneider, H., 2.
 - Wyoming: Ball, M. W., 1.
 - Lost Soldier-Ferris district: Fath 3.
 - northwestern: Dake, 5.
- Foliation, New York, Lewis County: Buddington, 2.
- Foliation of rocks, origin: Alling, 9.
- Footprints.
- Arizona, Grand Canyon: Gilmore, 26, 27, 32, 33, 35, 36, 37.
 - Colorado, Pennsylvanian sandstones: Henderson, J., 5.
 - Connecticut, North Branford: Lull, 19.
 - Connecticut Valley: Abel, 4; Grier, 4.
 - Dinosaur tracks, Cretaceous, Utah and Colorado: Peterson, W., 1.
 - Edmonton formation, Alberta: Sternberg, C. M., 6.
 - Hamilton County, Texas: Wrather, 5.
 - Kansas, coal measures: Martin, H. T., 2, 4.
 - General: Adams, L. A., 3.
 - Mammal tracks, Paskapoo beds, Alberta: Rutherford, 7.
 - Massachusetts, Attleboro: Lull, 5.

Footprints—Continued.

- Montana, Fort Union formation: Gilmore, 41.
 Nevada, Carson footprints, origin: Stock, 4.
 Ohio, Pennsylvanian: Carmen, 3.
 Onychopus, nomenclature: Keyes, 196.
 Texas: Moodie, 27.
 Abilene: Gould, C. N., 28.
 Thinopus antiquus: Morton, 1.

Foraminifera.

- Bibliography: Cushman, 22.
 Biostratigraphic aspect of micropaleontology: Schenck, 11.
 Bolivinita, Pliocene, California: Church, 1.
 Byram marl, Mississippi: Cushman, 13.
 California, Eocene, Coalinga: Cushman, 32.
 Monterey shale: Hanna, G. D., 38.
 Palos Verdes Hills, Pleistocene: Galloway, J. J., 8.
 San Diego, Eocene: Cushman, 29.
 Vacaville, Eocene: Hanna, G. D., 10.
 Ventura County, Adams Canyon: Driver, 2.
 Caribbean region: Vaughan, 21.
 Change in ideas about Foraminifera: Galloway, J. J., 12.
 Classification: Cushman, 28; and economic use: Cushman, 41; and nomenclature: Galloway, J. J., 6.
 Climacamina, Pennsylvanian, Texas: Cushman, 42.
 Contributions from Cushman Laboratory: Cushman, 22.
 Correlation by Foraminifera: Decker, 9; Galloway, J. J., 7.
 Coskinolina and Dictyoconus?, Florida: Moberg, 1.
 Costa Rica, Miocene: Palmer, K. V. W., 4.
 Cretaceous, Canada: Cushman, 33.
 Cretaceous figured by Ehrenberg: Cushman, 40.
 Description: Cushman, 35.
 Dictyoconus, Eocene, Haiti: Woodring, 2.
 Discocyclina, California: Schenck, 10.
 Ehrenberg collection: Cushman, 39.
 Ehrenbergina: Cushman, 27.
 Elphidium, west coast, Tertiary and Quaternary: Cushman, 34.
 Evolutionary changes, use in correlation: Thomas, N. L., 2.
 Elabellamina alexanderi, Cretaceous, Texas, time range: Alexander, C. I., 3.
 Florida: Cushman, 2, 9, 12.
 Fort Dodge beds, Iowa, origin: Lees, 12.
 Fournière area, Abitibi County, Quebec: James, 5.
 Fusulina, distribution: Searight, 2.
 Fusulinella, Stonefort limestone, Illinois: Henbest, 1.

Foraminifera—Continued.

- Fusulinidae, Pennsylvania, Nebraska: Dunbar, 11.
 General: Cushman, 22, 41.
 Gulf Coastal Plain wells: Applin, E. R., 1.
 Guembelina, changing character: Thomas, N. L., 3.
 Haiti, Eocene: Woodring, 6.
 Hantkenina, Eocene: Cushman, 17, 19.
 range: Howe, H. V., 10.
 Jamaica Tertiary: Vaughan, 46.
 Lepidocyclina: Vaughan, 44.
 Lepidocyclina, revision: Douvillé, 3.
 Lepidocyclina and Carpenteria, Cayman Islands: Vaughan, 42.
 Lepidocyclina chapperi, Panama: Vaughan, 41.
 Lepidocyclina mantelli and Nummulites floridanus: Vaughan, 48.
 Lepidocycline Foraminifera, embryonic and meridional chambers: Vaughan, 30.
 Lituonella and Coskinolina: Cushman, 31.
 Mexico: Cushman, 36.
 Chapapote formation: Cole, W. S., 2.
 Guayabal formation: Cole, W. S., 1.
 Moctezuma River, Eocene: Cushman, 21.
 southern, Tertiary: Nuttall, 2.
 Tampico Embayment area: White, M. P., 1; Velasco shale: Cushman, 26.
 Vera Cruz, Idolo Island: Dumble, 6.
 Mississippi, Byram: Cushman, 6, 7.
 Hiwannee, Red Bluff clay: Howe, H. V., 11.
 Mint Spring marl: Cushman, 14.
 Morphology and classification: Cushman, 23.
 Oklahoma, Carter County, Dornick Hills formation: Waters, J. A., 1.
 Glenn formation: Harlton, 2.
 Pennsylvanian: Galloway, J. J., 13; Harlton, 3.
 Operculina and Discocyclina, Ocala limestone, Florida: Vaughan, 49.
 Operculina and Heterostegina: Cushman, 10.
 Orbitoidal Foraminifera, morphologic nomenclature: Schenck, 2.
 structure and phylogeny: Galloway, J. J., 11.
 Orbitoides: Douvillé, 1.
 evolution in America: Douvillé, 2.
 Orbitoididae, revision: Galloway, J. J., 10.
 Oregon, Coast range: Cushman, 44.
 Orthophragmina: Cushman, 11.
 Orthophragmina and Lepidocyclina: Cushman, 8.
 Panama, Haut Chagres: Vaughan, 41.
 Phylogenetic studies: Cushman, 30, 38.
 Polylepidina: Galloway, J. J., 9.

Foraminifera—Continued.

- Picking out and sectioning Foraminifera: Hudson, F., 1.
- Pseudotextularia and Guembelina: Cushman, 20.
- Quebec, Gaspé, Bonaventure cherts: Bagg, 1.
- Schwagerina: Beede, 9.
- Siphogenerina and Pavonina: Cushman, 25.
- Siphonina and related genera: Cushman, 37.
- Slide for holding Foraminifera: Thomas, E. T., 3.
- Stellate Orthophragmina, nomenclature: Hodson, H. K., 1.
- Stratigraphic correlation value: Cushman, 5.
- Tertiary: Vaughan, 35; larger: Vaughan, 51.
- Texas, Canyon division: Waters, J. A., 2.
- Carboniferous, Sutton County: Cushman, 45.
- central, Cretaceous: Carsey, 1.
- Eagle Ford formation: Moreman, 2.
- Jackson beds: Cushman, 24; Dumble, 7.
- Midway formation: Plummer, H. J., 1.
- Pennsylvanian: Harlton, 3.
- Yegua formation: Stadnichenko, M. M., 1.
- Trinidad: Hodson, H. K., 2.
- Naparima region: Nuttall, 1.
- Use in correlation: Cushman, 18; Dumble, 3; Hanna, G. D., 14.
- Use in determining underground structure: Cushman, 15.
- Vicksburg group: Cushman, 16.
- Washington, Lewis County, Eocene: Hanna, G. D., 18.
- West Indies: Cushman, 3.
- Yaberinella jamaicensis, Jamaica: Vaughan, 47.
- Zonal value: Vaughan, 23.
- Formation thicknesses, determination: Ickes, 2.
- Formations. See Geologic formations.
- Fort Dodge gypsum, Iowa: Lees, 3.
- Fossil, use of term: Field, 3, 4; Miller, A. M., 7, 8.
- Fossil bone, mineralogy and petrography: Rogers, A. F., 19.
- Fossil forests. See Petrified forests.
- Fossilization.
- Wood, replacement by dolomite: Adams, S. F., 1.
- Wood turned to opal: Whitlock, 6.
- Fossils. See Paleontology.
- Foundry sands.
- Minnesota: Knapp, G. N., 1.
- Fracturing of incompetent beds: Lovering, 8.
- Framework of the earth: Davis, W. M., 2; Leighton, H., 1.

Franklin.

Mineralogy.

- Prehnite, Admiralty Inlet, Baffinland: Simmersbach, 2.
- Franklin Mountains, Mackenzie: Williams, M. Y., 16.
- Frazier River Delta map area: Johnston, W. A., 17.
- Fulgurites.
- General: Anderson, A. E., 1.
- Nebraska: Anderson, A. E., 1; Barbour, 4.
- manganese: Cook, H. J., 5.
- New Jersey, South Amboy: Myers, 3.
- Fuller's earth.
- Illinois, Pulaski County: Lamar, 10.
- Fumaroles.
- Alaska, Katmai region, chemical study: Allen, E. T., 2.
- Fundamental problems of geology: Chamberlin, T. C., 30, 42.
- Fused cores: Ross, C. S., 4.
- Gabbros, Maryland, Harford County: Insley, 1.
- Galena limestone: Keyes, 52.
- Galena Hill, Mayo district, Yukon: Stockwell, 1.
- Gallup-Zuni Basin, New Mexico: Sears, 6.
- Ganister.
- Wisconsin, Baraboo deposits: Hotchkiss, 6.
- Garnet: Eardley-Wilmot, 8; Myers, 2.
- Mineralogy: Myers, 4.
- New York: Newland, 2.
- North Carolina: Katz, 1.
- Gas. See Natural gas.
- Gastropoda. See also Mollusca.
- Bermuda, Poecilozonites: Pilsbry, 2.
- Caecum, protoconchs, Miocene, Maryland: Berry, E. Will., 2.
- Bathmopterus, Silurian, Alaska: Kirk, 11.
- California, Etchegoin Pliocene, Scalez: Hanna, G. D., 12.
- Gabb's types: Stewart, R. B., 1.
- Pliocene: Carson, 2.
- Rancho La Brea, Succinea avara: Hanna, G. D., 11.
- Cassididae, western America: Schenck, 3.
- Conularia rugosa, Lockport limestone, Hamilton, Ontario: Dyer, 1.
- Costa Rica, northern, Miocene: Olsson, 1.
- Florida, fresh-water mollusks: Marshall, W. B., 1.
- Helicina occulta, Iowa: Shimek, 1.
- Jamaica, Bowden, Miocene: Woodring, 22.
- Maclurella, Ordovician, Colorado: Kirk, E., 8.
- Metaconularia: Foerste, 24.
- Michigan, Devonian: Ehlers, 5.
- Ohio, Guelph formation: Foerste, 14.
- Olivella, California: Oldroyd, 2.
- Ontario, Toronto area: Parks, 9.

Gastropoda—Continued.

Oregon, John Day region, Miocene:
Hanna, G. D., 4.

Orthaulax: Cooke, C. W., 6.

distribution: Cooke, C. W., 2.

Haiti, Porto Rico, and Cuba: Woodring, 4.

Palliseria, upper Ordovician, British Columbia: Wilson, A. E., 3.

Physa, Pleistocene, Florida: Clench, 1.

Pleistocene, California: Oldroyd, T. S.,

1; Santa Barbara: Palmer, K. V. W., 2.

Illinois: Baker, F. C., 6.

Rimella-like gastropods, west coast:
Clark, B. L., 7.

San Pedro fauna, Nob Hill cut, California: Oldroyd, T. S., 3.

Scaletz petrolia: Hanna, 28.

Silurian, Illinois, northeastern: Wing, 1.

Texas, Pleistocene fresh-water mollusks: Hanna, G. D., 9.

trails in Pennsylvanian sandstones:
Powers, 10.

Trails: Raymond, 15.

Trinidad, Miocene: Mansfield, W. C., 2.

Trophosyon, west coast: Gale, H. R., 1.

Turritella, Buda and Georgetown limestones, Texas: Ellisor, 1.

Miocene, Virginia: Gardner, J. A., 14.

Turritellas, distribution in tropical America: Woodring, 20.

Viviparus-like opercula, Pliocene, California: Woodring, 14, 15.

Geanticlines: Schuchert, 22.

Gel replacement: Lindgren, 15.

Gels, function in the formation of quartz and carbonate veins: Merritt, C. A., 2.

Gems: Schaller, 2.

Maine: Marble, 1.

United States National Museum collection: Merrill, 18.

Gems and gem materials: Kraus, 5.

Genesis of ores. See Ore deposits, origin.

Geneva map area, Sudbury district, Ontario: Quirke, 7.

Geochemistry.

Abstraction of potassium during sedimentation: Watson, J. W., 1.

Alaska, Katmai region, fumaroles: Allen, E. T., 2.

Alkalies in rocks and minerals, determination: Shannon, 72.

Analyses of natural waters, index: Collins, W. D., 5.

Analysis of gases from volcanoes and from rocks: Shepherd, 3.

Aragonite deposited from sea water: Wells, 4.

Bacteria as agents of chemical denudation: Thiel, 11.

Calcium carbonate, precipitation: Emons, R. C. 8.

Geochemistry—Continued.

Calcium sulphates, physical chemistry: Bowles, 4.

Chemical composition of the earth: Washington, 31.

Chemistry of the earth's core: Barnett, 1.

Colloid chemistry of minerals and ore deposits: Lindgren, 10.

Colloids in geologic problems: Hubbard, G. D., 2.

Color of sedimentary rocks: Hagar, D. S., 3.

Concentration and circulation of the elements: Lindgren, 9.

Copper deposition from ascending solutions: Wells, 11.

Corundum, genesis: Cobb, M. C., 2.

Data of geochemistry: Clarke, F. W., 1, 5.

Direct synthesis of higher from lower hydrocarbons: Thom, 9.

Dolomites, chemical study: Knight, N., 1.

Earth's crust, composition: Washington, 4.

Evolution and disintegration of matter: Clarke, F. W., 6.

Humic acid origin of asphalt: Hase-man, 1.

Hydrothermal alteration of silicate minerals: Leonard, R. J., 1.

Igneous rocks, average chemical composition: Clarke, F. W., 3.

Intraformational phosphate pebbles: Pettijohn, 1.

Invertebrates, inorganic constituents: Clarke, F. W., 2.

Iron protores, leaching of: Lovering, 1.

Iron sulphide in coal and other sedimentary rocks: Newhouse, 3.

Iron-stained sands and clays: MacCarthy, 4.

Kaolin, Indiana, origin: Bucher, 5.

Kilauea, Hawaii, gases, composition: Shepherd, 1.

Killarney, magma, Sudbury, Ontario: Bain, 19.

Lava, oxidation by steam: Ferguson, J. B., 3.

Limestone, decomposition: Miller, B. L., 10.

Magnetite: Gruner, 10.

Mauna Loa, Hawaii, gases: Shepherd, 2.

Metasomatic processes in silicate rocks: Goldschmidt, V. M., 1.

Metasomatism: Lindgren, 16.
physico-chemical theory of: Boydell, 3.

Mineral sulphide water, analysis: Fairchild, J. G., 1.

Mineralization of the Platteville-Decorah contact zone, Minneapolis-St. Paul region, Minnesota: Stauffer, 6.

Geochemistry—Continued.

- Natural reduction of sulphates: Bastin, 15.
 - Observatories, need for: Jaggar, 5.
 - Oil, gas, and water, relations in Sunset-Midway field, California: Rogers, G. S., 1.
 - Oxidation of iron in magnetite: Gilbert, G., 6.
 - Oxidation of sulphides and arsenides: Carmichael, 2.
 - Oxidation products from chalcopyrite: Blanchard, R., 2.
 - from sphalerite and galena: Boswell, 1.
 - Oxygen minerals and sulphur minerals in ore deposits, relations: Butler, 9.
 - Pacific volcanoes, chemistry: Washington, 6.
 - Petroleum, minor constituents: Wells, 12.
 - Petroleum, silica, and water, geochemical relations: Nutting, 1.
 - Petroleum and the filtering earths: Nutting, 4.
 - Petroleum of California, chemical characteristics: Prutzman, 1.
 - Phosphorus in California petroleum: Palmer, C., 1.
 - Platinum at high temperatures and pressures: Shaw, 9.
 - Precipitation of manganese from meteoric solutions: Thiel, 3.
 - Problems: Sosman, 4, 5.
 - Pyrite and marcasite, alternating deposition: Tarr, 18.
 - Quality of oil, relation to structure: Ley, 1.
 - Reaction between ferrous and cuprous salts: Wells, 10.
 - Red color in sediments: Raymond, 34.
 - Red color of rocks, loss: Moulton, 23.
 - Red and lake waters, composition: Clarke, F. W., 5.
 - Sedimentation: Steiger, 1.
 - Selective adsorption of water and hydrocarbons by silica and silicates: Nutting, 5.
 - Silica, solution and precipitation in cold water: Lovering, 1.
 - Silicate and carbonate rocks, analysis of: Hillebrand, 1.
 - Status and problems of geophysical chemistry: Sosman, 6.
 - Sulphide ores, genesis: Freeman, H., 1.
 - Syngenetic pyritization: Tarr, 19.
 - Uranium-thorium-lead determination: Fenner, 11.
 - Volcanism, chemical aspects: Allen, E. T., 1.
- Geodes.
- Origin: Van Tuyl, 8.
- Geologic climate. See Paleoclimatology.
- Geodetic work, value to geology: Bowle, 8.
- Geographic cycle: Davis, 8.

Geographic distribution.

- Bear family: Merriam, 6.
 - Iowa, Devonian echinoderms: Thomas, 16.
 - Pleistocene mammals: Hay, 23, 39.
 - Proboscidea: Osborn, 15.
 - Stringocephalus: Kirk, E., 7.
- Geologic climate. See Paleoclimatology.
- Geologic column; France, Britain, Germany, United States: Lane, 3.
- Geologic formations, tables. See also Correlation.
- Alabama: Jones, W. B., 6, 13.
 - southern: Harper, 1.
 - Alaska, Jurassic: Moffit, 7.
 - Matanuska Valley: Capps, 11.
 - northern, Canning River region: Leffingwell, 1.
 - Alberta: Irwin, 1.
 - Banff area: Warren, P. S., 4.
 - Bow River between Cochrane and Kananaskis: Rutherford, 6.
 - Cypress Hills: Dyer, 9.
 - foothills belt: Allan, 13; between McLeod and Athabasca rivers: Rutherford, 4.
 - lower Smoky River: McLearn, 1.
 - southwestern: Stewart, J. S., 1.
 - Saunders Creek and Nordegg coal basins: Allan, 9.
 - Sheep River area: Slipper, 2.
 - Turner Valley oil area: Hume, 22.
 - Wainwright-Vermillion area: Hume, 19.
 - Alberta and British Columbia, foothills belt: Hopkins, O. B., 4.
 - Antigua: Earle, 1.
 - Arizona: Keyes, 83.
 - Grand Canyon district: Moore, R. C., 26.
 - northwestern: Shimer, 2.
 - southwestern: Reeside, 4.
 - Arkansas, Batesville district: Miser, 5, 8.
 - Hot Springs district: Purdue, 1.
 - southern: Hull, 10.
 - Ozark region: Croneis, 5.
 - British Columbia, Ainsworth district: Schofield, 4.
 - Bridge River area: McCann, 3, 4.
 - Cariboo district, Barkerville area: Johnston, W. A., 22; Uglow, 9.
 - coast region: Dolmage, 9.
 - Coquihalla area: Cairnes, 4.
 - Dease Lake area, Cassiar district: Kerr, F. A., 1.
 - Eutsuk Lake area, Coast district: Marshall, J. R., 3.
 - Fraser River Delta: Johnston, W. A., 17.
 - Harrison Lake district: Crickmay, 5.
 - Hat Creek coal area, Kamloops district: MacKay, B. R., 5.
 - Kamloops district, North Thompson valley: Uglow, 3.

Geologic formations, tables—Continued.

British Columbia—Continued.

Kitsault River to Skeena River: Hanson, 3.

Lasqueti Island: MacKenzie, J. O., 3.

Lillooet-Prince George region: Reinecke, 3.

northeastern: Stewart, J. S., 2.

Peace River district: Spieker, 1.

Purcell Range west of Brisco, Kootenay district: Walker, J. F., 2.

Rocky Mountain trench: Shepard, 11.

Rocky Mountains: Schofield, 6.

Salmon River district: Schofield, 11.

Slocan area: Bancroft, M. F., 2.

southeastern: Schofield, 12.

Vancouver Island, Alberni area: MacKenzie, 7; Barkley Sound: Dolmage, 2.

Windermere area, Kootenay district: Walker, J. F., 1.

Zymoetz River area, Coast district: Hanson, 11.

California: Vander Leek, 1.

Los Angeles Basin: Eaton, J. E., 3.

San Diego County: Ellis, A. J., 1.

Simi Valley: Kew, 1.

southern: Kew, 4.

Tertiary: Clark, B. L., 5.

Ventura quadrangle: Cartwright, L. D., 2.

Cambrian: Secrist, 1.

Cambrian-Ozarkian-Ordovician: Walcott, 7.

Canada, Mackenzie River basin: Cam-sell, 1.

Carboniferous: Beede, 7.

Central America and West Indies, Tertiary: Vaughan, 13.

Colorado: Keyes, 162.

north central, foothills formations: Henderson, 2.

northeastern: Mather, 12.

Cretaceous: Gress, 1; Martin, G. C., 15.

Montana: Robinson, E. G., 1.

Texas: Scott, G., 4.

Upper: Stanton, 2.

Upper, Atlantic and Gulf Coastal Plain, correlation: Stephenson, 4.

Devonian: Bassett, 1; Savage, 3.

Mississippi Valley: Savage, 14.

western Tennessee: Dunbar, 2.

Dominican Republic: Cooke, C. W., 3; Vaughan, 16.

Enid formation: Aurin, 3.

Eocene formations, Alabama and Mississippi: Cooke, C. W., 12.

Florida: Sellards, 4, 5.

Geologic time classification of the U. S. Geological Survey: Wilmarth, 1, 2.

Geologic time scale: Ashley, 14.

Geologic formations, tables—Continued.

Georgia: McCallie, 1, 2, 5.

Coastal Plain: McCallie, 7.

Mesozoic and Cenozoic: McCallie, 8.

Green River valley, Utah and Wyoming: Reeside, 7.

Gulf Coastal Plain: Sellards, 12.

Hayti: Woodring, 4.

Idaho, Boundary County: Kirkham, 7.

Coeur d'Alene region: Eby, J. H., 1. eastern: Mansfield, G. R., 8.

Fort Hall Indian Reservation: Mansfield, G. R., 3.

southeastern: Kirkham, 1; Mansfield, G. R., 29.

Illinois, Keyes, 118.

east-central: Mylius, 7.

Equality-Shawneetown area: Butts, 5.

Galesburg quadrangle: Poor, 2.

Hardin County: Weller, S., 1.

Joliet quadrangle: Fisher, D. J., 2. northern: Thwaites, 7.

Indiana: Cumings, 1; Logan, 5, 15, 24.

Iowa: Kay, 13.

Adair County: Gow, 1.

Cass County: Tilton, 3.

Mississippian: Van Tuyl, 8.

Missouri series: Tilton, 7.

north central: Fenton, G. L., 2.

Jamaica: Trechmann, 1.

Jurassic rocks, Alaska: Martin, G. C., 15.

Kansas: Moore, R. C., 9; Snider, 1.

Ellis County: Bass, 2.

Hamilton County: Bass, 2.

Russell County: Rubey, 3.

Kentucky: Miller, A. M., 1.

Allen County: Miller, A. M., 5.

Berea region: Burroughs, W. G., 5.

Golconda quadrangle: Weller, 4.

Knob region: Burroughs, W. G., 4.

Woodford County: Miller, A. M., 22.

Louisiana, northern: Hull, 10; Spooner, 2.

Mackenzie, Franklin Mountains: Williams, M. Y., 14.

Great Slave Lake region: Cameron, 1.

lower Mackenzie valley: Kindle, 9.

Mackenzie River district: Williams, M. Y., 13.

Mackenzie River basin: Hume, 8.

Mackenzie River between Norman and Beaver River: Hume, 5.

Manitoba: Wallace, 14.

Bigstone and Fox rivers area: Merritt, C. A., 4.

Oxford and Knee lakes area: Wright, J. F., 11.

Mesozoic and Cenozoic: Knowlton, 2.

Mesozoic and late Paleozoic, Montana and adjacent States: Clapp, C. H., 2.

Mesozoic formations, Pacific coast, correlation: Goranson, 1.

Geologic formations, tables—Continued.

- Mexico, eastern, and Texas: Staub, 4.
 Hidalgo-Vera Cruz region: Palmer, R. H., 4.
 Minnesota: Keyes, 118; Knapp, G. N. 1; Stauffer, 7.
 Mississippi: Stephenson, 10.
 northeastern: Burchard, 20.
 Missouri: Dake, 1; Wilson, Mal. E., 1.
 Ste. Genevieve County: Weller, 19.
 Vernon County: Greene, 8.
 Montana: Bauer, C. M., 3; Keyes, 234.
 Beartooth Mountains, Bevan, 2.
 central: Bowen, C. F., 2; Reeves, F., 10.
 Little Rocky Mountain region: Collier, 8.
 Nebraska: Keyes, 118.
 Nevada, Pioche district: Westgate, 6.
 New Brunswick: Bailey, L. W., 1.
 Newfoundland, southeastern, Cambrian-Ordovician: Howell, 5.
 New Jersey, Cretaceous and Eocene: Mansfield, G. R., 1.
 New Mexico: Darton, 11, 26; Keyes, 14.
 Alamosa Creek valley: Winchester, 3.
 Gallup-Zuni Basin: Sears, 6.
 Raton coal field: Lee, 10.
 San Juan County: Bauer, C. M., 1.
 New York: Keyes, 281; Miller, W. J., 23.
 Newburgh quadrangle: Holzwasser, 1.
 western, Chemung, correlation table: Chadwick, 6.
 North Dakota: Leonard, A. G., 1.
 Marmarth field: Hares, 5.
 western: Stanton, 3.
 Nova Scotia, Inverness County, Lake Ainslie district: Bell, W. A., 12.
 Kings and Annapolis counties: Fari-bault, 4.
 Ohio, Camp Sherman quadrangle: Hyde, 1.
 Delaware County: Westgate, 5.
 Muskingum County: Stout, 1.
 Vinton County, Mississippian: Hyde, 3.
 Wayne County: Conrey, 1.
 Oklahoma, eastern: Shannon, C. W., 4.
 Marshall County: Bullard, 3.
 upper Paleozoic: Gould, C. N., 19.
 Ontario, Batchawana area, District of Algoma: Moore, E. S., 19.
 Brockville-Mallorytown area: Wright, J. F., 1, 2.
 Credit River section: Dyer, 3, 4.
 Dundas formation: Parks, 17.
 Gunflint iron-bearing formation: Gill, J. E., 1.
 Matabitchuan area: Todd, E. W., 5.
 Matawin iron range, Thunder Bay district: Tanton, 15.

Geologic formations, tables—Continued.

- Ontario—Continued.
 north shore of Lake Huron: Collins, 11.
 Pagwachuan, Kenogami, and Albany rivers: Williams, M. Y., 10.
 Sault Ste. Marie, District of Algoma: McConnell, 1.
 southwestern: Harkness, 4.
 Sudbury district, Geneva area: Quirke, 7; Wanapitei Lake area: Quirke, 8.
 Whiskey Lake area, District of Algoma: Douglas, G. V., 2.
 Workman's Creek section: Fritz, 2.
 Ordovician, Mississippi Valley: Dake, 6.
 Oregon: Smith, W. D., 1.
 Coast Range province: Smith, W. D., 13.
 southeastern: Smith, W. D., 14.
 southeastern lake district: Smith, W. D., 12.
 western: Harrison and Eaton, 1.
 Pacific region, Mesozoic and Cenozoic: Kew, 3.
 Paleozoic: Keyes, 255.
 Alabama and Tennessee: Butts, 8.
 (earlier), Europe and America: Ulrich, 15.
 lower: Ashley, 25; Secrist, 1.
 Panama: Vaughan, 3.
 Tertiary marine: Cushman, 8.
 Pennsylvania: Gordon, S. G., 6; Miller, B. L., 4.
 Greensburg quadrangle: Johnson, M. E., 1.
 Pennsylvanian, Oklahoma: Dott, 1.
 Permian, Arizona and New Mexico: Darton, 20.
 correlation: Gould, 10.
 Oklahoma and Texas: Gould, 16.
 Permo-Carboniferous red beds, Colorado and New Mexico: Melton, 3.
 Porto Rico, Tertiary formations: Maury, 2.
 Pre-Cambrian: Wilson, M. E., 18; Keyes, 209.
 Canada: Miller, W. G., 12.
 Michigan: Allen, R. C., 2.
 Pre-Cambrian and Cambro-Ordovician: Berkey, 3.
 Quebec, Beauceville area: MacKay, B. R., 4.
 Anticosti Island: Twenhofel, 30.
 Cléricy and Kinojevis areas, Témiscamingue and Abitibi counties: James, 4.
 Coleraine area: Knox, J. K., 1.
 Dufresnoy area, Abitibi district: Harvie, 3.
 Harricaw-Turgeon basin: Tanton, 1.
 Timiskaming County, Opasatika area: Cooke, H. C., 10.
 western: Cooke, H. C., 15.

Geologic formations, tables—Continued.

- Rocky Mountain region: Reeves, F., 8.
 Saskatchewan, Wapawekka and Deschambault lakes area: De Lury, 6.
 Silurian: Savage, 16.
 correlation: Swartz, C. K., 8; Ulrich, 8.
 Niagaran: Springer, 12.
 Ontario southwestern: Dyer, 5; Williams, M. Y., 1.
 South Dakota: Keyes, 118; Wilson, R. A., 1.
 Black Hills region: O'Hara, 3.
 western: Stanton, 3.
 South Dakota and eastern Wyoming: Wilson, R. A., 4.
 Southeastern United States: Vaughan, 3.
 Tennessee, Crossville quadrangle: Butts, 6.
 lower Paleozoic formations: Gordon, C. H., 3.
 middle: Lusk, 2.
 southern: Nelson, 20.
 western valley: Dunbar, 1.
 Tertiary: Canu, 2; Peterson, 2.
 American and European, correlation: Cooke, C. W., 10.
 correlation charts: Vaughan, 34.
 West Coast: Clarke, B. L., 4.
 Texas, Bexar County: Sellards, 10.
 Comanchean: Adkins, 2.
 Cooke County: Bybee, 3.
 Cretaceous: Adkins, 5; Böse, 2.
 Crockett County: Liddle, 2.
 eastern: Renick, 12.
 Gulf Coastal Plain: Powers, 17.
 north central, Pennsylvanian: Moore, R. C., 13.
 northeastern, correlation: Fohs, 2.
 Ranger oil field: Reeves, F., 2.
 Tom Green County: Henderson, G. G., 1.
 Triassic: Martin, G. C., 15.
 Upper: Smith, J. P., 3.
 Trinidad: Waring, 6.
 Utah: Dake, 3; Keyes, 152.
 La Sal Mountains: Gould, L. M., 4.
 Moab region: Baker, A. A., 1.
 Salina Canyon district, Sevier County: Spieker, 6.
 southeastern: Longwell, 6; Prommel, 4.
 southwestern: Reeside, 4.
 Sunnyside and Wellington quadrangles: Clark, F. R., 4.
 Tintic district: Lindgren, 2.
 Uinta Basin: Douglass, 2.
 Wasatch Mountains: Schneider, H., 2.
 Virginia: Giles, 11.
 western: Stose, 16.
 Washington, San Juan Islands: McLellan, 2.
 West Indies, Tertiary: Vaughan, 17.
 West Virginia, Mercer, Monroe, and Summers counties: Reger, 9.

Geologic formations, tables—Continued.

- Wisconsin: Hotchkiss, 10; Keyes, 118; Ulrich, 12.
 Wyoming: Bartlett, E., 8; Keyes, 190; Morgan, G. B., 1.
 Bell Springs district, Carbon County: Dobbin, 5.
 Gillette coal field: Dobbin, 3.
 Lance Creek field: Hancock, 5.
 Lost Soldier-Ferris district: Fath, 5.
 Mule Creek oil field: Hancock, 4.
 Osage oil field, Weston County: Collier, 7.
 Rock Springs area, Sweetwater County: Schultz, 1.
 Thermopolis district: Collier, 4.
 Upton-Thornton oil field: Hancock, 3.
 Yukon, Sixtymile and Ladue rivers area: Cockfield, 5.
 southern: Cockfield, 9.
 Whitehorse district: Cockfield, 16.
 Geologic history. See also Paleoclimatology; Paleogeography.
 Adirondacks: Alling, H. L., 1.
 Alabama, Bessemer-Vandiver quadrangle: Butts, 13.
 Clay County: Prouty, 10.
 Coastal Plain: Brantley, 1.
 Mesozoic: Stephenson, 5.
 Paleozoic: Butts, 8.
 Alaska, Anvik-Andreafski region: Harrington, 1.
 Chandalar district: Mertie, 12.
 Goodnews Bay region: Harrington, 6.
 Iniskin-Chinitna Peninsula: Moffit, 7.
 Kantishna region: Capps, 1.
 Kotsina-Kuskulana district: Moffit, 4.
 Mesozoic: Martin, G. C., 15.
 Point Barrow region: Paige, 5.
 Ruby-Kuskokwim region: Mertie, 11.
 York region: Steidtmann, 4.
 Alberta, Lake Minnewanka section: Shimer, 6.
 Rocky Mountains: MacKenzie, J. D., 4.
 southern and central: Slipper, 1.
 southwestern: Stewart, J. S., 1.
 Alberta and British Columbia, foothills belt: Hopkins, O. B., 4.
 Appalachians, southern: Adams, G. I., 5.
 Arizona, Aravaipa-Stanley region: Ross, C. P., 5.
 Bright Angel quadrangle: Noble, 1.
 Courtland-Gleeson region: Wilson, E. D., 2.
 Jerome district, Yavapai County: Reber, 1; Smith, A. H. D., 1.
 lower Gila region: Ross, C. P., 1.
 northeastern, Holbrook area: Hager, D., 3.
 Papago country: Bryan, 7, 15.
 Payson district: Lausen, 1.
 Ray quadrangle: Ransome, 11.
 Ray-Miami region: Ransome, 1.

Geologic history—Continued.

Arizona—Continued.

Saddle Mountain and Banner mining district: Ross, C. P., 6.

San Carlos Indian Reservation: Schwennesen, 1.

Arkansas Hot Springs district: Purdue, 1.

Atlantic and Gulf Coastal Plain: Stephenson, 6.

Black Hills uplift: O'Harra, 5.

British Columbia: Brock, 4; Schofield, 15.

Ainsworth district: Schofield, 4.

Bridge River area: McCann, 3.

Cariboo district, Barkerville area: Johnston, W. A., 22.

Coquihalla area: Cairnes, 4.

Cordillera: Brock, 13.

Fraser River canyon: Camsell, 9.

Fraser River Delta: Johnston, W. A., 17.

Harrison Lake district: Crickmay, 5.

Kamloops district, North Thompson valley: Uglow, 3.

North Thompson Valley: Uglow, 11.

Purcell trench: Schofield, 6.

Rocky Mountain region: Schofield, 8.

Salmon River district: Schofield, 11.

Vancouver area: Schofield, 17.

California, Berkeley Hills: Fox, 1.

La Jolla quadrangle: Hanna, M. A., 3.

Los Angeles County, Baldwin Hills: Tieje, 6.

Paso Robles Basin: Reed, 6.

Petaluma, Point Reyes, and Santa Rosa quadrangles: Dickerson, 2.

Point Sur quadrangle: Trask, 5.

Randsburg quadrangle: Hullin, 3.

Salton Sea region: Brown, J. S., 3.

San Andreas rift: Noble, 9.

San Bernardino Mountains:

Vaughan, F. E. 1.

San Diego County: Ellis, A. J., 1.

San Gabriel Mountains: Miller, W. J., 33.

Santa Barbara County, upper Santa

Ynez River basin: Nelson, R. N., 1.

southern: Hill, R. T., 8.

Warner Range: Russell, R. J., 6.

Wheeler Ridge area, Kern County: Hoots, 5.

Canada: Collins, 10.

Great Plains: Hume, 25.

maritime provinces: Bell, W. A., 13.

Canadian Cordilleras: Dowling, 16.

Canadian Rockies: Burwash, 2, 3.

Canadian shield: Collins, W. H., 22.

Caribbean region: Vaughan, 3; Woodring, 23.

Cayman Islands: Matley, 14.

Central America: Sapper, 7; Vaughan, 3; and West Indies: Vaughan, 13.

Colorado, Big Thompson River valley: Fuller, M. B., 8.

central: Crawford, R. D., 2.

Geologic history—Continued.

Colorado—Continued.

Front Range: Van Tyul, 5.

Golden area: Johnson, J. H., 13.

Las Animas, Otero, and Bent counties (parts): Duce, 1.

Leadville mining district: Emmons, S. F., 1.

north central, foothills formations: Henderson, 2.

northwestern: Sears, 5.

San Juan Basin: Reeside, 8.

Tarryall district: Muilenburg, 2.

Twin Lakes district: Howell, J. V., 1.

Colorado Plateau region: Willis, 9.

Connecticut: Gregory, H. E., 8.

Southington-Granby area: Palmer, H. S., 5.

Cordillera in Canada: Schofield, 13.

Cordilleran region: Beeson, 1.

Cretaceous, Oklahoma and Arkansas: Miser, 27.

Utah: Spieker, 5.

Crustal deformation: Schuchert, 13.

Delaware, Wilmington quadrangle: Bascom, 2.

Dominican Republic: Vaughan, 16.

Eocene, southeastern North America: Berry, 51.

Finger Lakes: Fairchild, 20.

Florida: Cushman, 4.

General: Bretz, 12; Keith, 8; Merriam, 5.

Georgia, Cartersville district: Hull, 1.

Macon area: Cooke, C. W., 5.

Grand Canyon of the Colorado: Darton, 3.

Great Basin, Pleistocene history: Antevs, 5, 12.

Green River formation: Bradley, W. H., 3, 4.

Greenland: Böggild, 1, 6.

Gulf Coastal Plain: Stephenson, 12, 14.

Hawaii, Mauna Loa and Kilauea: Stearns, 8.

Idaho, Boise Basin: Ballard, 3.

Buffalo Hump district: Beckwith, 4.

Fort Hall Indian Reservation: Mansfield, G. R., 3.

Idaho batholith region: Beckwith, R. H., 1.

Mud Lake area: Stearns, 9.

Owyhee County, Bruneau River basin: Piper, 2.

St. Maries region: Anderson, A. L., 4.

Salmon River Mountains: Ross, C. P., 13.

Silver City district: Piper, 7.

southeastern: Mansfield, G. R., 11, 29.

Illinois: Cady, 6.

Carbondale quadrangle: Lamar, 3.

Carlyle-Centralia district: Shaw, 9.

Colchester and Macomb quadrangles: Hinds, H., 1.

Geologic history—Continued.

Illinois—Continued.

- Dixon quadrangle: Knappen, 1.
 east-central: Mylius, 7.
 Edgington-Milan area: Savage, 5.
 Elgin region, glacial history: Leighton, 14.
 Gillespie and Mount Olive quadrangles: Lee, W., 1.
 Glenwood beds: Bevan, 6.
 Hennepin quadrangle: Cady, 3.
 Herscher quadrangle: Athy, 1.
 Joliet quadrangle: Fisher, D. J., 2.
 Kings quadrangle: Bretz, 4.
 La Harpe and Good Hope quadrangles: Savage, 8.
 La Salle anticline: Mylius, 5.
 La Salle quadrangle: Cady, 3.
 Morris quadrangle: Culver, 2.
 New Athens-Okawville area: Shaw, 8.
 southern: Weller, 11, 15; Carboniferous: Weller, 11.
 Indiana, Greene County, eastern: Malott, 1.
 Iowa, Lake Calvin region: Schoewe, 6.
 Lucas County: Luga, 6.
 Mississippian: Van Tuyl, 8.
 Kansas: Wooster, 2.
 Cretaceous: Twenhofel, 17.
 Hamilton County: Bass, 2.
 Nemaha granite ridge: Moore, R. C., 32.
 southeastern: Ley, 2.
 Syracuse and Lakin quadrangles: Darton, 2.
 western: Twenhofel, 6.
 Kentucky, Berea region: Burroughs, W. G., 5.
 Edmonson County: Weller, J. M., 1.
 Knob region: Burroughs, W. G., 4.
 Morgan County: Robinson, L. C., 1.
 western coal field: Burroughs, W. G., 2.
 Kilauea: Stone, J. B., 1.
 Lake Erie region: Decker, C. E., 1.
 Lake Lahontan: Jones, J. C., 2.
 Lake Superior geosyncline, Hotchkiss, 8.
 Lanai: Wentworth, 15.
 Lesser Antilles: Earle, 8, 11.
 Louisiana, Sabine uplift: Powers, 2.
 Lower Cretaceous, Oklahoma and Texas: Bullard, 4.
 Mackenzie River basin: Dowling, 15, 17.
 Manitoba, Flinflon area: Alcock, 15.
 northern: Bruce, 5.
 pre-Cambrian: Alcock, 19.
 Rice Lake and Oiseau River areas: Cooke, H. C., 9.
 Maryland, Elkton quadrangle: Bascom, 2.
 Kent County: Miller, B. L., 6.
 Queen Annes County: Miller, B. L., 7.
 Talbot County: Miller, B. L., 8.
 Massachusetts, Boston area: Crosby, I. B., 5.
 central, glacial history: Alden, 2.

Geologic history—Continued.

- Connecticut Valley: Miller, W. J., 10.
 Essex County: Clapp, C. H., 1.
 Mesozoic, Alaska: Martin, G. C., 15.
 southern North America: Stanton, 1.
 Mesozoic floras of North and South America: Knowlton, 1.
 Mexico: Lewis, S. J., 1.
 Chapala region: Palmer, R. H., 1.
 Cordillera: Fletcher, 1.
 El Oro and Talpujahua districts: Flores, 1.
 Hidalgo-Vera Cruz region: Palmer, R. H., 4.
 Panuco oil field: Baker, C. L., 8.
 Panuco River valley: Trager, 5.
 Michigan, pre-Cambrian: Allen, R. C., 2.
 Mid-Continent oil fields: Bosworth, 1; McCoy, 5.
 Minnesota: Grout, 2; Meinzer, 11.
 Herman, Barrett, Chokio, and Morris quadrangles: Sardeson, 1.
 St. Louis County, northern: Grout, 20.
 Mississippi Gulf, Eocene: Berry, 58.
 Mississippi Valley, Missouri and Illinois: Krey, 2.
 Pleistocene: Leverett, 8.
 upper, late Paleozoic: Van Tuyl, 1.
 Missouri, Ste. Genevieve County: Weller, 19.
 Vernon County: Greene, 8.
 Missouri River: Greene, 2.
 Montana, Bearpaw Mountains: Reeves, F., 7.
 Beartooth Mountains, Bevan, 2.
 central, Upper Cretaceous: Bowen, C. F., 2.
 Cretaceous: Hammer, 1.
 Fergus County: Freeman, O. W., 1.
 front ranges, Cenozoic history: Bevan, 9.
 Quadrant formation: Hammer, 2.
 Sweet Grass Hills: Kemp, 8.
 Tullock Creek coal field: Rogers, G. S., 8.
 Upper Cretaceous: Robinson, E. G., 1.
 Nevada, Manhattan district: Ferguson, H. G., 5.
 Muddy Mountains: Longwell, 1, 15.
 Pioche district: Westgate, 6.
 Rochester district: Knopf, A., 7.
 Santa Fé district, Mineral County: Clark, C. W., 2.
 New Brunswick, Moncton area: Wright, W. J., 2.
 New Hampshire, White Mountains, North Conway quadrangle: Billings, 5.
 New Mexico, Mogollon district: Ferguson, H. G., 3.
 Raton-Brilliant-Koehler area: Lee, W. T., 6.
 Sandia Mountains: Ellis, R. W., 2.
 San Juan Basin: Reeside, 8.

Geologic history—Continued.

New Mexico—Continued.

Taos Range: Gruner, 1.

Tyrone district: Paige, 2.

New York: Miller, W. J., 23.

Adirondacks: Miller, W. J., 8; western: Agar, 1.

Canton quadrangle: Chadwick, 5.

Catskill region: Berkey, 6.

Genesee country: Fairchild, 15.

Genesee River region: Fairchild, 6.

Lake Clear region: Alling, H. L., 1.

Lake Placid quadrangle: Miller, W. J., 1.

Lyon Mountain quadrangle: Miller, W. J., 26.

Newburgh quadrangle: Holzwasser, 1.

physiographic history: Fairchild, 16.

Pleistocene: Fairchild, 9.

Schroon Lake quadrangle: Miller, W. J., 2.

Rochester, Pinnacle Hills, glacial history: Fairchild, 13.

West Point quadrangle: Berkey, 3.

North Atlantic Ocean, Tertiary history: Woodring, 8.

North Carolina: Bryson, 3.

Cretaceous: Stephenson, 4.

Nova Scotia, Northumberland Strait: Bell, W. A., 10.

Oahu: Wentworth, 22.

Ohio, Camp Sherman quadrangle: Hyde, 1.

Delaware County: Westgate, 5.

Oklahoma: Redfield, J. S., 1.

Arbuckle Mountains: Weidman, 3.

Beckham County: Gouin, 2.

Caddo and Grady counties: Becker, 1.

Carboniferous: Powers, 26.

Cimarron County: Rothrock, 4.

Crinerville oil field, Carter County: Powers, 22.

Kay, Grant, Garfield, and Noble counties: Clark, G. C., 3.

Rogers County: Woodruff, 4.

southern: Moore, R. C., 10.

southern Ouachita Mountains: Honess, C. W., 4.

Stonewall quadrangle: Morgan, G. D., 5, 6.

Thomas oil field, Kay County: Clark, S. K., 1.

Ontario, Arnprior-Quyon area: Wilson, M. E., 10.

Brocktown - Mallorytown area: Wright, J. F., 2.

English River valley: Bruce, 11.

Lake St. Joseph area: Bruce, 8.

Lake Timiskaming area: Hume, 14. northeastern, physiographic history: Collins, W. H., 4.

Red Lake area, District of Patricia: Bruce, 12.

Red Lake Basin, District of Kenora: Bruce, 22.

Geologic history—Continued.

Ontario—Continued.

Sudbury district, Grassy River area: Gledhill, 5.

Sutton Lake area: Hawley, J. E., 1.

Timiskaming district, Redstone River area: Bruce, 19.

Ontario-Manitoba boundary: Burwash, 6.

Ordovician, Mississippi Valley: Dake, 8.

Oregon: Buwalda, 12; Smith, W. D., 9.

Cascade Plateau: Hodge, E. T., 5.

Mount Jefferson: Hodge, E. T., 6.

South Dakota, Keystone region: Landes, K. K., 6.

Lead area: Hosted, 1.

Newell quadrangle: Darton, 1.

Tennessee, Ducktown district: Emmons, W. H., 9.

Rutherford County: Galloway, J. J., 1.

western valley: Dunbar, 1.

Texas, Carboniferous: Powers, 26.

central: Matteson, 1.

Dallas County: Shuler, 1.

eastern: Dumble, 1.

Gulf Coastal Plain: Powers, 13.

Hockley salt dome, Harris County: Deussen, 2.

Lacasa area, Ranger district: Ross, C. S., 3.

north central: Plummer, 4; Pennsylvanian: Moore, R. C., 13.

Stratton Ridge salt dome: Applin, P. L., 1.

Tarrant County: Hill, E. A., 1.

trans-Pecos Texas: Baker, C. L., 6.

western: Baker, C. L., 2.

Triassic, southern Connecticut: Russell, W. L., 1.

Trinidad: Milner, 1; Waring, 6.

Naparima region: Illing, 1.

Uinta Mountains: Sears, 3.

Upper Cretaceous Mississippi Gulf: Berry, 10.

Utah: Schneider, H., 1.

Moab region: Baker, A. A., 1.

Tintic district: Lindgren, 2.

Wasatch Plateau: Spieker, 3.

Weber County: Pack, F. J., 2.

Vermont, Barre: Perkins, G. H., 4.

Bristol, Lincoln, and Warren townships: Gordon, C. E., 6.

central: Richardson, C. H., 1.

Green Mountain front: Bain, 24.

Northfield: Richardson, C. H., 2.

Pleistocene history: Fairchild, 2.

Oregon: Smith, W. D., 1.

Pleistocene: McCornack, 1.

Riddle quadrangle: Diller, 12.

southeastern: Smith, W. D., 14.

western: Harrison and Eaton, 1.

Oriskany formation: Fettke, 1.

Pacific region of Canada: Bröck, 4.

Paleozoic, Atlantic-Arctic region: Høltedahl, 2.

Pebbles: Wentworth, 4.

Geologic history—Continued.

- Pennsylvania, Cambrian and Ordovician: Miller, B. L., 11.
 Piedmont region: Smith, I. F., 3.
 Permian: Schuchert, 52; Great Plains: Dunbar, 4.
 Piedmont area, Maryland and Pennsylvania: Stose, 18.
 Porto Rico: Berkey, 1.
 Coamo-Guayama district: Hodge, E. T., 1.
 Humacao district: Fettke, 5.
 Lares district: Hubbard, B., 3.
 Ponce district: Mitchell, 7.
 Pottsville formation: Fettke, 1.
 Quebec, Arnprior-Quyon area: Wilson, M. E., 10.
 Coleraine area: Knox, J. K., 1.
 Gaspé Peninsula: Coleman, 7.
 Mount Albert area: Alcock, 6.
 northern: Cooke, H. C., 2.
 Percé: Clarke, J. M., 20.
 Port Daniel-Gascons area: Schuchert, 29.
 St. Urbain area, Charlevoix district: Mawdsley, 1.
 Timiskaming County, Opasatika area: Cooke, H. C., 10.
 Rocky Mountains: Keyes, 16, 132, 162.
 South Dakota, Black Hills region: Fillman, 3; O'Harra, 3; Yates, 1; central: Darton, 14.
 Vermont, Whitingham area: Hubbard, G. D., 4.
 Vermont region: Keith, 1.
 Virgin Islands: Vaughan, 8.
 Virginia, Giles County: Hubbard, G. D., 6.
 Washington: Weaver, 1.
 northeastern: Jenkins, 9.
 San Juan Islands: McLellan, 2.
 Spokane area: Pardee, 12.
 Stevens County: Weaver, 2.
 West Indies: Matthew, 5; Vaughan, 10; (part): Vaughan, 22.
 West Virginia, Hampshire and Hardy counties: Tilton, 15.
 Mercer, Monroe, and Summers counties: Reger, 9.
 Mineral and Grant counties: Reger, 7.
 White River beds, South Dakota: Wanless, 3.
 Wisconsin River, Pleistocene: MacClintock, 1.
 Wyoming, Big Horn Basin: Hewitt, 16.
 southern: Sears, 5.
 Yukon, southern: Cockfield, 9.
 Geologic mapping, western United States: Vaughan, 12.
 Geologic maps.
 Alabama: Smith, E. A., 2, 5; (part): Brantley, 1.
 Ashland graphite area: Brown, J. S., 6.
 Bessemer-Vandiver quadrangle: Butts, 13.

Geologic maps—Continued.

- Alabama—Continued.
 Clay County: Prouty, 10.
 northern: Semmes, 3.
 Alaska, Alaska Peninsula: Martin, G. C., 8.
 Alaska Railroad region: Capps, 6.
 Anvik-Andreafski region: Harrington, 1.
 Canyon Creek: Overbeck, 2.
 Chandalar district: Mertie, 12.
 Chichagof Island, west coast: Buddington, 8; Overbeck, 1.
 Chignik region: Martin, G. C., 13.
 Chulitna region: Capps, 6; upper: Capps, 4.
 Cold Bay district: Capps, 5.
 Cold Bay oil field: Martin, G. C., 8.
 Cold Bay-Chignik district: Smith, W. R., 1.
 Cold Bay-Katmai district: Smith, W. R., 3.
 Controller Bay or Katalla oil field: Martin, G. C., 8.
 Cook Inlet oil fields: Martin, G. C., 8.
 Elephant Mountain: Smith, W. R., 1.
 Goodnews Bay region: Harrington, 6.
 Hyder district: Buddington, 8.
 Iniskin Bay district: Moffit, 3.
 Iniskin-Chinitna Peninsula: Moffit, 7.
 Innoko-Iditarod region: Mertie, 11.
 Jack Bay district: Johnson, B. I., 2.
 Kahiltna Valley: Mertie, 2.
 Kamishak Bay region: Mather, 7.
 Kantishna district: Capps, 6.
 Kejulik Valley: Smith, W. R., 1.
 Kenai Peninsula, southwestern part: Gill, A. C., 2.
 Kennecott: Bateman, 10.
 Kiwalik-Koyuk region: Harrington, 5.
 Knik-Matanuska district: Landes, K. K., 2.
 Kotsina-Kuskulana district: Moffit, 4.
 Marshall mining district: Harrington, 1.
 mineral resources: Brooks, 2.
 Nenana coal field: Martin, G. C., 1, 10.
 Nenana-Kantishna region: Capps, 1.
 Nixon Fork country: Brown, J. S., 7.
 Nixon Fork district, Kuskokwim basin: Martin, G. C., 9.
 northwestern Arctic: Smith, P. S., 7.
 Pearl Creek Dome and Mount Peulik: Smith, W. R., 1.
 Porcupine district: Eakin, 1.
 Ruby district: Mertie, 11.
 Salmon River district: Westgate, 2.
 Sheenjek River district: Mertie, 16.
 Snug Harbor district: Moffit, 7.
 southeastern: Burchard, 6.
 Talkeetna Mountains: Capps, 6; western: Capps, 3.

Geologic maps—Continued.

Alaska—Continued.

- Toklat-Tonzona River region: Capps, 12.
- Tolstoi district: Harrington, 2.
- Tuxedni Bay area: Moffit, 2.
- upper Matanuska Valley: Capps, 11.
- Wide Bay: Smith, W. R., 1.
- Wrangell district: Buddington, 4.
- York region: Steidtmann, 4.

Alberta: Allan, 14.

- area between Athabaska and Embarras Rivers: Rutherford, 5.
- Banff area: Warren, P. S., 4.
- Battle River: Hume, 20.
- Blackstone, Brazeau, and Pembina rivers foothills belt: Allan, 13.
- Bow River between Cochrane and Kananaskis: Rutherford, 6.
- Drumheller district: Allan, 7.
- foothills belt between McLeod and Athabaska Rivers: Rutherford, 4.
- North Saskatchewan and McLeod Rivers: Rutherford, 8.
- Ribstone Valley: Dowling, 5.
- Saunders Creek and Nordegg coal basins: Allan, 9.
- southern: Stewart, J. S., 1; artesian area: Dowling, 19.
- Turner Valley: McLearn, 14.
- Turner Valley oil area: Hume, 22.
- Wainwright-Vermillion area: Hume, 19.

Appalachian region: Keith, 2.

- Arctic Canada, Baffin Island, Cumberland Sound area: Weeks, L. J., 3.
- Arctic regions, Ellesmere Land: Holte-dahl, 1.

Arizona: Arizona Bur. Mines, 1; Darton, 13.

Aravaipa-Stanley region: Ross, C. P., 5.

- Banner mining district: Ross, C. P., 6.
- Bisbee district: Jones, Ed. L., 6.
- Black Mesa: Reagan, 15.
- Bradshaw Mountains quadrangle: Lindgren, 17.
- Cave Creek district: Lewis, A. S., 1.
- central: Ettlinger, 1.
- Christmas area: Ross, C. P., 6.
- Courtland-Gleeson region: Wilson, E. D., 2.
- Gila region, lower: Ross, C. P., 1.
- Globe-Ray region: Ransome, 1.
- Grand Canyon: Darton, 12.
- Hopi Buttes volcanic field: Reagan, 8.
- Jerome district, Yavapai County: Reber, 1.
- Jerome quadrangle: Lindgren, 17.
- Lees Ferry region: Bryan, 11.
- Mazatzal Peak region: Wilson, E. D., 1.
- Miami district: Ransome, 1.
- Oatman district: Ransome, 12.
- Papago country: Bryan, 7.
- Payson district: Lausen, 1.

Geologic maps—Continued.

Arizona—Continued.

- Ray district: Ransome, 1.
- Ray quadrangle: Ransome, 11.
- San Carlos Indian Reservation: Schwenneken, 1.
- Superior district: Short, 1.
- Tombstone district: Jones, Ed. L., 6.
- Tucson and Amole Mountains: Jenkins, 3.
- Verde formation: Jenkins, 6.
- Virgin Mountains: Darton, 16.
- Arkansas: Branner, G. C., 3; Ferguson, J. G., 1.
- Batesville district: Miser, 5, 8.
- Hot Springs district: Purdue, 1.
- Pike County, peridotite area: Miser, 10, 18; Prairie Creek area: Miser, 12.
- Pike, Howard, and Hempstead counties (parts): Miser, 12.
- southwestern: Ellisor, 2.
- Atlantic and Gulf Coastal Plain: Stephenson, 6.
- Black Hills region: O'Harra, 3.
- British Columbia: Brock, 4; Schofield, 3.
- Ainsworth district: Schofield, 4.
- Atlin-Telegraph Creek, Cassiar district: Cockfield, 18.
- Bridge River, Lillooet district: McCann, 3.
- Cariboo district, Barkerville area: Johnston, W. A., 22.
- Cassiar district, Devils Elbow Mountain: Kerr, F. A., 2.
- Chilko Lake area: Dolmage, 15.
- coast and islands: Dolmage, 8; between Campana Sound and Port Simpson: Dolmage, 9; between Port Simpson and Stewart: Dolmage, 9.
- Copper Mountain: Camsell, 4.
- Dease Lake area, Cassiar district: Kerr, F. A., 1.
- Dewdney Trail: Cairnes, 2.
- Driftwood Creek area, Babine Mountains: Hanson, 9.
- Eutsuk Lake area, Coast district: Marshall, J. R., 3.
- Finlay River district: Dolmage, 17.
- Fraser River Delta: Johnston, W. A., 17.
- Hazleton: O'Neill, 1.
- Hope Mountain: Cairnes, 2.
- Hudson Bay Mountain, Coast district: Jones, R. H., 1.
- Kamloops district, North Thompson valley: Uglow, 3.
- Kettle Valley: Cairnes, 2.
- Kitsault River to Skeena River: Hanson, 3.
- Kitsault Valley: Hanson, 2.
- Kootenay district (part): Walker, J. F., 2.
- Lakelse Lake area: Marshall, J. R., 5.

Geologic maps—Continued.

British Columbia—Continued.

Lasqueti Island: MacKenzie, J. D., 3.
 Parson Bay: Crickmay, 9.
 Peace River canyon area: McLearn, 7.
 Peace River district: Spieker, 1.
 Pemberton area, Lillooet district: Cairnes, 8.

Purcell trench: Schofield, 6.
 Rocky Mountain trench: Shepard, 11.
 Salmon River district: Schofield, 14.
 southeastern: Walker, J. F., 1.
 Taseko Lake-French Bar Creek: MacKenzie, J. D., 2.

Taseko Valley: MacKenzie, J. D., 1.
 Tatla-Bella Coola area: Dolmage, 16.
 Vancouver Island, Alberni area: MacKenzie, 7; East Sooke Peninsula: Cooke, H. C., 5; Sunloch district: Dolmage, 3.

Whitesail-Tahtsa lakes area: Marshall, J. R., 3.

Windermere area, Kootenay district: Walker, J. F., 1.

Yale district, Silver Creek, Skagit and Similkameen rivers: Cairnes, 5.
 Tulameen area: Poitevin, 6.

Zymoetz River area, Coast district: Hanson, 11.

British Honduras: Ower, 1.

British Virgin Islands: Earle, 5.

California, Blackhawk Canyon, San Bernardino Mountains: Woodford, 7.

Capistrano area: Woodford, 3.

Cuyamaca region: Hudson, F. S., 1.

Deep Spring Valley: Miller, W. J., 35.

Del Norte County: Logan, C. A., 1.

Eocene north of Mt. Diablo: Clark, B. L., 18.

fault map: Willis, 10.

Humboldt County, southwestern: Hoots, 7; U. S. G. S., 19.

Kern County: English, W. A., 1.

La Jolla quadrangle: Hanna, M. A., 3.

Los Angeles Basin: Eaton, J. E., 3.

Point Reyes quadrangle: Dickerson, 2.

Point Sur quadrangle: Trask, 4.

Puente Hills region: English, W. A., 3.

Randsburg quadrangle: Hulin, 3.

Richfield oil field: Musser, 3.

Salton Basin: Brown, J. S., 1, 3.

San Bernardino County (part): Eckis, 1.

San Bernardino Mountains: Vaughan, F. E., 1.

San Diego County: Ellis, A. J., 1.

San Jacinto and Temecula basins: Waring, 1.

San Onofre: Woodford, 3.

Santa Barbara County, Santa Ynez River district: Kew, 2; Nelson, R. N., 1.

Santa Clara Valley: Reinhard, 1.

Geologic maps—Continued.

California—Continued.

Santa Rosa and Petaluma quadrangles: Dickerson, 2.

Santa Rosa Island: Kew, 10.

Simi Valley: Kew, 1.

Siskiyou County, Salmon River district: Logan, C. A., 1.

Sonora quadrangle: Benson, W. N., 2.
 southern coast (part): Woodford, 3.

Sunset-Midway field: Pack, R. W., 1.

Tejon region: Anderson, F. M., 1.

Ventura Basin: Eaton, J. E., 4.

Ventura County (part): Nelson, R. N., 2.

Warner Range: Russell, R. J., 6.

Cambrian: Schuchert, 25.

Canada: Graham, R. P. D., 2.

central Arctic coast: O'Neill, 5.

eastern: Brock, 11; Graham, R. P. D., 3.

Mackenzie River basin: Camsell, 1.

mineral map: Young, G. A., 5.

platinum occurrences: O'Neill, 2.

western: Brock, 11; Graham, R. P. D., 3.

Canada and Newfoundland: Can. G. S., 3; Young, G. A., 5.

Central States: Cumings, 1.

Coal fields: U. S. G. S., 1.

Colorado: George, R. D., 6; (part): Campbell, M. R., 3.

Axial and Monument Butte quadrangles: Hancock, 7.

Canyon City area: Osborn, 10.

Catlin quadrangle: Toepelman, 3.

Creede district: Emmons, W. H., 4.

De Beque oil field: Winchester, 5.

Delta and Mesa counties: Weeks, H. J., 1.

Grand, Jackson, and Larimer counties (parts): Spock, 1.

Gunnison River: Hunter, J. F., 1.

Italian Mountain, Gunnison County: Cross, W., 7.

La Junta area: Patton, H. B., 3.

Las Animas, Otero, and Bent counties (parts): Duce, 1.

Leadville mining district: Emmons S. F., 1; Loughlin, 31.

Mancos district: Collier, 3.

Moffat County: Sears, 3.

Montezuma County, McElmo anticline: Coffin, 2.

north central, foothills formations: Henderson, 2.

northeastern: Mather, 12.

northwestern: George, R. D., 2; Sears, 5; Winchester, 5.

Otero County: Lupton, 6.

Pitkin County, Aspen district: Knopf, A., 10.

Platoro-Summitville district: Patton, H. B., 1.

Red Cliff district: Crawford, R. D., 3.

Geologic maps—Continued.

Colorado—Continued.

- Routt and Moffat counties: Perini, 1.
 Routt County: Crawford, R. D., 1.
 San Juan Basin: Reeside, 8.
 Tarryall district, Park County: Mui-
 lenburg, 2.
 Twin Lakes district: Howell, J.
 V., 1.
 Connecticut: Gregory, H. E., 8.
 central: Rice, W. N., 1.
 Glastonbury area: Palmer, H. S., 4.
 Meriden area: Waring, 2.
 New Haven area: Brown, J. S., 9.
 New Haven coast: Brown, J. S., 5.
 Norwalk area: Palmer, H. S., 4.
 Shepaug Aqueduct Tunnel area:
 Agar, 4.
 southern (part): Russell, W. L., 1.
 Southington-Granby area: Palmer,
 H. S., 5.
 Stonington region: Martin, L. H., 1.
 Suffield area: Palmer, H. S., 4.
 Cretaceous deposits, eastern Gulf re-
 gion: Berry, 3.
 Delaware, Wilmington quadrangle:
 Bascom, 2.
 Dominican Republic: Vaughan, 16.
 Azua and Barahona provinces:
 Vaughan, 16.
 Florida: Gunter, 3; Sellards, 4, 5, 12.
 Foxe Land, Baffin Island: Gould, L.
 M., 6, 8.
 Georgia: McCallie, 1, 2, 5.
 Cartersville district: Hull, 1, 3.
 Coastal Plain: Prettyman, 1.
 sand and gravel deposits: Teas, 1.
 Tate quadrangle: Bayley, 13.
 Great Lakes region: Fryxell, 1.
 Greenland: Böggild, 1, 4, 6.
 northern: Koch, 4.
 northwestern: Koch, 1.
 Peary Land: Koch, 2.
 Guatemala: Redfield, 3.
 Gulf Coastal Plain: Miser, 7; Urbina,
 1.
 Haiti: Woodring, 5.
 central plain: Woodring, 1.
 northwestern: Lütgens, 1.
 Terre-Neuve region: Woodring, 5.
 Huntington-Pittsburgh Basin: Rich-
 ardson, G. B., 13.
 Ice recession: De Geer, 4.
 Idaho: Bell, R. N., 4.
 Birch Creek district: Shenon, 2.
 Boise Basin: Ballard, 3.
 Boundary County: Kirkham, 7.
 Buffalo Hump district: Beckwith, R.
 H., 1, 4.
 Camas Creek Basin: Piper, 4.
 Cassia County, Goose Creek basin:
 Piper, 1.
 Clark, Jefferson, and parts of Butte,
 Custer, Fremont, Lemhi, and Mad-
 ison counties: Kirkham, 9.
 Coeur d'Alene district: Umpleby, 3.

Geologic maps—Continued.

Idaho—Continued.

- Cranes Flat, Henry, and Lanes Creek
 quadrangles: Mansfield, 10.
 Cranest Flat quadrangle: Mansfield,
 G. R., 29.
 De Lamar district: Piper, 6.
 eastern: Mansfield, G. R., 8.
 Flint mining district: Piper, 6.
 Fort Hall Indian Reservation: Mans-
 field, G. R., 3.
 Heath (Cuddy Mountain) mining
 district: Livingston, 4.
 Hell Creek, Fall Creek, Palisade
 Creek, McKoy Creek, Grays Lake,
 and Cranest Flat quadrangles:
 Kirkham, 3.
 Henry quadrangle: Mansfield, G. R.,
 29.
 Lanes Creek quadrangle: Mansfield,
 G. R., 29.
 Lapwai area: Kirkham, 11.
 Lemhi County (part): Ross, C. P., 7.
 Mud Lake area: Stearns, 9.
 north central: Thomson, F. A., 3, 4.
 northern, Pleistocene: Anderson, A.
 L., 2.
 Orofino area: Kirkham, 11.
 Owyhee County, Bruneau River
 basin: Piper, 2; South Mountain
 district: Sorenson, 1.
 Palouse River area: Kirkham, 10.
 Pend Oreille district: Sampson, 16.
 Pine Creek district: Jones, Ed. L., 4.
 Pocatello area: Anderson, A. L., 3.
 Power and Oneida counties: Piper, 3.
 Rocky Bar quadrangle: Ballard, 4.
 St. Maries area: Kirkham, 8.
 Seven Devils district: Livingston, 3.
 Shoshone County: Umpleby, 3.
 Slug Creek quadrangle: Mansfield,
 G. R., 29.
 Snake River between Burnt River
 and Salt Creek: Livingston, 4.
 south central: Umpleby, 2.
 southeastern: Kirkham, 1; Mansfield,
 G. R., 29.
 Vienna district: Ross, C. P., 12.
 Wardner district: Rickard, 3.
 War Eagle and Florida Mountains:
 Piper, 6.
 Washington County, Mineral dis-
 trict: Livingston, 4.
 Wood River district: Campbell, S., 8.
 Yellow Pine district: Larsen, 3.
 Idaho-Wyoming, Crow Creek quad-
 rangle: Mansfield, G. R., 29.
 Freedom quadrangle: Mansfield, G.
 R., 29.
 Montpelier quadrangle: Mansfield,
 G. R., 29.
 Illinois: Ill. G. S., 1.
 Adams County, northeastern: Cur-
 rier, 1.
 Alto Pass region: Poor, 1.
 Ava-Campbell Hill area: Root, 1.

Geologic maps—Continued.

Illinois—Continued.

- Avon-Canton area: Savage, 6.
 Carbondale quadrangle: Lamar, 3.
 Carlyle-Centralia district: Shaw, 9.
 Colchester and Macomb quadrangles:
 Hinds, H., 1.
 Chicago region, glacial: Fryxell, 1.
 Dixon quadrangle: Knappen, 1.
 east-central: Mylius, 7.
 Edgington-Milan area: Savage, 5.
 Equality-Shawneetown area: Butts,
 5.
 Gillespie quadrangle: Lee, W., 1.
 glacial: Hay, 16.
 Hardin County and Pope County
 (part): Weller, S., 1.
 Hennepin quadrangle: Cady, 3.
 Hennepin and La Salle quadrangles,
 surficial geology: Cady, 3.
 Herscher quadrangle: Athy, 1.
 Joliet quadrangle: Fisher, D. J., 2.
 Kings quadrangle: Bretz, 4.
 La Harpe and Good Hope quad-
 rangles; Savage, 8.
 La Salle quadrangle: Cady, 3.
 mineral industries: Christensen, 1;
 Ill. St. G. S., 3.
 Morris quadrangle: Culver, 2.
 Mount Olive quadrangle: Lee, W., 1.
 New Athens-Okawville area: Shaw,
 8.
 northeastern: Anderson, C. B., 1.
 northern: Thwaites, 7.
 oil and gas fields: Richardson, G. B., 1.
 Pulaski County: Lamar, 10.
 St. Peter sandstone: Lamar, 9.
 Saline and Gallatin counties: Cady, 4.
 Saline County: Cady, 12.
 Williamson and Saline counties
 (parts): Cady, 11.
 Indiana: Logan, 5, 10, 24; Reeves
 J. R., 7.
 glacial: Hay, 16.
 Greene County: Logan, 4; eastern:
 Malott, 1.
 Knobstone cuesta region: Malott, 4.
 Lawrence County: Logan, 4.
 Martin County: Logan, 4.
 Monroe County: Logan, 4.
 Orange County: Logan, 4.
 Owen County: Logan, 4.
 Indiana and surrounding States: Lo-
 gan, 15.
 Iowa: Howell, J. V., 4; Kay, 13; Van
 Tuyt, 8.
 Adair County: Gow, 1.
 Cass County: Tilton, 3.
 Clarke County: Tilton, 2.
 Crawford County: Lees, 18.
 drift sheets: Kay, 4.
 eastern: Norton, W. H., 1.
 Hackberry stage: Fenton, C. L., 3.
 Lake Calvin region, Pleistocene:
 Schoewe, 6.

Geologic maps—Continued.

Iowa—Continued.

- Lucas County: Lugin, 6.
 Missouri series: Tilton, 7.
 north central: Fenton, C. L., 2, 4.
 Ringgold County, surface deposits:
 Arey, 1.
 Stuart area: Tilton, 5.
 Taylor County, surface deposits:
 Arey, 2.
 Jamaica: Brunton, 2; Cundall, 1.
 Kansas, Allen and Neosho counties:
 Moore, R. C., 5.
 Butler County, Eldorado oil and gas
 field: Fath, 2.
 Cowley County: Elledge, 1.
 Ellis County: Bass, 2.
 Hamilton County: Bass, 2.
 northeastern, Pleistocene: Schoewe,
 5.
 oil and gas fields: U. S. G. S., 2.
 Quaternary deposits: Moore, R. C., 4.
 Russell County: Rubey, 3.
 Syracuse and Lakin quadrangles:
 Darton, 2.
 Wilson and Montgomery counties:
 Moore, R. C., 6.
 Kansas and Oklahoma: Snider, 1.
 Kansas and the adjoining region:
 Moore, R. C., 4.
 Kentucky: Jillson, 20, 70, 72, 86, 87.
 Adair County: Miller, A. M., 20.
 Allen County: Miller, A. M., 5;
 Shaw, E. W., 1.
 Barren County: Butts, 2.
 Bath County, oil and gas: Ky. G. S.,
 35.
 Barren County, oil and gas: Ky. G.
 S., 23.
 Bell County: Ky. G. S., 46.
 Bells Run anticline, Ohio County,
 structural: Ky. G. S., 36.
 Bourbon County: Dunn, P. H., 1.
 Boyd County, oil and gas: Ky. G. S.,
 25; structural: Ky. G. S., 11.
 Bracken County, oil and gas map:
 Ky. G. S., 30.
 Breathitt County: Jillson, 13; Ky.
 G. S., 1, 37.
 Butler County: Glenn, 11; Jillson,
 95, 103.
 Caldwell County: Weller, 17.
 Carter County: Ky. G. S., 26.
 Cave in Rock quadrangle: Weller, 16.
 Christian County: Sutton, 2.
 Clay County: Ky. G. S., 38.
 Dawson Springs quadrangle: Sut-
 ton, 1.
 Edmonson County: Ky. G. S., 31.
 Elliott County, oil and gas: Ky.
 G. S., 27.
 Estill County, lower Miller Creek:
 Ky. G. S., 52.
 Floyd County: Ky. G. S., 49; struc-
 tural: Ky. G. S., 5.
 Garrard County: McFarlan, 2.

Geologic maps—Continued.

Kentucky—Continued.

Golconda and Cave in Rock quadrangles: Weller, 10.

Grayson County: Ky. G. S., 32.

Green County, oil and gas map: Ky. G. S., 50.

Greenup County: Ky. G. S., 33.

Hancock County, oil and gas: Ky. G. S., 13.

Harlan County: Ky. G. S., 39.

Hartford quadrangle: Gardner, J. H., 4.

Henderson County: Ky. G. S., 40.

Hopkins County: Theis, 1.

Irvine and Berea region: Ky. G. S., 14.

Isonville oil pool, Elliott County, structural: Ky. G. S., 15.

Jackson County: Eyl, 1.

Jackson Purchase region: Jillson, 28.

Jeptha Knob: Bucher, 9.

Johnson County: Ky. G. S., 3.

Knott County: Jillson, 13; structural geology: Ky. G. S., 2.

Knox County: Ky. G. S., 28.

Lawrence County: Ky. G. S., 34.

Lee County: Eyl, 2; Ky. G. S., 41.

Leslie County: Ky. G. S., 16.

Lewis County: Perry, E. S., 1.

Lincoln County: Ky. G. S., 42.

Livingston County: Weller, 14.

Lyon County: Roberts, J. K., 5.

McCready County: Murphy, 1.

McLean County, economic: Ky. G. S., 17.

Magoffin County: Ky. G. S., 4.

Martin County, structural: Ky. G. S., 6, 18.

Metcalfe County, oil and gas data: Ky. G. S., 19.

Monroe County, oil and gas data: Ky. G. S., 7.

Morgan County: Robinson, L. C., 1.

Muhlenberg County: Ky. G. S., 20.

Nelson County: Ky. G. S., 53.

Ohio County: Jillson, 88, 104.

Owsley County: Ky. G. S., 43.

Paint Creek uplift: Ky. G. S., 21.

Perry County: Ky. G. S., 22.

Pike County, structural: Ky. G. S., 8.

Powell County: Ky. G. S., 44.

Princeton quadrangle: Weller, 7.

Rockcastle uplift, Laurel and Clay counties: Ky. G. S., 9.

Taylor County, oil and gas: Ky. G. S., 29.

Union County: Glenn, 10.

Warren County: Shaw, E. W., 1; oil and gas map: Ky. G. S., 54.

Wayne County, oil and gas map: Ky. G. S., 45.

Webster County: Glenn, 5.

Geologic maps—Continued.

Kentucky—Continued.

Williamsburg anticline, Whitley County: Ky. G. S., 10.

Woodford County: Miller, A. M., 21.

Kentucky and adjoining States: Jillson, 1, 2.

Labrador, Komaktorvik Fiord: Coleman, 6.

Nachvak Fiord: Coleman, 6.

northeastern, and New Quebec: Coleman, 6.

Louisiana: Glenk, 1; Hay, 23.

northern, structure: Spooner, 2.

oil and gas fields: Richardson, G. B., 2.

Shreveport area: Whittemore, J. W., 1.

Mackenzie, Mackenzie basin: Cameron, 1; Camsell, 1.

lower Mackenzie valley: Kindle, 9.

Mackenzie River between Norman and Beaver River: Hume, 5; between Wrigley and Norman: Hume, 8.

Mackenzie River district: Whittaker, 2; Williams, M. Y., 13.

Maine: Smith, G. O., 15.

Belfast quadrangle: Perkins, E. H., 3.

Liberty quadrangle: Perkins, E. H., 3.

Moosehead Lake area: Perkins, E. H., 4.

Vassalboro quadrangle: Pedkins, E. H., 3.

Manitoba: Prather, 1; Wallace, 14, 19.

Beresford Lake area: Wright, D. G. H., 2; Wright, J. F., 4.

Bigstone and Fox rivers area: Merritt, J. W., 4.

Flinflon area: Alcock, 15.

Island Lake area: Wright, J. F., 12.

Maskwa River nickel-copper deposits: McCann, 1.

mineral occurrences: Wallace, 14, 19.

Oiseau River area: Cooke, H. C., 9; Wright, J. F., 10.

Oswagan Lake-Burntwood River area: Alcock, 9.

Oxford and Knee lakes area: Wright, J. F., 11.

Rat River: Alcock, 10.

Reed and Wekusko lakes region: Alcock, 3.

Rice Lake area: Cooke, H. C., 9; Wright, J. F., 3, 6.

southern glacial geology: Wallace, 14.

Upper Whitemouth area: Johnston, W. A., 3.

Winnipegosis area: Johnston, W. A., 3.

Martinique, eastern: Barrabé, 1.

Geologic maps—Continued.

Maryland, Cambrian and Ordovician:
 Bassler, R. S., 1.
 coals of Georges Creek and upper
 Potomac basins: Swartz, C. K., 4.
 Elkton quadrangle: Bascom, 2.
 Kent County: Miller, B. L., 6.
 Piedmont Plateau: Knopf, E. B., 3.
 Queen Annes County: Miller, B. L.,
 7.
 Silurian: Swartz, C. K., 5.
 western Piedmont: Jonas, 4.
 Massachusetts, Cape Ann, Andrew's
 Point: Warren, C. H., 2.
 central western: Miller, W. J., 10.
 Essex County: Clapp, C. H., 1.
 eastern: Warren, C. H., 2.
 Medford dike: Billings, 1.
 Ware and Quinsigamond quad-
 rangles: Alden, 2.
 Massachusetts and New York, Pitts-
 field and Becket quadrangles:
 Dale, T. N., 5.
 Mexico: Iglesias, 1; Lewis, S. J., 1;
 Mexico, Secr. Agr., 1.
 Coahuila, northern: Cummings, 2.
 Colima (part): Vivar, 4.
 El Oro and Tlalpujahua districts:
 Flores, 1.
 Guanajuato mining district: Wandke,
 8.
 Hidalgo, Apan district: Camacho, 1.
 Lower California: Marland Oil Co.,
 1; Distrito Sur: Bustamante, 2;
 La Purisima region: Heim, 1;
 southern: Gálvez, 7.
 petroleum: Ortega, G., 1.
 southern: Ver Wiebe, 2.
 Zacualpan district: Lewis, S. J., 1.
 Michigan, Alpena County: Ver Wiebe,
 10.
 Chippewa County: Ver Wiebe, 11.
 Lower Peninsula: Phalen, 1.
 Marquette and Menominee districts:
 Winchell, A. N., 2.
 Roscommon County: Ver Wiebe, 8.
 Southern Peninsula, clay and shale
 areas: Brown, G. G., 1.
 surface formations: Leverett, 14.
 Mid-Continent oil fields: Bosworth, 1.
 Mid-Continent and north Texas oil
 regions: Rogers, G. S., 7.
 Minnesota: Hay, 23; Sardeson, 1;
 Stauffer, 7.
 clay materials: Grout, 2.
 eastern Mesabi range: Grout, 3.
 Herman, Barrett, Chokio, and Mor-
 ris quadrangles: Sardeson, 1.
 St. Louis County, northern: Grout,
 20.
 surface formations: Leverett, 4.
 Vermilion iron range: Schwartz, 7.
 Washington County, northern: Pe-
 terson, E., 1.
 Mississippi: Lowe, 2, 3, 9; Stephen-
 son, 10.
 northeastern: Burchard, 20.

Geologic maps—Continued.

Missouri: Buehler, 3.
 Devonian formations along the Mis-
 souri River: Branson, 5.
 Ste. Genevieve County: Weller, 19.
 Montana (part): Pardee, 14.
 Bearpaw Mountains: Reeves, F., 7.
 Beartooth Mountains: Bevan, 2.
 Cat Creek oil field: Lupton, 1.
 central and eastern: Clapp, C. H., 2.
 Ekalaka field: Bauer, 4.
 faulted area south of Bearpaw
 Mountains: Reeves, F., 8.
 Fergus County, Winifred area:
 Reeves, F., 6.
 Huntley field: Hancock, 2.
 Ingomar anticline, Treasure and
 Rosebud counties: Heald, 18.
 Jordan coal field: Bowen, C. F., 2.
 Kevin-Sunburst oil field: U. S. G.
 S., 11.
 McCarthy Mountain area: Richards,
 R. W., 2.
 Melrose phosphate field: Richards.
 R. W., 2.
 Musselshell and Golden Valley coun-
 ties: Ellis, A. J., 5.
 Phillipsburg district: Pardee, 8.
 Phillipsburg phosphate field: Par-
 dee, 6.
 Rosebud County: Renick, 5.
 Scobey lignite field, Valley, Daniels,
 and Sheridan counties: Collier, 9.
 Stanford hematite district: West-
 gate, 1.
 Sweet Grass Hills: Kemp, 8.
 Three Forks-Yellowstone Park re-
 gion: Condit, 5.
 Townsend Valley: Pardee, 10.
 Nebraska, Pennsylvanian: Condra, 2.
 Nevada, Divide district: Knopf, A., 3.
 Elko area: Winchester, 5.
 Gilbert district: Ferguson, H. G., 10.
 Manhattan district: Ferguson, H. G.,
 2, 5.
 Mills City tungsten district: Hess,
 11.
 Muddy Mountain overthrust: Long-
 well, 3.
 Muddy Mountains region: Long-
 well, 1, 15.
 Pilot Mountains: Foshag, 32.
 Pioche district: Westgate, 6.
 Pleistocene lake beds: Clark, W.
 O., 1.
 Rochester district: Knopf, A., 7.
 Santa Fe district, Mineral County:
 Clark, C. W., 2.
 Toquima Range: Ferguson, H. G.,
 2, 4.
 New Brunswick, Burnthill Brook area:
 Young, G. A., 1.
 Chipman sheet, Queens County:
 Dyer, 8.
 Kings County, Sussex area: Hayes,
 A. O., 7.

Geologic maps—Continued.

New Brunswick—Continued.

Minto sheet, Sunbury County:
Dyer, 8.

Moncton area: Wright, W. J., 2.

Newfoundland: Howley, 1; Snelgrove,
1, 2.

St. George's coal field: Baker, H.
A., 2.

west coast: Brunton, 3.

New Hampshire: Goldthwait, 6; gla-
cial: Goldthwait, 6.

Ammonoosuc district: Ross, C. P., 2.

Hanover district: Merritt, J. W., 3.

White Mountains, North Conway
quadrangle: Billings, 5.

New Jersey, greensand beds: Mansfield,
12.

New Mexico: Darton, 25; Ellis, R. W.,
5; (parts): Darton, 26.

Alamosa Creek valley: Winchester, 3.

Carlsbad region: Meinzer, 16.

Gallup coal district, McKinley Coun-
ty: Sears, 6.

Gallup-Zuni Basin: Sears, 6.

Guadalupe group: Darton, 19.

Iron Mountain: Smythe, 2.

Jornada del Muerto: Darton, 11.

Mogollon district: Ferguson, H. G.,
1, 8.

Puertecito district: Wells, E. H., 2.

Raton coal field: Lee, W. T., 10.

Raton-Brilliant-Koehler area: Lee,
W. T., 6.

Roswell artesian basin: Fiedler, 2.

Sandia and Manzano mountains and

Sierra de los Pinos: Darton, 11.

Sandia Mountains: Ellis, R. W., 2.

San Juan County: Bauer, C. M., 1.

southeastern: Hoots, 1; Anon., 58.

Taos Range: Gruner, 1.

Tularosa Basin: Darton, 11; Pow-
ell, 1.

Tyrone district: Paige, 2.

Valencia and Socorro counties
(parts) Darton, 11.

Zuni Indian Reservation: Sears, 6.

New York: Miller, W. J., 23.

Adirondacks: Newland, 2.

Canton quadrangle: Chadwick, 5.

Catskill region: Jones, R. W., 1.

Clove quadrangle: Dale, T. N., 5.

Cohoes quadrangle, glacial: Stoller, 2.
eastern, Pleistocene: Fairchild, H.
L., 1.

Gouverneur quadrangle: Cushing, 1.

Lake Bonaparte quadrangle: Smyth,
2.

Lake Bonaparte-Lowville quad-
rangles: Buddington, 2.

Lake Placid quadrangle: Miller, W.
J., 1.

Lyon Mountain quadrangle: Miller,
W. J., 26.

Mount Marcy quadrangle: Kemp, 7.

Geologic maps—Continued.

New York—Continued.

Newburgh quadrangle: Holzwasser, 1.

New York City: Reeds, 2.

Ordovician: Ruedemann, 16.

Plattsburg quadrangle: Hudson, G.
H., 1.

Rochester district, Pleistocene: Fair-
child, 6.

Rouses Point quadrangle: Hudson,
G. H., 1.

St. Regis and Saranac quadrangles
(parts): Alling, H. L., 1; glacia-
tion: Alling, H. L., 1.

Schroon Lake quadrangle: Miller,
W. J., 2.

Skaneateles region: Monnett, 3.

West Point quadrangle: Berkey, 3.

New York, Massachusetts, and Con-
necticut, Sheffield and Sandisfield
quadrangles: Dale, T. N., 5.

New York, Massachusetts, and western
Vermont, Greylock, Berlin, and
Hoosick quadrangle: Dale, T.
N., 5.

North America: Pirsson, 2, 5; Schu-
chert, 23.

North Carolina: Bryson, 3.

Cherokee County, Nottely and Val-
ley River belt: Bayley, 5, 11.

Cretaceous: Stephenson, 4.

Deep River pyrophyllite deposits:
Stuckey, 1.

Deep River region: Stuckey, 5.

North Dakota: Leonard, A. G., 1; Wil-
lard, D. E., 2.

Marmarth field: Hares, 5.

New Salem lignite field: Hancock, 6.
western: Stanton, 3.

Northern Great Plains: Alden, 3.

Nova Scotia: Brunton, 6, 10; (physio-
graphic): Goldthwait, 5.

Arisaig district: McLearn, 8.

Cape Breton County, Sydney: Hayes,
A. O., 6.

Horton-Windsor district: Bell, W.
A., 2.

Inverness County, Lake Ainslie dis-
trict: Bell, W. A., 12.

Malagash Peninsula, Cumberland
County: Hayes, 2.

North Mountain, Cape Breton:
Guernsey, 2.

Northumberland Strait: Bell, W. A.,
10.

Richmond County, Stirling area:
Weeks, L. J., 1.

Ohio: Bownocker, 1; Westgate, 5.

Camp Sherman quadrangle: Hyde, 1.

Delaware County: Westgate, 5; gla-
cial: Westgate, 5.

Dunkard series: Stauffer, 1.

glacial: Hay, 16.

northwestern, Monroe division: Car-
man, 2.

Geologic maps—Continued.

Ohio—Continued.

- Summerfield and Woodsfield quadrangles: Condit, 3.
 Wayne County: Conrey, 1.
 Oklahoma: Gould, C. N., 31; Miser, 24; Redfield, J. S., 1; Reeves, F., 1; Robinson, H. M., 3.
 Arbuckle Mountain region: Cooper, 1; Reeds, 11; western end: Blrk, 2.
 Arbuckle Mountains: Taff, 7.
 Ardmore Basin: Goldston, 2.
 Ardmore quadrangle: Goldston, 1.
 Beaver County: Gould, 15.
 Beckham County: Gouin, 2.
 Bristow quadrangle: Fath, 6.
 Caddo and Grady counties: Becker, 1.
 Carter County: Tomlinson, 4; (part); Roth, 2; Criner Hills: Powers, 22.
 Cimarron County: Rothrock, 4.
 Cleveland and McClain counties: Anderson, G. E., 4.
 Coal and Pittsburg counties: Clawson, 1.
 Comanche County: Gouin, 3.
 Garvin County: Dott, 2.
 Grandfield Bridge sheet: Sellards, 18.
 Harmon, Greer, Jackson and Tillman counties: Clifton, 5.
 Jefferson County: Robinson, H. M., 3.
 Kay, Grant, Garfield, and Noble counties: Clark, G. C., 3.
 Kingfisher and Canadian counties: Kite, 1.
 Leflore and McCurtain counties: Honess, C. W., 5.
 Logan County: Bale, 1.
 Love County: Bullard, 2.
 Marshall County: Bullard, 3.
 mineral resources: Okla. G. S., 1.
 Muskogee County: Soyster, 1.
 northeastern, structure map: Thom, 11; subsurface distribution of pre-Chattanooga rocks: White, L. H., 2, 3.
 oil and gas fields: U. S. G. S., 6.
 Okmulgee district: Clark, R. W., 1.
 Osage County: Beckwith, H. T., 1.
 Osage Reservation: Goldman, 4; Heald, 1-4; Hopkins, O. B., 1; Ross, C. S., 2; Roundy, 1.
 Ouachita Mountains: Miser, 29.
 Papoose oil field: Roark, 2.
 Rogers County: Woodruff, 4.
 south central: Bullard, 2, 3.
 southeastern: Honess, C. W., 2.
 southern: Moore, R. C., 10; (part): Hopkins, O. B., 2; Stonewall quadrangle: Morgan, G. D., 6; structural trends: Decker, L., 1.
 southwestern: Gould, 5; Sawyer, 1.
 Stephens County: Gouin, 1.
 Texas County: Gould, 11.
 upper Paleozoic: Gould, C. N., 19.

Geologic maps—Continued.

Oklahoma—Continued.

- Washington County: Carpenter, E., 2.
 western: Bullard, 4.
 Wichita Mountains: Taff, 7.
 Oklahoma and adjacent States (parrys): Bullard, 4.
 Ontario: Canada, Dept. Mines, 1; Nicolas, 1.
 Algoma district: Brunton, 1; Blind River: Collins, 11; Bruce Mines: Collins, 11; Michipicoten area: Collins, 15; Missinaibi area; Thomson, E., 11.
 Algoma and Thunder Bay districts: Canada G. S., 1.
 Anima-Nipissing area: Todd, E. W., 7.
 Argonaut gold mine: Knight, 6.
 Batchawana area, District of Algoma: Moore, E. S., 19.
 Ben Nevis area: Knight, C. W., 5.
 Black River area: Wright, D. G. H., 1.
 Blanche River area: Burrows, 9.
 Boston-Skead area: Burrows, 8.
 Brocktown - Mallorytown area: Wright, J. F., 2.
 Carscallen, Bristol, and Ogden townships, District of Cochrane: Hawley, J. E., 3.
 Cobalt area: Knight, 11.
 Contact Bay gold mines, District of Kenora: Bruce, 17.
 English River valley: Bruce, 11.
 Favourable Lake area, Patricia: Hurst, 5.
 Gammon River area, District of Kenora: Gilbert, G., 7.
 glacial shore lines: Ledoux, A., 1.
 Goudreau-Lochalsh area: Gledhill, 8.
 Gowanda area: Burrows, 3, 17.
 Kamiskotia area: Finley, 1.
 Kenogamissi Lake area: Todd, E. W., 3.
 Kirkland Lake area: Burrows, 4.
 Lake St. Joseph area: Bruce, 8; eastern part: Bruce, 9.
 Larder Lake area: Hopkins, 8.
 Leeds County: Baker, M. B., 1.
 Lightning River area: Gledhill, 4.
 Matabitchuan area: Todd, E. W., 6.
 Matachewan district: Cooke, H. C., 1.
 Matawin iron range, Thunder Bay district: Tanton, 15.
 Michipicoten area: Gledhill, 7.
 Michipicoten district, Goudreau pyrite area: Collins, 15.
 Mississagi Reserve and Goulais River iron ranges: Moore, E. S., 15.
 Morrisburg sheet: Wilson, A. E., 2.
 Murphy, Hoyle, and Matheson townships: Rose, 4.
 Niagara Peninsula: Williams, M. Y., 1.
 Night Hawk Lake area: Hopkins, 9.

Geologic maps—Continued.

Ontario—Continued.

- Nipissing district, Cedar and Net Lakes: Knight, C. W., 4.
- Ontario Peninsula: Williams, M. Y., 1.
- Ontario-Manitoba boundary: Burwash, 6; Rickaby, 1.
- Patricia: Rogers, W. R., 6.
- phosphate area: Spence, 2.
- Porcupine gold area, District of Cochrane: Burrows, 13.
- Red Lake area, District of Patricia: Bruce, 12; Douglas, G. V., 4; Rogers, W. R., 6; Wright, D. G. H., 4.
- Red Lake gold area, District of Kenora: Bruce, 22.
- Red Lake to Favourable Lake, Patricia: Douglas, G. V., 4.
- Renfrew County (part); Wilson, M. E., 3.
- Sabkatakawich Lake section, Woman River iron range, District of Sudbury: Moore, E. S., 20.
- Sault Ste. Marie area, District of Algoma: McConnell, 1.
- Schreiber-Duck Lake area: Hopkins, P. E., 5.
- Shiningtree silver area, District of Timiskaming: Langford, 1.
- southwestern: Williams, M. Y., 2.
- Sturgeon Lake gold area: Gledhill, 2.
- Sudbury district, Grassy River area: Gledhill, 5; Lake Panache region: Collins, 11; Moncrieff and Hess townships: Quirke, 7; Wanapitei Lake area: Quirke, 8; West Shiningtree area: Finley, 2.
- Windy Lake nickel area: Knight, C. W., 4.
- Sudbury region: Bain, 5.
- Sutton Lake area: Hawley, J. E., 1.
- Tashota-Onaman area: Gledhill, 3.
- Thunder Bay district: Tanton, 3, 7.
- Bishop Lake area: Gill, J. E., 1.
- Little Gull Lake area: Gill, J. E., 1.
- North Lake area: Gill, J. E., 1.
- Timiskaming district: Cross, J. G., 2; Hume, 1; Abitibi-Night Hawk gold area: Knight, C. W., 1.
- Kenogami Lake area: Cooke, H. C., 8.
- Larder Lake area: Cooke, H. C., 8.
- McNeill township: Hopkins, 10.
- Redstone River area: Bruce, 19.
- Round Lake area: Cooke, H. C., 8.
- Wakomata Lake area, Algoma district: Emmons, R. C., 3.
- Waspika section, West Shiningtree area: Langford, 2.
- Watabeag area: Wright, D. G. H., 2.
- West Shiningtree area: Hopkins, P. E., 2.
- Whiskey Lake area, Algoma: Douglas, G. V., 2.

Geologic maps—Continued.

Ontario—Continued.

- Woman and Narrow lakes area, District of Kenora: Greig, 2.
- Oregon: Smith, W. D., 9.
- Astoria: Howe, H. V. W., 9.
- Klamath Mountains: Kellogg, A. E., 8.
- Riddle quadrangle: Diller, 12.
- Panama, Canal Zone: MacDonald, D. F., 1.
- Pennsylvania: Leighton, H., 2.
- Adams County, mineral products: Stose, 25.
- Allegheny County: Leighton, H., 2.
- Allentown quadrangle: Miller, B. L., 5.
- Cambro-Ordovician limestones: Miller, B. L., 11.
- Chester Valley: Stose, 18.
- coal fields: Sisler, 3.
- Greensburg quadrangle: Johnson, M. E., 1.
- Jonestown-Lebanon region: Stose, 29.
- limestones: Miller, B. L., 4.
- McCalls Ferry quadrangle: Jonas, 2.
- New Holland quadrangle: Jonas, 5.
- Northampton County, slate belt: Behre, 7.
- oil and gas fields: Richardson, G. B., 3.
- Phoenixville mining district: Miller, B. L., 3.
- Piedmont Plateau: Knopf, E. B., 3.
- Piedmont region, anorthosite area: Smith, I. F., 3.
- Punxsutawney quadrangle: Ashley, 18.
- Quarryville quadrangle: Jonas, 3.
- southeastern: Stose, 21.
- western, oil and gas fields: Ashley, 11.
- Pennsylvania and Maryland, Piedmont province: Stose, 18.
- Permian, Texas-Oklahoma: Gould, 16.
- Porto Rico: Berkey, 1.
- Barrio Pasto district: Colony, 9.
- Coamo-Guayama district: Hodge, E. T., 1.
- Humacao district: Fettke, 5.
- Juncos-Torre district: Fettke, 6.
- Lares district: Hubbard, B., 3.
- physiographic map: Lobeck, 5.
- Ponce district: Mitchell, 7.
- San Juan district: Semmes, 1.
- Quebec: Canada, Dept. Mines, 1.
- Abitibi County, Piedmont and Du-buisson areas: James, 7.
- Four-nière sheet: James, 5.
- Amherst township: Wilson, Morley E., 1.
- Anticosti Island: Twenhofel, 30.
- Barrate area, Abitibi County: Bain, 8.
- Beauceville area: MacKay, B. R., 4.
- Bonaventure County, Port-Daniel-Gascons area: Schuchert, 29.

Geologic maps—Continued.

Quebec—Continued.

- Bristol Township: Wilson, M. E., 10.
 Chatham Township: Bain, 2.
 Chibougamau district, Lake David area: Mawdsley, 4.
 Clericy sheet, Abitibi and Temiscamingue counties: James, 4.
 Coleraine area: Knox, J. K., 1.
 Dufresnoy area, Abitibi district: Harvie, 3.
 Duparquet area: James, W. F., 1.
 Gaspé County, Lemieux township: Alcock, 14, 29; Mailhoit, 1.
 Gaspé Peninsula (glacial): Coleman, 10.
 Harricaw Basin: Bain, 6.
 Harricaw and Bell river basins: Bain, 22.
 Harricaw-Turgeon region: Tanton, 1.
 Hull County: Wilson, M. E., 10.
 Kinojevis sheet, Temiscamingue and Abitibi counties: James, 4.
 Lake David, area: Mawdsley, 5.
 Lake Demontigny region: Mailhoit, 4.
 Lake St. John district: Martens, 7.
 La Motte sheet, Abitibi County: James, 5.
 Laurentian Plateau: Dresser, 4.
 Mount Albert area: Alcock, 6.
 Mount Serpentine, Gaspé County: Alcock, 22.
 Onslow Township: Wilson, M. E., 10.
 Percé: Clarke, J. M., 2.
 Phillipsburg region: Bradley, J. H., jr., 2.
 phosphate area: Spence, 2.
 Pontiac County, Calumet Island: Goranson, 3.
 Quetachou Manicouagan Bay region: Erlenborn, 1.
 Quyon area: Wilson, M. E., 10.
 Rouyn area: James, W. F., 2; (part): Cooke, H. C., 29.
 St. Urbain area, Charlevoix district: Mawdsley, 1.
 Timiskaming County, Opatatika area: Cooke, H. C., 10.
 Recession of the last ice sheet in New England: Antevs, 1.
 Saskatchewan, Battle River: Hume, 20.
 Cypress Hills: McLearn, 16.
 Lake Athabaska: Allan, 10.
 Wapawekka and Deschambault lakes area: De Lury, 6.
 Saskatchewan and Manitoba: Wallace, 14.
 South Dakota, Badlands: Ward, 8.
 Black Hills region: O'Harra, 3; central: Darton, 14.
 Custer State Park: O'Harra, 5.
 Dewey County: Ward, 9.
 Edmunds County: Rothrock, 1.

Geologic maps—Continued.

South Dakota—Continued.

- Lead district: Darton, 14; Paige, 3, 4.
 Minnehaha County: Rothrock, 5.
 Newell quadrangle: Darton, 1.
 Ragged Butte area, Dewey County: Wilson, R. A., 7.
 western: Stanton, 3.
 Tennessee: Jenkins, 1; Nelson, 12.
 Brushy Mountain region: Jillson, 43.
 Crossville quadrangle: Butts, 6.
 Ducktown district: Emmons, W. H., 8.
 east: Secrist, 1; Stose, 17.
 Friendsville and vicinity: Gordon, C. H., 3.
 Harpeth River dome: Jillson, 59.
 Knoxville and vicinity: Gordon, C. H., 3.
 Overton County (part), structure: Butts, 1.
 Rutherford County: Galloway, J. J., 1.
 State coal land (Herbert Domain): Nelson, 21.
 Upper Cretaceous: Wade, B., 1, 3.
 Waynesboro quadrangle: Miser, 6.
 western: Roberts, J. K., 6.
 western valley: Dunbar, 1.
 Tennessee and Virginia (parts): Shaw, E. W., 1.
 Texas: Currier & Company, 1; Moore, R. C., 13; Snider, 1.
 Bexar County: Sellards, 10.
 central east: Dumble, 1.
 Coke County: Beede, 6.
 Colorado County: Bailey, T. L., 1.
 Cooke County: Bybee, 3.
 Crockett County: Liddle, 2.
 Culberson County, University Block: Beede, 8.
 Dallas County: Shuler, 1.
 Denton County: Winton, 3.
 Diablo Plateau: Beede, 3.
 Eastland and Stephens counties, structural conditions: Adams, H. H., 1.
 Foard County: Beede, 11.
 Fort Stockton quadrangle: Adkins, 4.
 Glass Mountains: King, 4, 6.
 Grandfield Bridge sheet: Sellards, 18.
 Guadalupe group: Darton, 19.
 Gulf Coastal Plain near Rio Grande: Trowbridge, 5.
 Johnson County: Winton, 2.
 Lacasa area, Ranger district: Ross, C. S., 3.
 Lytton Springs: Collingwood, 8.
 McLennan County: Adkins, 2; Pace, 1.
 Medina County: Liddle, 3.
 north central: Hager, D., 2; Pennsylvanian: Moore, R. C., 11; Plummer, 4.

Geologic maps—Continued.

Texas—Continued.

- northeastern: Ellisor, 2; Fohs, 2; Thompson, W. C., 1; (part): Hopkins, O. B., 2.
- Pecos Valley: Liddle, 2.
- Petrolia field: Shaw, 6.
- Potter County: Patton, L. T., 2.
- San Marcos quadrangle: Brucks, 2.
- Solitario uplift: Powers, 9.
- southern, Gueydan and adjacent formations: Bailey, T. L., 3.
- Tarrant County: Winton, W. M., 1.
- Taylor marl: Dane, 1.
- Terrell County: Christner, 1.
- Tom Green County: Henderson, G. G., 1.
- trans-Pecos Texas: Baker, C. L., 6.
- west (part): Beede, 10.
- western: Hoots, 1; Anon., 58.
- Wiles area, Stephens County: Dobbin, 1.
- Trinidad: Milner, 1; Waring, 5, 6.
- Naparima region: Illing, 1.
- southern: Carlson, 2.
- Uta Mountains: Sears, 4.
- United States, petroleum provinces: Lilley, 1.
- physiographic divisions: Fenne-man, 6.
- physiographic map: Lobeck, 2; Meinzer, 6.
- Utah: Butler, 4; Moore, R. C., 17; (part): Campbell, M. R., 3.
- Carbon County, Farnham anticline: Clark, F. R., 2.
- Castlegate, Wellington, and Sunny-side quadrangles: Clark, F. R., 4.
- La Sal Mountains: Gould, L. M., 4.
- Salina Canyon district, Sevier County: Spieker, 6.
- San Juan Canyon: Miser, 14.
- Tintic district: Lindgren, 2.
- Tintic quadrangle: Lindgren, 2.
- Vermont, Bethel Township: Richardson, C. H., 8.
- Braintree: Richardson, C. H., 5.
- Bridport: Foyles, 3.
- Cuttingsville: Eggleston, 1.
- Northfield: Richardson, C. H., 2.
- Orange County, Randolph Town-ship: Richardson, C. H., 7.
- Plattsburgh quadrangle: Hudson, G. H., 1.
- Rouses Point quadrangle: Hudson, G. H., 1.
- Roxbury: Richardson, C. H., 3.
- Shoreham: Foyles, 3.
- Whitingham area: Hubbard, G. D., 4.
- Woodstock quadrangle: Richardson, C. H., 11.
- Virginia: Nelson, W. C., 29.
- Blue Ridge, west foot: Stose, 1.
- Danville area, Triassic: Roberts, J. K., 8.
- Dickenson County: Giles, 3.

Geologic maps—Continued.

Virginia—Continued.

- Giles County: Hubbard, G. D., 6.
- Lee County: Giles, 4.
- northeastern: Lonsdale, 2; Jonas, 8.
- northern, Triassic: Roberts, J. K., 8.
- Pittsylvania County: Watson, 13.
- Richmond Basin, Triassic: Roberts, J. K., 8.
- Russell County: Wentworth, 6.
- Scott County, Early Grove: Butts, 9.
- Scottsville area, Triassic: Roberts, J. K., 8.
- Tazewell County: Harnsberger, 1.
- Valley coal fields: Campbell, M. R., 10.
- western: Stose, 16.
- Wise and northern Scott counties: Eby, J. B., 1.
- Washington, channeled scabland: Bretz, 18.
- mining districts: Patty, 3.
- Pasco and Prosser quadrangles: Culver, 10.
- San Juan Islands: McLellan, 2.
- Skagit County: Jenkins, 8.
- southwestern: Culver, 1.
- Spokane area: Pardee, 12.
- Stevens County: Weaver, 2.
- Whatcom County, coal measures: Jenkins, 7.
- West Virginia, Abram Creek-Stony River field: Ashley, 4.
- Cheat Mountain coal field, Randolph County: Reger, 16.
- economic deposits: White, I. C., 5.
- Fayette County: Hennen, 1.
- Grant County: Reger, 7.
- Hampshire County: Tilton, 15.
- Hardy County: Tilton, 15.
- Mercer County: Reger, 9.
- Mineral County: Reger, 7.
- Monroe County: Reger, 9.
- Nicholas County: Reger, 3.
- Pendleton County: Tilton, 14.
- Summers County: Reger, 9.
- Tucker County: Reger, 6.
- Webster County: Reger, 1.
- Wisconsin: Steidtmann, 5; Twenhofel, 15.
- Wyoming: Campbell, M. R., 9; Mor-gan, G. B., 1.
- Baxter Basin gas field: Sears, 7.
- Bell Springs district, Carbon Coun-ty: Dobbin, 5.
- Cody region: Hewett, 4.
- Gillette coal field: Dobbin, 3; Thom, 19; Minturn district: Thom, 19.
- Grass Creek Basin quadrangle: Hewett, 16.
- Lance Creek field: Hancock, 5.
- Lost Soldier-Ferris district: Fath, 5.
- Meeteetse quadrangle: Hewett, 16.
- Mule Creek oil field: Hancock, 4.

Geologic maps—Continued.

Wyoming—Continued.

- oil and gas fields: Morgan, G. B., 4;
Richardson, G. B., 4.
 - Oregon Basin quadrangle: Hewett, 16.
 - Osage oil field, Weston County: Collier, 7.
 - Rawlings and Sweetwater uplifts: Fath, 3.
 - Rock Springs area, Sweetwater County: Schultz, 1.
 - Snowy Range district: Blackwelder, 14.
 - southeastern: Blackwelder, 14.
 - southern: Sears, 5.
 - southwestern: Winchester, 5.
 - Sweetwater County: Sears, 3;
(part): Bradley, W. H., 5.
 - Upton-Thornton oil field: Hancock, 3.
 - Wind River Mountains: Condit, 4.
 - Yukon, Aishihik Lake area: Cockfield, 19.
 - Dezadeash Lake area: Cockfield, 20.
 - Galena Hill, Mayo district: Stockwell, 1.
 - Keno-Hill district: Cockfield, 6.
 - Mayo district: Cockfield, 8, 15.
 - Sixtymile and Ladue rivers area: Cockfield, 5.
 - Whitehorse district: Cockfield, 16.
- Geologic maps, interpretation: Dake, 12.
- Geologic structures: Willis, 11.
- Geologic time.
- Actino-uranium and enlarged ancient halos: Wilkins, 1.
 - Ages of radioactive minerals: Holmes, A., 2.
 - Astronomical measure: Keyes, 236.
 - Atomic disintegration as a measure of geologic time: Ellsworth, 5.
 - Chronology in geology: Udden, 11.
 - General: Allison, V. C., 1; Johnson, J. H., 16; Schuchert, 35.
 - Geochronology as based on solar radiation: De Geer, 6.
 - Glacial stages, time ratios: Upham, 4.
 - Glacial time scale: De Geer, 4.
 - Laminated deposits: De Geer, 1.
 - Lead isotopes: Piggot, 1.
 - Lead uranium ratios: Lane, 30.
 - Measurement by atomic disintegration: Lane, 20; Moore, R. B., 2.
 - Niagara Canyon, age: De Geer, 4; Johnston, W. A., 26.
 - Niagara Falls, age: Taylor, 8.
 - Pleistocene: Leverett, 17.
 - California: Eaton, J. E., 6.
 - Pleistocene clays as a chronometer: Fairchild, 11.
 - Postglacial time, duration: Brückner, 1.
 - measurement: Gleason, 1; Swinerton, 1.
 - Pre-Cambrian time, duration: Ellsworth, 8.

Geologic time—Continued.

- Radioactive minerals as age indicators: Ellsworth, 6.
 - Recession of the last ice sheet in New England: Antevs, 5.
 - Seasonal records: Reeds, 4.
 - Spiral graph of geologic time: White, D., 37.
 - Taonurus, use in estimating geologic time: Galloway, J. J., 5.
 - Time divisions of glacial periods: Osborn, 19.
 - Uranium-thorium-lead method: Fennner, 11.
 - Varved clays, Little Ferry, New Jersey: Reeds, 7.
- Geological climates: Scott, W. B., 4.
- Geological surveys. See Surveys.
- Geologists as witnesses in mining litigation: Leith, 4; Ransome, 5.
- Geology, development of: Gregory, H. E., 7.
- Geology, general: Peck, C. H., 1.
- Geology (popular and elementary): Mather, 13; Mills, 1.
- Geology and geography in the United States: Mathews, 3.
- Geology applied to mining: Spurr, 24.
- Geology as a profession: Little, 2.
- Geology in partnership with American industry: Smith, G. O., 11.
- Geology in its relation to landscape: Henderson, J., 7.
- Geology in the law: Kemp, 4.
- Geology in the World War and after: Cross, C. W., 1.
- Geology in war: DeWolf, 1.
- Geology of salt dome oil fields: DeGolyer, 17.
- Geomagnetics: Stearn, 1.
- Geomorphogeny. See Physiographic geology.
- Geomorphology. See also Physiographic geology.
- Continental drift, theory of: Van der Gracht, 1.
 - Continental shifting: Hamilton, G. H., 1.
 - Continental displacement hypothesis: Schuchert, 50, 51.
 - Earth deformations: Quirke, 24.
 - Hinge zone of Tertiary deformation: Emmons, W. H., 7.
 - Major earth features: Schaffer, 1.
 - Trough-deeps of island arcs: Hobbs, 23.
- Geomorphy. See Earth, figure.
- Geophysical methods: Jakosky, 2.
- in Gulf Coastal Plain: Barton, 6.
 - in Michigan copper district: Broderick, 4.
- Geophysical prospecting: Am. Inst. Min. Eng., 1; Kithil, 1.
- Geophysics.
- Alumina and silica: Day, A. L., 1.
 - Canada, western, gravity observations: Miller, A. H., 2.

Geophysics—Continued.

- Compressibility of the earth: Woodward, R. S., 1.
- Density distribution in the earth: Williamson, 2.
- Density of rocks from Mauna Kea and Haleakala: Washington, 25.
- Diffusion in silicate melts: Bowen, N. L., 2.
- Dunite, compressibility: Adams, L. H., 8.
- Geophysical investigations: Day, A. L., 1.
- Geophysical Laboratory, report: Day, A. L., 1; Sosman, 3.
- Gravity anomalies and petroleum exploration: Hubbert, 3.
- Moduli of elasticity in outer earth-shells: Daly, 25.
- Observatories, need for: Jaggar, 5.
- Pressure in magmas: Morey, 1.
- Pressures in planetary atmospheres: Nutting, 2.
- Problems: Sosman, 4, 5.
- Relation of crystallization to water content and vapor pressure of water in a cooling magma: Morey, 2.
- Status and problems of geophysical chemistry: Sosman, 6.
- Stone Mountain granite, radium content: Piggot, 2.

Georgia.

- Geological Survey, historical sketch: Cave, 1.
- Macon area: Cooke, C. W., 5.

Areas described.

- Tate quadrangle: Bayley, 13.

Economic geology.

- Barytes deposits: Hull, 3.
- Bauxite deposits: Adams, G. I., 3.
- Clay: Ries, 5; Stull, 2.
- Gold, McDuffie County: Bruhl, 1.
- Iron ore deposits: Haseltine, 1.
- Kaolin and bauxite, Coastal Plain: Stull, 1.
- Manganese: Hill, 1; Stose, 7; Cartersville district: Anon., 1.
- Mineral resources: Cave, 1; McCallie, 4, 5; Maynard, T. P., 1.
- Ocher deposits, Cartersville: Haney, M., 2; Weigel, 1.
- Oil prospect near Scotland, Telfair County: Hull, 2.
- Petroleum and natural gas possibilities: Prettyman, 1.
- Potash slates, Cartersville: Maynard, T. P., 1.
- Sand and gravel deposits: Teas, 1.
- Tate quadrangle: Bayley, 13.

Historical geology.

- Cartersville district: Hull, 1, 3.
- Coastal Plain: McCallie, 7; Prettyman, 1.
- Cretaceous: Berry, 4.
- General: McCallie, 1, 2.

Georgia—Continued.

Historical geology—Continued.

- Mesozoic and Cenozoic: McCallie, 8.
- Telfair County: Hull, 2.

Mineralogy.

- Lazulite, Graves Mountain, Lincoln County: Watson, 10.
- Meteorite, Pitts, Wilcox County: McCallie, 3.
- Social Circle, Walton County: McCallie, 6.

Paleontology.

- Chipola fauna in Marks Head marl: Gardner, J. A., 5.
- Cretaceous floras: Berry, 4.

Petrology.

- Stone Mountain granite, radium content: Piggot, 2.

Physiographic geology.

- Coastal Plain: McCallie, 7.
- Coastal terraces: Cooke, C. W., 11.
- Physical geography: LaForge, 4.

Underground water.

- Thermal springs: Watson, 16.

Germanium: Papish, 2.

Geosynclines: Schuchert, 22.

Geotectonic adaptation through retardation of the earth's rotation: Keyes, 6.

Geothermal data of United States: Darton, 6.

Geothermal gradient, Sunset-Midway oil field, California: Rogers, G. S., 1.

Geotherms of Lake Superior copper country: Lane, 15.

Geysers.

- Yellowstone National Park: Darton, 4.
- Gilbert district, Nevada: Ferguson, H. G., 10.

Gillette coal field, Wyoming: Dobbin, 3.

Gilsonite.

- Utah: Bardwell, 1; Clark, A. F., 1; Douglass, 1; Hartzell, 1.

Glacial anticyclones: Hobbs, 4, 6, 25, and in Visser, 4.

Glacial boulders, eastern, central, and northern New York: Martens, 4.

Missouri, Columbia, sources: Wilkerson, 1.

Glacial deposits.

Connecticut, Southington-Granby area: Palmer, H. S., 5.

Correlation with Swedish time scale: De Geer, 2, 3.

Iowa, northwestern: Lees, 6.

Glacial erosion, Crosby, W. O., 5.

General: Quirke, 16.

Gauging of valleys by glaciers: Roberts, M., 1.

New York, Ithaca: Sheldon, 2.

Glacial geology. See also Glacial lakes; Quaternary.

Alaska, Alaska Railroad region: Capps, 6.

Chandalar district: Mertie, 12.

northern, Canning River region: Leflingwell, 1.

Glacial geology—Continued.

- Alberta, glacial boulders: Rutherford, 9.
 Calgary: Burwash, 4.
 structural features produced by
 Pleistocene glaciation: Hopkins,
 O. B., 3.
 Altamont moraine: Leverett, 10.
 American and Swedish time scales:
 De Geer, 4.
 Astronomical theory of ice ages:
 Keyes, 214, 219, 221, 224, 226.
 Bemis moraine: Leverett, 10.
 British Columbia: Tyrrell, 1.
 Cariboo district, Barkerville area:
 Johnston, W. A., 21; Tyrrell, 2.
 Cariboo and Cassiar districts: John-
 ston, W. A., 24.
 Coquihalla area: Cairnes, 4.
 Fraser River Delta: Johnston, W. A.,
 17.
 Eutsuk Lake district: Brock, 1.
 Vancouver Island: Berry, 33.
 Vancouver region: Johnston, W. A.,
 5.
 California, San Bernardino Mountains:
 Vaughan, F. E., 1.
 San Gabriel Mountains: Miller, W.
 J., 28.
 Sierra Nevada: Matthes, 4; recur-
 rent glaciation: Matthes, 7.
 Upper Kern Canyon: Hills, T. M., 2.
 Yosemite region, three glaciations:
 Matthes, 12.
 Canada: Coleman, 16.
 eastern, glacial periods: Coleman,
 30; retreat of the last ice sheet:
 Antevs, 6.
 Cause of glaciation: Keyes, 230; Mc-
 Cabe, J., 1; Manson, 2; Visser, 9.
 Chronology: Allison, V. C., 2.
 Climatology of the ice age: Grunsky, 1.
 Colorado, Estes Park region: Wooster, 1.
 Front Range: Fuller, M. B., 5.
 Grand Mesa: Henderson, J., 4.
 Leadville district: Emmons, S. F., 1.
 Pine River valley: Reagan, 3, 6.
 Twin Lakes district: Howell, J. V.,
 1.
 Connecticut, Danbury region: Harvey,
 R. S., 1.
 New Haven region: Ward, 5.
 Stonington region: Martin, L. H., 1.
 Connecticut Valley: Antevs, 1.
 Pleistocene terraces: Flint, 5, 8.
 Continental glaciation features: Quirke,
 16.
 Coral reefs and the glacial period:
 Daly, 2.
 Correlation with Europe: Antevs, 17.
 Coteau des Prairies, glacial forma-
 tions: Leverett, 9.
 Cycles in glacial and postglacial de-
 posits: Antevs, 3.
 Drift sheets: Sardeson, 34.
 Drumlins, southern shore of Lake On-
 tario: Slater, 3.

Glacial geology—Continued.

- Eskers and crevasse fillings: Flint, 6.
 Estival epoch: Keyes, 224.
 Factors determining direction of ice
 movement: Leverett, 16.
 Four stage glacial cycle: Keyes, 280;
 Sardeson, 23.
 General: Allison, V. C., 3; Chamber-
 lin, T. C., 21; Coleman, 26; Hay,
 16; Keyes, 211, 222, 282; Louis,
 1; Manson, 4; Nordenskjöld, 2.
 Geochronology based on solar radia-
 tion: De Geer, 6.
 Glacial climate in nonglaciated re-
 gions: Bryan, 31.
 Glacial climatic conditions: Antevs, 11.
 Glacial epoch, cause: Wright, G. F., 2.
 Glacial epochs, causes: Keyes, 277.
 Glacial stages: Sardeson, 25; Up-
 ham, 4.
 Glacial sediments: Leighton, 22.
 Glacial till sheets, taxonomy: Keyes,
 257.
 Glacial varves, Connecticut Valley,
 summer deposition: Sayles, 11.
 Glaciation, effects on mining: Kirk-
 ham, 6.
 Great Basin: Antevs, 12; Pleistocene
 history: Antevs, 5.
 Greenland, Peary Land: Koch, 2.
 Gumbotil, origin: Kay, 4.
 Ice age: Finger, 1; in North America:
 Wright, G. F., 2.
 Ice ages and the drift of continents:
 Coleman, 17.
 Ice retreat: Antevs, 15; in North
 America and Europe: Antevs, 7.
 Idaho: Davis, W. M., 3.
 northern, Pleistocene: Anderson, A.
 L., 2.
 Illinois, Alexis quadrangle: Wanless, 7.
 Alton: Leighton, M. M., 6.
 Carbondale quadrangle: Lamar, 3, 4.
 Carlyle-Centralla district: Shaw, 9.
 Chicago area: Fryxell, 1; Salisbury, 2.
 Decatur area: Leighton, 11.
 Dixon quadrangle: Knappen, 1.
 Edgington-Milan area: Savage, 5.
 Elgin region: Leighton, 14.
 Farm Creek section: Leighton, 17.
 Gillespie and Mount Olive quad-
 rangles: Lee, W., 1.
 glacial Kankakee torrent: Ekblaw, 3.
 Hennepin quadrangle: Cady, 3.
 Herscher quadrangle: Athy, 1.
 Joliet district: Fisher, D. J., 6.
 Joliet quadrangle: Fisher, D. J., 2.
 Kings quadrangle: Bretz, 4.
 La Harpe and Good Hope quadran-
 gles: Savage, 8.
 La Salle quadrangle: Cady, 3.
 Lawrence County, Pleistocene: Cox,
 F. W., 1.
 Morris quadrangle: Culver, 2.
 New Athens-Okawville area: Shaw, 8.

Glacial geology—Continued.

Illinois—Continued.

- northern: Leighton, M. M., 4; differentiation of drift sheets: Leighton, M. M., 6.
- northwestern, drift sheets: Leighton, M. M., 10.
- Oregon quadrangle: Bevan, 3.
- Pleistocene: Leighton, M. M., 3.
- Randolph County, pre-Illinoian till: MacClintock, 3.
- Saline County: Bonnell, 3.
- Sangamon River valley: Leighton, 7.

Indiana: Malott, 6.

- glacial boundary: Malott, 9.
- Hancock County: Tharp, 1.
- northwestern: Barrett, E., 2; Cressey, 3.
- Wayne County: Bushnell, 3.

Iowa: Cable, 4; Kay, 11; Keyes, 239.

- Adair County: Gow, 1.
- Algona recessional stages of Wisconsin glaciation: Smith, J. E., 7, 12.
- Ames, glacial tills: Smith, J. E., 4.
- Camp Dodge region: Lees, 1.
- Cass County: Tilton, 3.
- Clarke County: Kay, 6; Tilton, 2.
- Crawford County: Lees, 18.
- Des Moines: Keyes, 17, 95; Pleistocene exposures: Lees, 9.
- Des Moines County, glacial boulders: Lugin, 3.
- eastern: Schoewe, 4.
- Fort Dodge stages of retreating glaciers: Smith, J. E., 8.
- glacial sheets: Keyes, 126.
- Humboldt stages of Wisconsin glaciation: Smith, J. E., 14.
- Louisa and Washington counties: Schoewe, 1.
- Pleistocene: Kay, 16.
- Ringgold County: Arey, 1.
- southern: Schoewe, 6.
- Story County: Smith, J. E., 16.
- Taylor County: Arey, 2.
- till sheets, taxonomy: Keyes, 246.
- Union County, Aftonian gravels: Kay, 5.
- western, Pleistocene: Kay, 10.
- Wisconsin and Iowan drifts: Cable, 1.
- Wisconsin till: Smith, J. E., 13.
- Iowan and Illinoian drift sheets, relative age: Kay, 15.
- Iowan drift: Leverett, 18.
- Iowan till: Kay, 12.
- Iowan-Wisconsin border, Iowa: Cable, 2, 6.
- Juan de Fuca lobe of Cordilleran ice sheet: Bretz, 2.
- Kansas, Kansas tills: Schoewe, 2.
- northeastern: Schoewe, 5.
- till-like deposits south of Kansas River: Schoewe, 7.

Glacial geology—Continued.

Kentucky: Jillson, 71.

- eastern, glacial pebbles: Jillson, 65.
- glacial boulders: Jillson, 67.
- Labrador, northeastern: Coleman, 6, 15.
- Labrador ice sheet, extent and thickness: Coleman, 2.
- Lake Chicago basin: Baker, F. C., 1.
- Lake Erie, preglacial outlet: Wright, G. F., 3.
- Land-ice recession in New England: Anteys, 2.
- Last glaciation: Anteys, 17.
- Loveland loess: Kay, 14.
- Maine, Kennebec River to Penobscot Bay: Perkins, E. H., 3.
- Mount Desert Island: Bascom, 1.
- southern: Sayles, 19.
- Manitoba: Wallace, 14.
- Knee Lake district: Bruce, 4.
- Seal-Churchill divide, terminal moraine: Alcock, 11.
- Upper Whitemouth area: Johnston, W. A., 3.
- Winnipegosis area: Johnston, W. A., 3.
- Massachusetts, central: Alden, 2.
- Mexico, glacial action: Prister, 1.
- Michigan, Kalamazoo area: Leverett, 5.
- Menominee County: Ver Wiebe, 9.
- northern peninsula: Leverett, 7.
- Roscommon County: Ver Wiebe, 8.
- Minnesota: Grout, 2; Leverett, 4.
- Herman, Barrett, Chokio, and Morris quadrangles: Sardeson, 1.
- Buffalo Plains: Sardeson, 10.
- drift sheets: Sardeson, 3.
- Mille Lacs area: Sardeson, 9.
- Missouri: Leverett, 13.
- northern, Nebraskan drift: Shipton, 2.
- Montana: Davis, W. M., 3.
- Beartooth Mountains: Bevan, 7.
- Bitterroot Mountains: Russell, J., 1.
- Multiple glaciation theory: Thwaites, 4, 6.
- Multiple glaciations: Keyes, 288.
- Nebraskan and Kansan tills, Iowa: Kay, 8.
- New England: Daly, 7; Anon., 22.
- southern: Fairchild, 7, 18.
- Newfoundland: Coleman, 28.
- southeastern: Buddington, 3.
- New Hampshire: Goldthwait, 2, 6.
- Mount Jefferson, potholes: Crosby, I. B., 6.
- New Jersey, Hackensack meadows, glacial varves: Sci. Serv., 8.
- postglacial laminated clays at Little Ferry: Reeds, 5.
- New York: Fairchild, 16.
- Adirondack eskers: Chadwick, 21.
- Allegany State Park: Lobeck, 8.
- Ausable quadrangle: Kemp, 23.

Glacial geology—Continued.

New York—Continued.

- Canton quadrangle: Chadwick, 5.
- Cohoes quadrangle: Stoller, 2.
- eastern: Cook, J. H., 1; Fairchild, H. L., 1.
- evacuation stages at Glens Falls: Chadwick, 20.
- Genesee River region: Fairchild, 6, 15.
- Glens Falls, ice evacuation stages: Chadwick, 18.
- Haverstraw varved clays: Reeds, 9, 15.
- Lake Clear region: Alling, H. L., 1.
- Lake Placid quadrangle: Alling, 2.
- Luzerne quadrangle: Miller, W. J., 19.
- Lyon Mountain quadrangle: Miller, W. J., 26.
- Mendon kame area: Fairchild, 19.
- Mohawk-Hudson region: Stoller, 3.
- Mount Marcy quadrangle: Alling, 4.
- Newburgh: Holzwasser, 1.
- New York Botanical Garden, glaciation: Hollick, 9.
- New York City region: Reeds, 12.
- northern: Fairchild, 10.
- Pleistocene: Fairchild, 9.
- Rochester, Pinnacle Hills: Fairchild, 13.
- Schroon Lake quadrangle: Miller, W. J., 2.
- Tully glacial series: Von Engel, 1.
- western: Fairchild, 21; moraines: Chadwick, 11.
- New York moraine, age: De Geer, 5.
- Niagara Falls and recessional moraines: Taylor, 8.
- Nomenclature: Sardeson, 29.
- North America: Wright, G. F., 2.
- North Dakota: Leonard, A. G., 1.
- Pleistocene deposits: Todd, J. E., 1.
- Northern Great Plains: Alden, 3.
- Nova Scotia: Goldthwait, 5; Walker, 24.
- Cape Breton Island: Mather, 10.
- Number of glacial stages: Keyes, 238.
- Ohio, Camp Sherman quadrangle: Hyde, 1.
- erratic boulders: Patton, 4.
- northern: Hubbard, G. D., 7.
- Wayne County: Conrey, 1.
- Ohio River Basin: Leverett, 19.
- Ontario, Abitibi and Mattagami rivers: Keele, 2.
- Brocktown-Mallorytown area: Wright, J. F., 2.
- Lake Huron region: Quirke, 15.
- Michipicoten area: Collins, 15.
- Toronto region: Coleman, 19; Slater, 1.
- Oregon: Smith, W. D., 1.
- Mount Jefferson: Hodge, E. T., 6.
- Mount Multnomah: Hodge, E. T., 5.
- Pleistocene history: McCornack, 1.

Glacial geology—Continued.

- Pennsylvania: Ashley, 23; Williams, E. H., 1.
- Susquehanna River: Stose, 33.
- Pennsylvania and New Jersey: Leverett, 20.
- Periodicity of glaciation: Keyes, 206.
- Pitted outwash: Thwaites, 5.
- Pleistocene clays as a chronometer: Fairchild, 11.
- Pleistocene glacial stages: Leverett, 17.
- Pleistocene ice sheet development in North America: White, D., 30.
- Polar ice caps, extent: Adams, L. H., 10.
- Pole wandering: Richarz, 1.
- Pre-Wisconsin glaciation, northern Rocky Mountains: Alden, 4.
- Prince Edward Island: Coleman, 1.
- Quebec, Anticosti Island: Twenhofel, 9.
- Beauceville area: MacKay, B. R., 4.
- Gaspe Peninsula: Coleman, 10.
- Magdalen Islands: Coleman, 1.
- Mount Albert area: Alcock, 20.
- Timiskaming County, Opasatika area: Cooke, H. C., 10.
- Raised beaches and thickness of ice sheets: Coleman, 20.
- Recession of the last ice sheet in New England: Antevs, 1.
- Recessional moraines: Keyes, 232; between Indiana and New England: Taylor, 7.
- Saskatchewan, southeastern: Stansfield, J., 1.
- Secular wasting of glacial till sheets: Keyes, 210.
- Solar curve: De Geer, 4.
- Solar cyclonic explanation of glaciation: Huntington, 3; Visher, 8.
- Solar initiation of glaciation?: Keyes, 171.
- Striated cobbles in southern States: Wentworth, 41.
- Striations, crescentic fractures, and lunoid furrows, relative abundance: Billings, 4.
- Synchronism of American and Swedish glaciations: De Geer, 4.
- Terminology: Keyes, 232.
- Texas, Brazos River, boulders: Reed, L. C., 2.
- Three glacial epochs in Sierra Nevada: Blackwelder, 20.
- Time divisions of glacial period: Osborn, 19.
- Time of loess accumulation: Visher, 6.
- Time scale: De Geer, 4.
- Usage of terms drift and till: Gregory, J. W., 7.
- Varve clay, New England: Antevs, 1.
- Varves, long range correlation: Coleman, 33.
- Varved clays, Little Ferry, New Jersey: Reeds, 7.

Glacial geology—Continued.

- Varved glacial clay, conditions of formation: Antevs, 9.
- Vermont, Braintree: Richardson, C. H., 5.
- Bristol, Lincoln, and Warren townships: Gordon, C. E., 6.
- Lake Willoughby region: Jacobs, 3.
- Northfield: Richardson, C. H., 2.
- pre-Pleistocene beds: Antevs, 8.
- Roxbury: Richardson, C. H., 3.
- Whitingham area: Hubbard, G. D., 4.
- Washington, central: MacMacken, 1, 2.
- Columbia Plateau: Bretz, 6.
- east central: Bretz, 5.
- Juan de Fuca Glacier: Bretz, 2.
- northern: Runner, 4.
- Spokane glaciation: Bretz, 9.
- Spokane region: Large, 2; Leverett, 11; Pardee, 9.
- Wisconsin, Driftless Area: MacClintock, 1.
- Ripon, gravel seam in limestone: Thwaites, 1.
- Wisconsin ice sheet, ablation of eastern lobe: Cook, J. H., 2.
- Wyoming, Beartooth Plateau: Dake, 2.
- Wind River Mountains: Alden, 5.
- Glacial lakes. See also Beaches; Shore lines; Terraces.
- Bowmanville stage, Lake Chicago: Baker, F. C., 10.
- Illinois, Joliet quadrangle: Fisher, D. J., 2.
- Indiana, northwestern: Barrett, E., 2.
- Iowa, Lake Calvin: Schoewe, 3, 4, 6.
- Lake Agassiz: Leonard, A. G., 1.
- Lake Arikaree: Todd, J. E., 5.
- Lake Chicago: Baker, F. C., 1.
- Lake Dawson: Fairchild, 6.
- Lake Hackensack: Reeds, 6.
- Lake Iroquois: Fairchild, 6.
- Lake Lewis, Washington: MacMacken, 2.
- Lake Missoula: Davis, W. M., 3.
- Lakes Agassiz and Wisconsin: Dachnowski, 5.
- Massachusetts, central: Alden, 2.
- Michigan, Kalamazoo area: Leverett, 5.
- New York: Chadwick, 5.
- Coboes quadrangle: Stoller, 2.
- eastern: Fairchild, H. L., 1.
- Genesee River Region: Chadwick, 11; Fairchild, 6.
- Lake Clear region: Alling, 1.
- Lake Placid quadrangle: Alling, 2.
- Lyon Mountain quadrangle: Miller, W. J., 26.
- Mount Marcy quadrangle: Alling, 4.
- New York City region: Reeds, 12.
- Schroon Lake quadrangle: Miller, W. J., 2.
- Warrensburg: Miller, W. J., 25.
- Ontario: Coleman, 11.
- Michipicoten area: Collins, 15.
- Vermont, Lake Willoughby: Jacobs, 3.
- Glacial period. See Glacial geology.

- Glaciation, cycle of: Hobbs, 11.
- Glacier Lake section, Alberta: Walcott, 3.
- Glacier motion a type of rock deformation: Chamberlin, R. T., 17.
- Glacier National Park, movement of glaciers: Alden, 1; scenic features, origin: Campbell, M. R., 2.
- Glacières.
- Coudersport ice mine, Pennsylvania: Balch, 1.
- Glaciers.
- Alaska: Chamberlin, R. T., 4.
- northern, Canning River region: Leffingwell, 1.
- Kennecott Glacier: Bateman, 5, 7.
- Alberta, Freshfield Glacier: Palmer, H., 1.
- British Columbia, Bromley Glacier: Hayes in Bateman, 5.
- Robson Glacier, motion: Wheeler, A. O., 3.
- Yoho Glacier, movement, 1917-19: Wheeler, A. O., 2.
- Canada, Rocky Mountains: Wheeler, A. O., 1.
- Colorado, fossil glacier: Brown, W. H., 1.
- Cycle of glaciation: Hobbs, 11.
- Experiments with model glaciers: De Lury, 7.
- General: Hobbs, 12; Reeds, 18.
- Greenland: Koch, 5, 9.
- eastern: Pedersen, 1.
- western: Hobbs, 29.
- Lyell and Freshfield glaciers, Canadian Rocky Mountains: Thorington, 1.
- Mexico, Popocatepetl: Weitzberg, 1.
- Motion: Chamberlin, R. T., 18.
- Oregon, Mount Jefferson: Hodge, E. T., 6.
- Mount Multnomah: Hodge, E. T., 5.
- Yukon, Klutian Glacier: Lambart, 1.
- Glades, origin: Galloway, J. J., 1.
- Glass sand: Richardson, C. H., 4.
- Illinois, St. Peter sandstone: Lamar, 9.
- Iowa: Knight, N., 2.
- Kentucky: Richardson, C. H., 4.
- Ohio: Bownocker, 7.
- Pennsylvania: Fetteke, 1.
- Virginia: Watson, 3.
- Glauconite: Goldman, 1; Schneider, 3.
- association with unconformities: Goldman, 7.
- Missouri, southeastern: Ross, C. S., 1.
- New Jersey: Mansfield, G. R., 1, 2, 7.
- origin: Gill, J. E., 2; Mansfield, G. R., 7; Tarr, 3.
- optical properties and chemical composition: Ross, C. S., 17.
- Glenn oil pool, Oklahoma: Wilson, W. B., 1.
- Glossary of mining and mineral industry: Fay, 1.
- Golconda quadrangle, Kentucky: Weller, 4.
- Gold: Dunlop, 2; Wuensch, 1.
- Alaska: Brooks, 5, 12, 14; Martin, G. C., 4.
- Alaska Railroad region: Capps, 6.

Gold—Continued.

Alaska—Continued.

- Anvik-Andreafski region: Harrington, 1.
 Chandalar district: Mertie, 12.
 Chichagof Island, western part: Overbeck, 1.
 Chistochina region: Chapin, 3.
 Chitina Valley: Moffit, 5.
 early Tertiary placer deposit; Capps, 7.
 Fairbanks district: Chapin, 4.
 Goodnews Bay region: Harrington, 6.
 Hot Springs district: Chapin, 6.
 Hyder district: Buddington, 8.
 Jack Bay district: Johnson, B. L., 2.
 Juneau district: Bradley, P. R., 1.
 Juneau and Ketchikan districts: Mertie, 5.
 Kahlitna Valley: Mertie, 2.
 Kantishna region: Capps, 1.
 Kenai Peninsula: Johnson, B. L., 2.
 Kiwalik-Koyuk region: Harrington, 5.
 Kodiak Island: Maddren, 2.
 Kotsina-Kuskulana district: Moffit, 4.
 Kuskokwim region: Martin, G. C., 9.
 Nixon Fork country: Brown, J. S., 7.
 Porcupine district: Eakin, 1.
 Prince William Sound: Johnson, B. L., 1.
 Ruby-Kuskokwim region: Mertie, 11.
 Seward Peninsula: Cathcart, 1; Harrington, 7.
 southeastern: Buddington, 9.
 Tolovana district: Overbeck, 3.
 Tolstoi district: Harrington, 2.
 Willow Creek district: Capps, 2; Chapin, 9, 12.
 Yentna district: Capps, 9.
 Appalachians, southern: Frame, 1.
 Arizona, Aravaipa-Stanley region: Ross, C. P., 5.
 Jerome and Bradshaw Mountains quadrangles: Lindgren, 17.
 Oatman district: Ransome, 12.
 Payson district: Lausen, 1.
 placers: Allen, M. A., 6; Wilson, E. D., 3.
 Ray quadrangle: Ransome, 11.
 Tres Amigos: Keyes, 111.
 Saddle Mountain and Banner mining districts: Ross, C. P., 6, 14.
 Yavapai County: Staunton, 1.
 British Columbia: Camsell, 8.
 Atlin, Engineer mine: Weed, 3.
 Bridge River area: McCann, 3, 4.
 Cariboo district: MacKay, B. R., 1, 2; Tyrrell, 2; Uglow, 10; Barkerville area; Johnston, W. A., 11, 18, 22; Uglow, 6, 8.
 Cedar Creek area: Johnston, W. A., 14, 18, 20.
 Chu Chua, Windpass mine: Uglow, 12.

Gold—Continued.

British Columbia—Continued.

- coast region: Dolmage, 9; and islands: Dolmage, 8.
 Coquihalla area: Cairnes, 1, 4; Camsell, 6.
 Dease Lake area, Cassiar district: Johnston, W. A., 23.
 Fraser River: Johnston, W. A., 21.
 Kamloops district, North Thompson valley: Uglow, 3, 15.
 Premier mine, Portland Canal district: Burton, W. D., 1.
 Salmon River valley: Banks, 1; Schofield, 14.
 Yale district, Hillsbar claims: Cairnes, 6.
 California: Haley, 3.
 ancient river-bed deposits: Alling, M. N., 1.
 Carson Hill: Moss, 1.
 Monterey County, Los Burros district: Hill, J. M., 4.
 Nevada County: Mac Boyle, 1.
 Plumas County: Mac Boyle, 2.
 primary and secondary concentrations: Haley, 4.
 production 1849-1923; Hill, J. M., 5.
 Randsburg: Hulin, 1, 3.
 Sierra County: Mac Boyle, 3.
 San Bernardino Mountains: Vaughan, F. E., 1.
 southern: Haley, C. S., 1.
 Trinity County, East Fork district: Tucker, W. B., 2.
 Wilshire district: Turner, H. W., 3.
 Canada: Cole, G. E., 3; Webb, 1; Wilson, A. W. G., 2.
 Colorado, Boulder County, Ward region: Worcester, 1.
 Camp Bird mine: Spurr, 18.
 Creede district: Emmons, W. H., 4.
 Cripple Creek district: Van Tuyl, 3.
 Platoro-Summitville district: Patton, H. B., 1.
 Red Cliff district: Crawford, R. D., 3.
 Twin Lakes district: Howell, J. V., 1.
 Eastern States: Dunlop, 3, 7, 11, 15, 18.
 General: Dunlop, 5, 8, 10, 14, 17.
 Geologic distribution: Rickard, 11.
 Georgia, McDuffie County: Bruhl, 1.
 Idaho: Gerry, 1, 3, 5, 8, 10.
 batholith: Thomson, F. A., 4.
 Boise Basin district: Ballard, 1, 3.
 Boundary County: Kirkham, 7.
 Mineral and Cuddy Mountain mining districts: Livingston, 4.
 north central: Thomson, F. A., 3.
 Rocky Bar quadrangle: Ballard, 4.
 Salmon River Mountains: Ross, C. P., 13.
 Shoshone County: Umpleby, 3.
 Silver City district: Piper, 6.

Gold—Continued.

- Indiana, placer gold: Hafer, 1.
 Manitoba: Wallace, 22.
 Beresford Lake area: Wright, D. G. H., 2; Wright, J. F., 4.
 Copper Lake district: Wallace, 3.
 Elbow Lake area: Armstrong, P., 43; Wallace, 7.
 Flinflon area: Alcock, 15.
 Herb Lake region: Alcock, 12.
 northern: Gordon, J. P., 1.
 Reed and Wekusko lakes region: Alcock, 3.
 Rice Lake district: Cooke, H. C., 9; Wright, J. F., 3, 6.
 southeastern: Bruce, 3; DeLury, 4.
 Mexico, Chihuahua, Yoquiva district: Hall, C. W., 1.
 El Oro and Talpujahua districts: Flores, 1.
 El Oro district, Mexico: Winchell, H. V., 1.
 San Luis Potosi, Guadalucazar: Wittich, 7.
 Sonora, Lucky Tiger mine: Mishler, 2.
 Zacatecas, Mezquital: De Silva, 1.
 Montana: Gerry, 2, 4, 7, 12, 15.
 Bannack: Shenon, 1.
 Helena district: Anon., 72.
 Nevada, Divide district: Carpenter, J. A., 1; Knopf, A., 3; Sizer, 1; Young, G. J., 1.
 Gilbert district: Ferguson, H. G., 10.
 Jarbidge district: Park, J. F., 1; Schrader, 5.
 Johnnie district: Labbee, 1.
 Manhattan district: Ferguson, H. G., 5.
 Mineral County, Cedar Mountain: Knopf, A., 4.
 Rochester district: Knopf, A., 7.
 Round Mountain district: Ferguson, H. G., 4.
 Santa Fe district, Mineral County: Clark, C. W., 2.
 Toquima Range: Ferguson, H. G., 2.
 New Hampshire, Ammonoosuc district: Ross, C. P., 2.
 New Mexico, Colfax County, Aztec mine: Chase, C. A., 1.
 Mogollon district: Ferguson, H. G., 3; Scott, D. B., 1.
 Sierra del Oro: Keyes, 59.
 Nicaragua, eastern: Garbrecht, 1.
 Piz Piz district: Hawxhurst, 1.
 Nova Scotia: Brunton, 5, 9, 10, 11, 13; McKenzie, N., 1; Reid, J. A., 2.
 southwestern: Faribault, 3.
 Tangier: Brunton, 12.
 Ontario: Hopkins, P. E., 3, 4; McGill, 1.
 Abitibi-Night Hawk gold area, Timiskaming district: Knight, C. W., 1; Argonaut gold mine: Cooke, H. C., 13. Knight, 6.

Gold—Continued.

Ontario—Continued.

- Beardmore: Burrows, 16.
 Ben Nevis area: Knight, C. W., 5.
 Blanche River area: Burrows, 9.
 Boston-Skead area: Burrows, 8.
 Cochran district: Hawley, J. E., 3.
 Favourable Lake area, Patricia: Hurst, 5.
 Fort Hope area: Burwash, 8.
 Gammon River area, District of Kenora: Gilbert, G., 7.
 Gauthier Township, Argonaut mine: Cooke, H. C., 23.
 Goudreau area: Burrows, 5, 7; MacLeod, 1, 2; Moore, E. S., 10.
 Goudreau-Lochalsh area: Gledhill, 8.
 Kamiskotia area: Finley, 1.
 Kenora and Rainy River districts: Bruce, 17.
 Kirkland Lake area: Burrows, 4, 12; Hopkins, P. E., 6, 7; Johnson, H. H., 1; Orser, 1; Todd, 8; Tyrrell, 2613.
 Larder Lake area, Timiskaming district: Cooke, H. C., 8, 14; Hopkins, P. E., 1, 8.
 Lightning River area: Burrows, 1; Gledhill, 4; Knight, C. W., 9, 12.
 Matachewan district: Burrows, 2; Cooke, H. C., 1, 3, 4.
 Michipicoten district: Collins, W. H., 1, 15; Gledhill, 7; Thomson, E., 4.
 Montreal River district: Anon, 4.
 Night Hawk Lake area: Hopkins, 9.
 northern, wide dissemination: Boydell, 13.
 northwestern: Timm, 1.
 Onaman area: Girvin, 1.
 Pancake Lake: Hopkins, 11.
 Porcupine district: Bell, J. M., 2; Burrows, 10, 11, 13; Dougherty, 1, 3; Fielding, 1; Hore, 8; Huntoon, 1; Robinson, H. S., 1; Spurr, 8.
 Red Lake area, Patricia: Rogers, W. R., 6; Wright, D. G. H., 4.
 Red Lake and Woman Lake areas: Bruce, 23.
 Red Lake Basin, District of Kenora: Bruce, 22.
 Redstone River area, Timiskaming district: Bruce, 19.
 Schreiber-Duck Lake area: Hopkins, P. E., 5.
 Sturgeon Lake area: Gledhill, 2.
 Sudbury district, Makwa: Tanton, 10; Wasapika area: Hore, 1, 3, 4, 5; West Shiningtree area: Finley, 2; Goodwin, L. H., 1; Hopkins, P. E., 2; Langford, 2; Weed, 1.
 Tashota-Onaman area: Gledhill, 3.
 Timiskaming, McNeil township: Hopkins, 10.
 Watabeag area: Wright, D. G. H., 2.

Gold—Continued.

Ontario—Continued.

- Woman and Narrow lakes area, District of Kenora: Grieg, 2.
- Oregon, Josephine County, Waldo district: Kellogg, A. E., 2.
- Llano de Oro placers, Waldo district: Kellogg, A. E., 10.
- Riddle quadrangle: Diller, 12.
- southwestern, auriferous gravels: Kellogg, A. E., 8.
- Pennsylvania: Pennsylvania G. S., 1.
- Placer gold, formation: Allison, E. L., 1.
- Primary and secondary concentrations: Haley, 4.
- Quebec: Goodwin, W. M., 2.
- Beauceville area: MacKay, B. R., 4.
- Dubuisson Township: Spearman, 2.
- Lake Fortune area: Goodwin, W. M., 1.
- Harricanaw and Bell river basins: Bain, 22.
- Harricanaw River area: Mailhot, 3.
- Lake Demontigny region: Mailhot, 4.
- northern: Wright, D. G. H., 3.
- northwestern: Brunton, 7; Dufresne, 3; prospects: Denis, 6.
- Temiscamingue and Abitibi counties: Dufresne, 4.
- Timiskaming County, Opasatika area: Cooke, H. C., 10; Rouyn area: James, W. F., 2.
- western: Cooke, H. C., 15, 26; Timm, 1.
- South Dakota, Black Hills, alunitic ore: Grout, 25.
- central Black Hills: Darton, 14.
- Homestake mine: Paige, 3.
- Lead area: Paige 4.
- northern Black Hills: Connolly, 4.
- Southern States: Megraw, 1.
- Utah: Butler, 4.
- Ophir district: Olmstead, 1.
- Tintic district: Lindgren, 2.
- Virginia, northeastern Piedmont: Lonsdale, 7.
- Washington: Gerry, 1, 3, 6, 9, 11, 14.
- Stevens County: Weaver, 2.
- Wyoming, Atlantic City-South Pass district: Bartlett, 4; Runner, 5.
- Yukon, Mayo area: Cockfield, 1, 4.
- Sixtymile and Ladue rivers area: Cockfield, 5.
- Whitehorse district: Cockfield, 16.
- Golden area, Colorado: Johnson, J. H., 13.
- Golden Lanes, Greenwood County, Kansas: Cadman, 2.
- Good Hope quadrangle, Illinois: Savage, 8.
- Goodnews Bay region, Alaska: Harrington, 6.
- Goose Creek oil field, Harris County, Texas: Minor, 2.
- Goudreau gold area, Ontario: McLeod, 2.
- Goudreau-Lochalsh gold area, District of Algoma, Ontario: Gledhill, 8.

Gouverneur quadrangle, New York: Cushing, 1.

Gowganda silver area, Ontario: Burrows, 3, 17.

Graham field, Carter County, Oklahoma: Tomlinson, 1.

Grand Canyon. See Arizona.

Granite.

Connecticut: Gregory, H. E., 8.

General: Dale, T. N., 4.

Maine: Smith, G. O., 15.

New England: Dale, T. N., 4.

Segregation granites: Lane, 8.

Vermont, Barre: Perkins, G. H., 4.

Granite massives, primary structure: Balk, 1.

Graphic study of igneous rock series: Grout, 8.

Graphite: Dub, 1; Ferguson, H. G., 1; Miller, B. L., 1; Redfield, 6; Spearman, 1; Spence, 1.

Alabama: Brumell, 1; Prouty, 2.

Ashland district: Brown, J. S., 6.

Clay County: Prouty, 10.

Alaska, Seward Peninsula: Harrington, 4.

Canada: Eardley-Wilmot, 2; Spence, 1.

Mexico: Garcia, 1.

Sonora: Honigmann, 4, 5, 6; Paredes, 6.

Ontario, Ottawa Valley: Wilson, M. E., 3.

Renfrew district: Wilson, M. E., 3.

Origin: Alling, 6; Clark, T. H., 3; Spence, 3; Winchell, 3.

Quebec: Brumell, 1; Spence, 6.

Amherst township: Wilson, Morley E., 1.

Buckingham district: Brumell, 2; Eardley-Wilmot, 1; Rowe, R. C., 1.

Graptolitoidea.

Beekmantown series. Levis, Quebec: Clark, T. H., 11.

British Columbia, Glenogle formation: Clark, T. H., 14.

Distribution: Ruedemann, 26.

Evolution: Elles, 1.

Glossograptus: Ruedemann, R., 3.

Indiana, Sifurian: Cumings, 5; Shrock, 2.

Maine, Waterville: Perkins, E. H., 2.

New York, Utica and Lorraine formations: Ruedemann, 17.

Ontario, Ordovician black shales: Parks, 32.

Vermont, Northfield: Richardson, C. H., 2.

Western North America: Burling, 1.

Grassy black shales: Keyes, 56.

Gravel: Stone, 3, 7, 12; Teas, 1.

Florida: Martens, 8.

Georgia: Teas, 1.

Illinois: Leighton, M. M., 2.

Missouri: Dake, 1.

Mississippi River, lower: Littlefield, 4.

Gravel—Continued.

- North Dakota : Leonard, 5.
 Ontario : Ledoux, A., 1.
 St. Clair River : Bartlett, J., 1.
 South Dakota, eastern : Rothrock, 1.
 Minnehaha County : Rothrock, 5.
 Yankton County : Rothrock, 3.
 Texas, Trinity River district : Shaw, E., 1.
 Grass Creek oil field, Wyoming : Hewett, 16.
 Gravitational compaction, effect on sedimentary rocks : Rubey, 8.
 Gravity observation from the standpoint of the local geology : White, 14.
 Great Basin, Pleistocene history : Antevs, 12.
 Great Basin ranges, origin : Davis, W. M., 5 ; Keyes, 84.
 Great Basin region, physiographic history : Keyes, 75.
 Great Lakes, changing levels : Fairchild, 17.
 Great Smoky overthrust : Keith, 5.
 Greater earth : Chamberlin, T. C., 11.

Greenland.

- Eastern Greenland : Koch, 7.
 Geology : Bøggild, 1, 4.
 Northwestern Greenland : Hovey, 11.
Economic geology.
 Cryolite : Gordon, S. G., 19.
 Mineral resources : Ball, S. H., 4, 6.
Historical geology.
 Cambrian, Ozarkian, and Canadian, northwest Greenland : Poulsen, 1.
 Eastern Greenland : Koch, 8 ; Wordie, 1.
 General : Bøggild, 6 ; Koch, 2.
 Northern Greenland : Koch, 4.
 Northwestern Greenland : Foerste, 24 ; Hovey, 11 ; Koch, 1, 6.
 Peary Land : Koch, 3.
 Western coast : Krueger, 1.

Mineralogy.

- Arfvedsonite, riebeckite, and crocidolite : Gordon, S. G., 20.
 Cohenite, Ovifak : Thomson, E., 12.
 Dahllite, Kangerdluarsuk : Bøggild, 2.
 Leifite, Narsarsuk : Bøggild, 3.
 Meteorite, Savik : Bøggild, 5.
 Narsarsuk area : Gordon, S. G., 16.
 Thomsonite in basalt, Disko : Gaertner, 1.

Paleontology.

- Aralias, Cretaceous : Fritel, 1.
 Cambrian, Ozarkian, and Canadian faunas, northwest Greenland : Poulsen, 1.
 Cretaceous plants : Seward, 3.
 Eotriassic ammonites, eastern Greenland : Spath, 1.
 Rhaetic flora, Scoresby Sound, east Greenland : Harris, T. M., 1.

Petrology.

- Enstatite-hornblendite : Machatschki, 1.

Greenland—Continued.

Physical geology.

- Fault zone, northwestern Greenland : Koch, 6.
 Orography : Koch, 2.
Physiographic geology.
 Ice cap : Koch, 5.
 Glaciation of land ribbon surrounding inland ice : Hobbs, 30.
 Glacial history, southwestern Greenland : Hobbs, 31.
 Glaciers : Koch, 9 ; eastern Greenland : Pedersen, 1.
 Terraces, Holstenborg district : Gould, L. M., 5.
 Western Greenland : Hobbs, 29.
 Green River formation, sedimentology : Hinds, 5.
 Greensand. See Glauconite.
 Grenada and the Grenadines : Earle, 6, 8.
 Grenadines : Earle, 7.
 Ground ice, northern Alaska : Leffingwell, 1.
 Ground water. See Underground water.
 Groundwork of diastrophism : Chamberlin, T. C., 10.
 Guadalupe group : Darton, 19.

Guatemala.

Economic geology.

- Petroleum possibilities : Redfield, 3.
 Saltpeter : Gale, 2.

Historical geology.

- General : Redfield, 3.

Physical geology.

- Acatenango : Heim, 4.
 Earthquake and volcanic phenomena : Van de Putte, 1.
 Earthquakes : Muñoz Lumbier, 3.
 Sta. Maria Volcano : Waitz, 5.
 Volcanic activity, 1927 : Termer, 1.
 Gueydan formation, Texas : Bailey, T. L., 3.
 Guidebook, Denver & Rio Grande Western route : Campbell, M. R., 3.
 Gulf coast salt domes : Hill, R. T., 1.
 Gulf Coastal Plain salt domes, secondary intrusive origin : Matteson, 2.
 Gumbo, Iowa : Keyes, 93.
 Gumbos, correlating : Robinson, W. I., 4.
 Gumbotil, origin : Kay, 4.
 Gunflint iron district, Minnesota : Broderick, 3.
 Gypsum : Stone, 8, 10 ; Wilder, 2, 3.
 Calcium sulphates, physical chemistry : Bowles, 4.
 California, southern : Newman, 1.
 Dehydration : McCormack, 1 ; Parsons, A. L., 13.
 Geology : Newland, 3.
 Gulf coast salt domes : Barton, 3.
 Iowa : Wilder, 2.
 age of gypsum deposits : Keyes, 166.
 Fort Dodge gypsum beds : Keyes, 137.
 New York : Newland, 2.
 Occurrence and supply : Newland, 4.
 Oklahoma : Gould, C. N., 29.

Gypsum—Continued.

- Ontario, Moose River: Lanning, 1.
 southwestern: Cole, G. E., 1, 2;
 Dyer, 5.
 Origin of gypsum deposits: Dyer, 5.
 Keyes, 140; and classification:
 Wilder, 1.
 Rate of solution: Lahee, 18.
 United States: Stone, 11.
 Hackberry stage, Devonian, Iowa: Fenton,
 C. L., 2.
 Hackberry conglomerate, Nebraska: Bar-
 bour, 5.

Haiti.

- General: Woodring, 4, 5.
 Northwestern Haiti: Lütgens, 1.

Economic geology.

- Oil possibilities, central plain: Wood-
 ring, 1.

Historical geology.

- Miocene, central plain: Woodring, 1.

Paleontology.

- Cichlid fish, Las Cahobas: Cockerell,
 16.
 Crabs: Rathbun, 4.
 Dictyoconus, Eocene foraminifer:
 Woodring, 2.
 Eocene Foraminifera: Woodring, 6.
 Miocene and Pleistocene Cirripedia:
 Pillsbury, 3.
 Mollusca, Tertiary: Woodring, 7.
 Orthaulax, Tertiary: Woodring, 3.
 Tertiary plants: Berry, 31.

Physiographic geology.

- Reef caps and terraces: Woodring, 11.
 Underground water.

- Hot Springs: Brown, J. S., 4.

- Harricaw-Turgeon basin, northern Que-
 bec: Tanton, 1.

- Harvard summer school of geology: Crump,
 1.

- Hasemanite: Haseman, 1.

- Hat Creek coal area, Kamloops district,
 British Columbia: MacKay, B. R., 5.

Hawaiian Islands.

- Kaui: Hinds, N. E. A., 2.
 Kaula Island: Friedlaender, 6.
 Maui Volcano: Hinds, N. E. A., 12.
 Mauna Kea: Jaggard, 11.
 Mauna Loa, southwest rift: Finch, 7.

Areas described.

- Kaula, Nikoa, Necker, and Gardner is-
 lands: Palmer, H. S., 9.
 Kilauea, products and structure: Stone,
 J. B., 1.
 Lanai: Wentworth, 15.
 Maui: Hinds, 4, 7.
 Oahu, pyroclastic geology: Wentworth,
 22.

Mineralogy.

- Aphthitalite, Kilauea: Washington, 11.
 Augite, Haleakala, Maui: Washington,
 14.
 Olivine: Arousseau, 3.

Paleontology.

- Marine mollusks, Oahu: Ostergaard, 1.

Hawaiian Islands—Continued.

Petrology.

- Aa and pahoehoe, formation: Washing-
 ton, 23.
 Basalt: Washington, 36.
 Density of rocks from Mauna Kea and
 Haleakala: Washington, 25.
 General: Powers, 5; Washington, 22.
 Hualalai and Mauna Loa: Washing-
 ton, 21.
 Kilauea: Washington, 22.
 Kohala and Mauna Kea: Washing-
 ton, 12.
 Lavas, Hawaiian volcanoes: Washing-
 ton, 5, 9, 10.
 Leeward Islands: Washington, 33.
 Maui: Washington, 37.
 Melilite and nephelite basalt: Hinds, 6.
 Oahu, pyroclastic geology: Wentworth,
 22.

Physical geology.

- Aa and pahoehoe, formation: Emerson,
 O. H., 1.
 Chink faceting, new process of pebble
 shaping: Wentworth, 20.
 Density: Goranson, 5.
 Earthquake prediction: Finch, R. H.,
 4.
 Earthquakes, Kapoho, April, 1924:
 Finch, 5.
 Engulfment during explosive eruptions:
 Jaggard, 24.
 Erosion principles: Wentworth, 26.
 Halemaumau: Finch, R. H., 1; Jag-
 gar, 1.
 tidal oscillations: Brown, E. W., 2.
 Maui lava flow: Stearns, 10; Stone,
 J. B., 2.
 Kilauea: Day, 14; Jaggard, 1.
 activity: Jaggard, 8; MacCaughey,
 V., 1.
 composition of gases: Shepherd, 1.
 engulfment, chemical significance:
 Shepherd, 4.
 eruptions: Stearns, 7; May, 1924:
 Friedlaender, 8; Stearns, 5; and
 seismic sequences: Finch, R. H.,
 3; July, 1927: Wilson, R. M., 1.
 explosions: Stearns, 11.
 explosive eruptions: Jaggard, 9;
 Sherzer, 1.
 heat: Sci. Serv., 2.
 intrusive bodies at Kilauea: Powers,
 1.
 lava tube: Powers, 4.
 volcano observatory: Cross, C. W.,
 3.
 Lapiés in basalts: Palmer, H. S., 13.
 Marine and fluvial erosion: Went-
 worth, 29.
 Mauna Loa, eruption, April, 1926:
 Friedlaender, 9.
 gases: Shepherd, 2.
 Mauna Loa and Kilauea, origin:
 Stearns, 8.

Hawaiian Islands—Continued.

Physical geology—Continued.

Sedimentary processes on volcanic islands: Wentworth, 24.

Sediments, types of: Wentworth, 33.

Seismometric investigation of lava column: Jaggar, 2.

Strand line shift, Oahu: Pollock, 1.

Stream erosion: Wentworth, 37.

Sulphate deposits in lava tubes, Kilauea: Finch, 6.

Tectonic aspect of volcanic eruption: Wood, H. O., 1.

Temperatures of volcano borings: Jaggar, 18, 23.

Tilting and level changes at volcanoes: Jaggar, 22.

Tuff craters, Oahu: Wentworth, 19.

Viscosity of lava: Palmer, H. S., 10.

Volcanic action: Meinzer, 4.

Volcanic investigation: Jaggar, 4.

Volcanoes: Cockburn, 1; Hawaiian Volcano Observatory, 1; Jaggar, 2, 10.

Physiographic geology.

Coral reefs, Oahu: Pollock, 3.

Eustatic benches: Wentworth, 21.

Fault topography: Hinds, 9.

Fringing and fossil coral reefs, Oahu: Pollock, 2, 3.

General: Hinds, 6; Wentworth, 23.

Karren formation in basalt rocks: Palmer, H. S., 12.

Maui: Hinds, N. E. A., 3.

geomorphology: Hinds, 10.

Mauna Kea, glaciation: Gregory, H. E., 11.

Oahu: Davis, 16.

Molokai, desert strip: Wentworth, 17.

Underground water.

Ground-water problems: Meinzer, 3.

Honolulu district: Palmer, H. S., 8, 11.

Hazleton district, British Columbia: O'Neill, 1.

Heart Mountain overthrust, Wyoming: Hewett, 4.

Helium: Rogers, G. S., 5, 7; in natural gases: McLennan, 1.

Canada: Elworthy, 2, 5.

General: Moore, R. B., 1.

Geology and occurrence: Kauenhowen, 1.

Hematite and magnetite, relations: Broderick, 1.

Herb Lake region, Manitoba: Alcock, 12.

Herman-Morris folio, Minnesota (no. 210): Sardeson, 1.

Herscher quadrangle, Illinois: Athy, 1.

Heterolasma foerstei, Niagaran tetracoral, Michigan: Ehlers, 2.

Highwood coal area, Alberta: Rose, 2.

Historical (stratigraphic) geology. For areal see names of States. See also the different systems; Correlation; Geologic formations, tables; Geologic maps.

Historical geology—Continued.

Appalachian stratigraphy, variations in: Butts, 15.

Atlantic and Gulf Coastal Plain, major geological features: Stephenson, 6.

Basal glauconite and phosphate beds: Goldman, 10.

Basal quartzites of Cordilleran region: Keyes, 199.

Biotic basis of stratigraphy: Richarz, 6.
Boring records, use of: Reed, R. D., 1.
California, geologic formation names, check list: Bailey, G. E., 1.

Canadian system: Ashley, 25.

Comanche succession, taxonomic rank: Stanton, 7.

Carboniferous, early: Keyes, 123.

Coastal Plain: Cooke, C. W., 9.

Cone-in-cone in stratigraphic correlation: Tester, 1.

Conodonts, stratigraphic use: Bassler, 18.

Contorted strata: Winchester, 1.

Cordilleran shield: Lawson, 10.

Correlation: Berry, 65; by micro fossils: Decker, 9.

Cretaceous-Eocene transition: Cross, C. W., 5; Keyes, 32, 33; Knowlton, 9; Matthew, 20; Schuchert, 19; Stanton, 6.

Cretaceous-Tertiary boundary: Matthew, 15; vertebrate evidence as to: Matthew, 18.

Criteria of classification: Keyes, 103.

Designation of terranes: Keyes, 286.

English terranal classification in America: Keyes, 108.

European and American sections, comparison: Ulrich, 17.

Exploration for vertebrates: Grinnell, 1.

Foraminifera, use in stratigraphy: Dumble, 3.

Fossils, relative value in stratigraphy: Cooke, C. W., 8.

General: Bayley, 12; Bretz, 8; Meinzer, 6; Parks, 6; Shimer, 4; Smithsonian Inst., 1; Troedson, 1.

Geologic classification: Keyes, 115.

Geologic column, France, Britain, Germany, United States: Lane, 3.

Geologic column, terms, origin and significance: Lang, W. B., 1.

Geologic mapping, western United States: Vaughan, 12.

Geologic maps, interpretation: Dake, 12.

Geologic terminology: Blackwelder, 7.

Geologic time classification: Wilmarth, 1, 2.

Geologic time scale: Ashley, 14.

Green River formation: Bradley, W. H., 4.

Historical geology—Continued.

- Gulf Coastal Plain: Brantly, 2; Shaw, 4.
 Gumbos, correlating: Robinson, W. I., 4.
 Hall's work in Iowa: Keyes, 113.
 Harvard summer school of geology: Crump, 1.
 Homonymy: Keyes, 194.
 Identification of geological formations: Udden, 3.
 Identifying subsurface strata: Roberts, D. C., 1.
 Initial deposits of a formation: Twenhofel, 11.
 Interior coal fields: Keyes, 2.
 International stratigraphical lexicon: Keyes, 289.
 Lance and Fort Union formations, age: Cross, C. W., 4; Knowlton, 5; Schuchert, 15.
 Major subdivisions: Keyes, 164.
 Michigan, surveys: Allen, R. C., 4.
 Mid-Continent oil field, paleogeography and historical geology: McCoy, 5.
 Mississippian: Keyes, 20, 123.
 Modern conceptions of earth history: Bretz, 8.
 Mud-crack horizons, Ordovician: Kindle, 5.
 North Atlantic Ocean, Tertiary history: Woodring, 8.
 Ordovician-Silurian boundary: Jones, O. T., 1; Miller, B. L., 9; Ulrich, 15.
 Periodic diastrophism: Shepard, 6.
 Permian: Keyes, 251.
 Permo-Carboniferous deposition conditions: Case, E. C., 1.
 Pre-Cambrian: Keyes, 109; time scale: Young, G. A., 4.
 Pre-Devonian deposits, Alberta and British Columbia: Walcott, 11.
 Principles of correlation: Berry, 22.
 Proposed stratigraphic section and code: Ashley, 16.
 Rocky Mountain region: Dake, 5.
 St. Louis limestone, nomenclature: Keyes, 123.
 Silurian-Devonian boundary: Schuchert, 11.
 Stockwellia, a basic unit of geologic time: Keyes, 256.
 Stratification: Udden, 25.
 Stratigraphic correlation, new methods: Swartz, J. H., 3.
 Stratigraphic nomenclature: Keyes, 210.
 Stratigraphic significance of solution in rocks: Stockdale, 3.
 Structural features of North America: Holtedahl, 4.
 Taconic area, southern: Knopf, E. B., 6.
 Taconic folding, Pennsylvania: Miller, B. L., 9.

Historical geology—Continued.

- Taconic orogeny, significance: Schuchert, 26.
 Taconic question: Keyes, 260.
 Taconic revolution, evidence for, examined: Clark, T. H., 4.
 Taconic system resurrected: Schuchert, 1.
 Taxonomy: Keyes, 255.
 Terranal classification: Keyes, 156.
 Textbook of geology: Schuchert, 23.
 Time scale: Ashley, 22.
 Volcanic ash beds as key horizons: Ross, C. S., 10.
 Yorkic: Keyes, 49.
 History. See also Surveys.
 American geology, first one hundred years: Merrill, 36.
 Applied geology: Smith, G. O., 24.
 Canada: Parks, 6.
 Contributions of Johns Hopkins University: Bayley, 12.
 Early collecting of fossil vertebrates: Lull, 18; Matthew, 36.
 General: Benjamin, 1; Fairchild, 14; McNairn, 1.
 Geology: Gregory, H. E., 6.
 at Johns Hopkins University: Keyes, 21.
 at West Virginia University: Tilton, 16.
 development of: Gregory, H. E., 7.
 Georgia, Geological Survey: Cave, 1.
 Iowa: Keyes, 18.
 James Hutton, pioneer of modern geology: Hobbs, 28.
 Kentucky geological survey: Jillson, 34, 42.
 Michigan, surveys: Allen, R. C., 3.
 New York, Adirondack region: Clarke, J. M., 15.
 North Dakota, geological survey: Leohard, A. G., 10.
 Ohio, geological survey: Mendenhall, T. C., 1.
 Oklahoma, petroleum geology: Powers, 20.
 Ore genesis studies, fifty years' progress: Miller, B. L., 12.
 Paleontological research on Pacific coast: Merriam, 7.
 Petrography and petrology, fifty years' progress: Bascom, 7.
 Petroleum geology: Ohern, 1.
 Pre-Cambrian life medal: White, D., 38.
 Seventy-five years of American geology: Chamberlin, T. C., 24.
 State surveys: Merrill, 6.
 Statistical study of geologists: Mathews, 3.
 Stories in stone: Lee, W. T., 17.
 Structural geology, progress: Mathews, 8.
 Textbooks of geology: Fairchild, 12.

- History—Continued.
 United States Geological Survey:
 Inst. Govt. Research, 1; Smith,
 P. S., 4.
 Vermont, geological work, 1810–1923:
 Perkins, G. H., 7.
 Washington: Landes, H., 1.
 Hockley salt dome, Harris County, Texas:
 Deussen, 2.
 Hogshooter gas sand, Oklahoma: Berger,
 1.
 Homonymy: Keyes, 194.
 Honduras.
 Economic geology.
 Petroleum possibilities: Redfield, 8.
 Historical geology.
 General: Redfield, 8.
 Petrology.
 Jade, Copan: Washington, 16.
 Obsidian, Copan: Washington, 13.
 Hoodoos, miniature: Shroeder, 2.
 Hornitos: Sapper, 2.
 Horse, evolution: Loomis, 15; Matthew, 34.
 Hot springs. See also Thermal waters.
 Arkansas, Hot Springs district: Pur-
 due, 1.
 British Columbia: Elworthy, 6.
 California, "The Geysers:" Allen, E.
 T., 4.
 Lassen National Park: Day, 15.
 Wyoming: Bartlett, 3.
 Hudson Bay Mountain district, Coast dis-
 trict, British Columbia: Jones,
 R. H. B., 1.
 Hudson submarine channel: Daly, 7.
 Huntington-Pittsburgh Basin: Richardson,
 G. B., 13.
 Huronian. See Pre-Cambrian.
 Hydrated ferric oxides: Posnjak, 1.
 Hydrocarbons, inorganic origin: Young,
 J. W., 6.
 Utah: Bardwell, 1.
 Hydromagnesite, British Columbia, Clinton
 district: Reinecke, 2.
 Hydrotalcite group: Foshag, 2.
 Hydrothermal alteration of silicate miner-
 als: Leonard, R. J., 1.
 Hydrozoa.
 Cryptozoon: Rothpletz, 2.
 Ontario, Toronto area: Fritz, 1.
 Serpulites, affinities: Price, W. A., 3.
 Hyracodonts, Big Badlands, South Dakota:
 Sinclair, 6.
 Ice, physical properties: Matsuyama, 1.
 Ice age. See Glacial geology.
 Ice ages (ancient).
 Alaska, southeastern, Paleozoic: Kirk,
 E., 1.
 Arizona, Fort Apache region, Eocene:
 Reagan, 4, 5.
 Banded clays: Sayles, 1.
 Bishop conglomerate, glacial origin:
 Hares, 2.
 British Columbia, Silurian tillite:
 Shepard, 1.
 Cause: McCabe, J., 1; Manson, 3.
 Ice ages (ancient)—Continued.
 Cause of periodic glaciation: Keyes,
 220.
 Cobalt conglomerate, origin: Coleman,
 4.
 Colorado, Denver formation: Hares, 3.
 Eocene: Atwood, 7, 8.
 Criteria for glaciation: Hobbs, 16.
 General: Coleman, 8, 17, 25, 26; In-
 gals, A. G., 3; McCabe, J., 1;
 White, D., 31.
 Maine, Silurian tillite?: Smith, E. S.
 C., 4.
 New Brunswick, St. John, Devonian:
 Matthew, G. F., 2.
 Oklahoma, Arbuckle and Wichita moun-
 tain regions, Pennsylvanian: Weid-
 man, 1, 2.
 Ontario, Gowganda conglomerate, ori-
 gin: Bain, 17.
 pre-Cambrian glaciation: Coleman,
 13, 18.
 Ordovician, Vermont region: Keith, 1.
 Pennsylvanian-Permian glaciation (?),
 Arbuckle and Wichita mountains:
 Dunbar, 7; Weidman, 4.
 Permian, middle: Schuchert, 47, 52.
 Post-Eocene - pre-Miocene glaciation,
 Rocky Mountains: Hares, 4.
 Quebec, Levis, tillite: Sayles, 6.
 Rocky Mountains, pre-Cambrian: Black-
 welder, 6.
 Table of glacial periods: Chamberlin,
 T. C., 21.
 Till argillites, pre-Cambrian, Permian,
 and Pleistocene: Lane, 5.
 Tertiary glaciation, Wyoming, Colo-
 rado, and Utah: Hares, 1.
 Ice age. See Glacial geology.
 Ice cave, western New Mexico: Lee, W. T.,
 18.
 Ice crystal markings: Allan, 19.
 Ice crystals, fossil: Udden, 1; growth:
 Plyler, 1.
 Ice push on lake shores: Scott, I. D., 3.
 Icebergs, Greenland, formation: Koch, 2.
 Ichnology, Dartmouth College collection:
 Grier, 4.
 Idaho.
 General: Livingston, 1.
 Bureau of Mines and Geology, report:
 Thomson, F. A., 2.
 work 1919–1924: Thomson, F. A., 5.
 Areas described.
 Alturas quadrangle, Blaine County:
 Ballard, 2.
 Bear Lake County, eastern: Kirkham, 2.
 Bingham, Bonneville, and Caribou
 counties: Kirkham, 3.
 Birch Creek district: Shenon, 2.
 Boise Basin, Boise County: Ballard, 3.
 Boundary County: Kirkham, 7.
 Bruneau River basin, Owyhee County:
 Piper, 2.

Idaho—Continued.

Areas described—Continued.

Clark, Jefferson, and parts of Butte, Custer, Fremont, Lemhi, and Madison counties: Kirkham, 9.

Fort Hall Indian Reservation: Mansfield, G. R., 3.

Goose Creek basin, Bassia County: Piper, 1.

Lapwai area: Kirkham, 11.

Mineral and Cuddy Mountain mining districts, Washington and Adams counties: Livingston, 4.

North central Idaho: Thomson, F. A., 3. Orofino area: Kirkham, 11.

Pine Creek district: Jones, Ed. L., 4.

Power and Oneida counties: Piper, 3.

Rocky Bar quadrangle: Ballard, 4.

St. Maries region: Anderson, A. L., 4.

Salmon area: Ross, C. P., 7.

Seven Devils district: Livingston, 3.

Shoshone County: Umpleby, 3.

Silver City region: Piper, 6.

Southeastern Idaho: Mansfield, G. R., 29.

South Mountain district, Owyhee County: Sorenson, 1.

Yellow Pine cinnabar district: Larsen, 3.

Economic geology.

Antimony: Thomson, F. A., 1.

Antimony and quicksilver deposits, Yellow Pine district, Valley County: Schrader, 10.

Boise Basin district: Ballard, 1.

Bonneville County, coal prospects: Kirkham, 12.

Boundary County: Kirkham, 7.

Buffalo Hump district, quartz veins: Beckwith, R. H., 2, 4.

Bunker Hill lode, Wardner: Rickard, 3.

Cement materials, Pocatello: Anderson, A. L., 3.

Cinnabar, near Black Pine: Larsen, E. S., 1.

Clark County, coal and gas possibilities: Kirkham, 12.

Clays: Skeels, 1.

Coal, eastern Idaho: Mansfield, G. R., 8.

Horseshoe district, Teton basin: Evans, G. W., 1.

Cobalt, Lemhi County: Hess, 5.

Coeur d'Alene district: Berg, 1; Eby, J. H., 1; Umpleby, 3, 5; Waldschmidt, 8.

Copper near Salmon: Ross, C. P., 3, 7.

Seven Devils district: Livingston, 3.

Disseminated lead prospect, Boise County: Ross, C. P., 10.

General: Bell, R. N., 5.

Glacially transported mine, Gilmore: Walker, R. T., 1.

Gold, Boise Basin: Ballard, 3.

Idaho batholith: Thomson, F. A., 4. north central Idaho: Thomson, F. A., 3.

Idaho—Continued.

Economic geology—Continued.

Gold, silver, copper, lead, and zinc: Gerry, 1, 3, 5, 8, 10, 13.

Gold veins, central Idaho: Roberts, H. M., 1.

Gypsum: Stone, 11.

Horseshoe Basin coal field: Evans, G. W., 4.

I. X. L. copper prospect, Adams County: Bell, R. N., 3.

Kaolin and feldspar: Wilson, H., 1.

Manganese: Livingston, 2.

Bannock County: Hewett, 19.

Mica deposits, Latah County: Anderson, A. L., 1.

Mineral and Cuddy Mountain mining districts, Washington and Adams counties: Livingston, 4.

Mining districts: Varley, 1.

Mining industry: Bell, R. N., 1, 2, 4; Campbell, S., 1, 3-7.

Molybdenite, Rocky Bar district: Schrader, 7.

Molybdenum: Livingston, 2.

Native lead, Halley: Shannon, 73.

Oil shale: Condit, 2; Winchester, 5.

Oil possibilities: Heald, 10.

Bingham, Bonneville, and Caribou Counties: Kirkham, 3.

southeastern Idaho: Kirkham, 1, 5. southwestern and south-central Idaho: Buwalda, 5.

Ore deposition, Buffalo Hump district: Beckwith, R. H., 3.

Ore deposits in Tertiary lava, Salmon River Mountains: Ross, C. P., 13.

Phosphate deposits: Kirkham, 4; Mansfield, G. R., 35.

Quartzburg, Gold Hill mine: McDermid, 1.

Quicksilver: Livingston, 2.

Rocky Bar quadrangle: Ballard, 4.

Salt deposits: Phalen, 1.

Shoshone County: Umpleby, 3.

Silver, Pend Oreille district: Sampson, 16.

Silver City region: Piper, 6, 7.

South-central Idaho: Umpleby, 2.

Tin: Livingston, 2.

Tungsten: Livingston, 2.

Vienna district, Blaine County: Ross, C. P., 12.

Wood River district: Campbell, S. S., Yellow Pine cinnabar district: Larsen, 3.

Zonal distribution of gold, silver, lead, and copper ores: Thomson, F. A., 6.

Historical geology.

Bozeman beds: Keyes, 19.

Buffalo Hump district: Beckwith, R. H., 1, 4.

Coeur d'Alene region: Eby, J. H., 1; Shannon, 14.

Eastern Idaho: Mansfield, G. R., 8.

Idaho—Continued.

Historical geology—Continued.

- Granitic rocks, age: Ross, C. P., 16.
 Igneous geology, southeastern Idaho: Mansfield, G. R., 10.
 Mud Lake Basin: Stearns, 4, 6.
 Paleozoic: Ross, C. P., 11.
 Payette formation, age: Buwalda, 8.
 Pend Oreille district: Sampson, 16.
 Potlatch area: Kirkham, 10.
 Richmond formation(?): Cook, C. W., 8.
 Rocky Bar district: Schrader, 7.
 St. Maries area: Kirkham, 8.
 Silver City district: Piper, 7.
 Snake River valley: Buwalda, 3.
 South-central Idaho: Ross, C. P., 15; Umpleby, 2.
 Southeastern Idaho: Kirkham, 5; Mansfield, G. R., 30; Triassic and Jurassic: Mansfield, G. R., 6.
 Vienna district, Blaine County: Ross, C. P., 12.
 Wasatch and Salt Lake formations, southeastern Idaho: Mansfield, G. R., 5.
 Yellow Pine district, Valley County: Schrader, 10.

Mineralogy.

- Amphibole similar to hudsonite, Custer County: Shannon, 49.
 Anglesite, Coeur d'Alene district: Shannon, 2, 17.
 Atlanta district: Shannon, 79.
 Black sands: Shannon, 25.
 Boulangerite, Blaine county: Shannon, 28; Mullan: Shannon, 19.
 Brannerite, Stanley Basin: Hess, 6.
 Calcite, Pioneerille district: Shannon, 17.
 Calcite oolites of pentagonal dodecahedral form, Eagle Rock: Shannon, 69.
 Ferroanthophyllite, Coeur d'Alene district: Shannon, 21.
 Galenobismutite, Boise County: Shannon, 30.
 Garnet: Shannon, 39.
 Gersdorffite: Shannon, 47.
 Gouge clays, mineralogy: Shannon, 35.
 Hisingerite, Blaine County: Hewett, 14.
 Jamesonite containing silver, Owyhee County: Shannon, 19.
 Slate Creek, Custer County: Shannon, 57.
 Linarite and leadhillite, Wardner: Shannon, 5.
 Ludwigite, Lemhi County: Shannon, 24.
 Meteorite, Oakley: Merrill, 47, 52.
 Miargyrite and tetrahedrite, Flint district: Shannon, 78.
 Minerals: Shannon, 61.
 Mordenite and associated minerals, Challis, Custer County: Ross, C. S., 6.

Idaho—Continued.

Mineralogy—Continued.

- Naumannite, Silver City district: Shannon, 20.
 Native lead, Hailey: Shannon, 73.
 Niter deposit, Dubois: Stearns, H. T., 2.
 Owyheeite, Owyhee: Shannon, 27.
 Tetradymite, Hailey quadrangle: Shannon, 58; Pine Creek district: Shannon, 17.
 Trichalcite, Shoshone County: Shannon, 34.
 Tridymite and cristobalite in a granitic xenolith: Weymouth, 2.
 Vanadinite, Lemhi County: Stearns, H. T., 1.
 Vivianite, Clearwater County: Shannon, 22.
 Xanthoconite, Atlanta district: Shannon, 79.
 Zéophyllite, Salmon River district: Fairbanks, 9.
 Zircon, occurrence, Pend Oreille: Gillson, 36.

Paleontology.

- Carboniferous and Triassic, southeastern Idaho: Girty, 10.
 Idaho formation, Snake River valley: Dall, 10.
 Orygoceras, Tertiary: Dall, 7.
 Payette flora: Chaney, 6.

Petrology.

- Coeur d'Alene district: Shannon, 14.
 Granitic rocks, age: Ross, C. P., 16.
 Granodiorites, Pend Oreille district: Gillson, 6.
 Idaho batholith: Beckwith, R. H., 1.
 Southeastern Idaho: Mansfield, 10.

Physical geology.

- Asotin craters of Columbia River basalt: Fuller, R. E., 3.
 Craters of the Moon National Monument: Stearns, H. T., 14.
 Faulting, northern Idaho: Umpleby, 3.
 Fissure eruption, western Idaho: Fuller, R. E., 2.
 Mud Lake basin, igneous geology: Stearns, 4.
 Osburn fault: Umpleby, 5.
 Rate of soil deposition, Palouse area: Peterson, P. P., 1.
 Rocky Mountain structure, southeastern Idaho: Mansfield, G. R., 4, 15.
 Southeastern Idaho: Mansfield, G. R., 11, 33.

Volcanism, Mud Lake area: Stearns, 9.

Physiographic geology.

- Craters of the Moon: Stearns, H. T., 12; Stearns, N. D., 3.
 National Monument: Stearns, H. T., 3, 14.
 Drainage changes, northern Idaho: Anderson, A. L., 2.
 Features of glacial origin: Davis, W. M., 3.

Idaho—Continued.

Physiographic geology—Continued.

Idaho peneplain, age: Buwalda, 8.

Relief map: U. S. G. S., 10.

Southeastern Idaho: Mansfield, 13, 22, 23.

Tertiary planation, central Idaho: Mansfield, 19; Ross, C. P., 8.

Underground water.

Big Lost River valley: Kirkham, 12.

Camas Creek Basin: Piper, 4.

Goose Creek basin, Cassia County: Piper, 1.

Idaho Falls: Piper, 5.

Lapwai area: Kirkham, 11.

Moscow: Laney, 1.

Mud Lake basin: Stearns, 6.

Orofino area: Kirkham, 11.

Pahsimeroi Valley: Meinzer, 8.

Potlatch area: Kirkham, 10.

Thermal springs: Meinzer, 10.

St. Maries area: Kirkham, 8.

Weiser area: Kirkham, 12.

Identification of geological formations: Udden, J. A., 3.

Igneous and volcanic rocks. See also Intrusions; Magmas; Petrology.

Aa and pahoehoe, formation: Washington, 23.

Alabama: Adams, S. F., 2.

Ashland graphite area: Brown, J. S., 6.

Clay County: Prouty, 10.

Alaska: Martin, G. C., 15.

Alaska Railroad region: Capps, 6.

Anvik-Andreafski region: Harrington, 1.

Chandalar district: Mertie, 12.

Chicago Island: Buddington, 8; western part: Overbeck, 1.

Coast Range intrusives: Buddington, 14.

Cold Bay district: Capps, 5.

Cold Bay-Chignik district: Smith, W. R., 1.

Cold Bay-Katmai district: Smith, W. R., 3.

Goodnews Bay region: Harrington, 6.

Kahiltna Valley: Mertie, 2.

Kamishak Bay region: Mather, 7.

Katmai region: Fenner, 8.

Kennebec: Bateman, 3.

Kiwalik-Koyuk region: Harrington, 5.

Knik-Matanuska district: Landes, K. K., 2.

Kotsina-Kuskulana district: Moffit, 4.

Nixon Fork country: Brown, J. S., 7. northern, Canning River region: Leffingwell, 1.

Porcupine district: Eakin, 1.

Ruby-Kuskokwim region: Mertie, 11.

Salmon-Unuk River region: Mertie, 6.

Igneous and volcanic rocks—Continued.

Alaska—Continued.

southeastern: Buddington, 13; submarine pillow lavas: Buddington, 10.

Talkeetna Mountains, western: Capps, 3.

Tolstoi district: Harrington, 2.

Toklat-Tonzona River region: Capps, 12.

Tuxedni Bay area: Moffit, 2.

upper Matanuska Valley: Mertie, 14.

Anorthosites, formation: Loewinson-Lessing, 1.

Arizona: Darton, 17.

Aravaipa-Stanley region: Ross, C. P., 5.

central: Ettlinger, 1.

Courtland-Gleeson region: Wilson, E. D., 2.

Jerome and Bradshaw Mountains quadrangles: Lindgren, 17.

Jerome district, Yavapai County: Fearing, J. L., 2; Reber, 1.

lower Gila region: Ross, C. P., 1.

Oatman district: Ransome, 12.

Papago country: Bryan, 7, 15.

Payson district: Lausen, 1.

Ray quadrangle: Ransome, 11.

Ray-Miami region: Ransome, 1.

Saddle Mountain and Banner mining districts: Ross, C. P., 6.

Tucson and Amole Mountains: Jenkins, 3.

Arkansas, Hot Springs district: Lloyd, E. R., 2.

Pike County, peridotite: Miser, 12.

Assimilation and petrogenesis: Stansfield, 7.

Average chemical composition: Clarke, F. W., 3.

Basic and ultrabasic rocks, tectonic conditions accompanying intrusion: Benson, W. N., 2.

Batholiths, laterally spreading theory: Chamberlin, R. T., 16.

problems of: Grout, 24.

Belcher Islands, Hudson Bay: Moore, E. S., 1.

British Columbia: Brock, 14.

Ainsworth district: Schofield, 4.

Bridge River area: McCann, 3.

coast and islands: Dolmage, 8.

Cariboo district, Barkerville area: Johnston, W. A., 22.

Chiko Lake area: Dolmage, 15.

Cochihalla area: Cairnes, 4.

Dease Lake area, Cassiar district: Kerr, F. A., 1.

Driftwood Creek area, Babine Mountains: Hanson, 9.

Emory Creek, Yale district: Cairnes, 9.

Eutsuk Lake area, Coast district: Marshall, J. R., 3.

Igneous and volcanic rocks—Continued.

British Columbia—Continued.

- Eutsuk Lake district: Brock, 1.
- Fraser River Delta: Johnston, W. A., 17.
- Kamloops district, North Thompson valley: Uglow, 3.
- Lasqueti Island: MacKenzie, J. D., 3.
- Milbank Sound region, post-Pleistocene volcanics: Dolmage, 10.
- Parson Bay: Crickmay, 1.
- Pemberton area, Lillooet district: Cairnes, 8.
- Prince Rupert to Burns Lake: Hanson, 10.
- Salmon River district: Schofield, 11.
- Texada Island: Swanson, C. O., 2.
- Vancouver area: Schofield, 17.
- Vancouver Island, East Sooke Peninsula: Cooke, H. C., 5.
- Whitesail-Tahtsa lakes area: Marshall, J. R., 3.
- Windermere area, Kootenay district: Walker, J. F., 1.
- Yale district: Cairnes, 5.
- British Honduras: Ower, 2, 3.
- British Virgin Islands: Earle, 5.
- California, Blackhawk Canyon, San Bernardino Mountains: Woodford, 7.
- Deep Spring Valley: Miller, W. J., 35.
- Hollywood Hills, near Los Angeles: Schürmann, 1.
- La Jolla quadrangle: Hanna, M. A., 3.
- Lassen Peak region: Williams, H., 1.
- Los Angeles and Ventura counties: Kew, 6.
- Point Sur quadrangle: Trask, 5.
- Randsburg quadrangle: Hulin, 3.
- Sacramento Valley: Bryan, 10.
- San Bernardino Mountains: Vaughan, F. E., 1.
- San Diego County: Ellis, A. J., 1.
- San Gabriel Mountain: Miller, W. J., 29.
- Sierra Nevada, inclusions in granitic rocks: Pabst, 1.
- Sunset-Midway field: Pack, R. W., 1.
- Warner Range: Russell, R. J., 6.
- Central America: Putnam, P. C., 2.
- Classification: Hodge, E. T., 2, 3, 7, 9; Johannsen, 3; Loughlin, 33; Pirs-son, 4.
- Colorado, Boulder County, Ward region: Worcester, 1.
- central: Crawford, R. D., 2.
- Creede district: Emmons, W. H., 4.
- Delta and Mesa counties: Weeks, H. J., 1.
- Golden area: Johnson, J. H., 14.
- Grand, Jackson, and Larimer counties (parts): Spock, 1.
- Gunnison River: Hunter, J. F., 1.
- Las Animas, Otero, and Bent counties (parts): Duce, 1.

Igneous and volcanic rocks—Continued.

Colorado—Continued.

- Leadville mining district: Emmons, S. F., 1.
- Monument Butte quadrangle: Hancock, 7.
- northwestern: Ross, C. S., 14.
- Pitkin County, Aspen district: Knopf, A., 10.
- Platoro-Summitville district: Patton, H. B., 1.
- Red Cliff district: Crawford, R. D., 3.
- Routt and Moffat counties: Perini, 1.
- Routt County: Crawford, R. D., 1.
- southwestern: Coffin, 3.
- Tarryall district, Park County: Mullenburg, 2.
- Twin Lakes district: Howell, J. V., 1.
- Columbia River basalt, Asotin craters: Fuller, R. E., 3.
- Composition, texture, classification, description, and occurrence: Iddings, 2.
- Connecticut, Middletown area: Rice, W. N., 1.
- Shepaug Aqueduct Tunnel area: Agar, 4.
- Southampton-Granby area: Palmer, H. S., 5.
- Stonington region: Martin, L. H., 1.
- Triassic basalts: Foye, 11.
- Constituents and distribution: Clarke, F. W., 4.
- Contact metamorphism: Bain, 25.
- Costa Rica: Redfield, 7; Sears, 1.
- Density, average: Washington, 15.
- calculation from norm: Iddings, 3.
- in relation to isostasy: Washington, 27.
- Diabase and dolerite: Johannsen, 12.
- District of Columbia: Washington, 12.
- Dominica: Earle, 11.
- Dominican Republic: Vaughan, 16.
- Evolution: Bowen, 23.
- Final consolidation phenomena in the crystallization of igneous rock: Colony, 4.
- General: Washington, 4.
- Georgia, Tate quadrangle: Bayley, 13.
- Graphic study of igneous rock series: Grout, 8.
- Greenland: Bøggild, 1.
- northwestern: Hovey, 11; Koch, 1.
- Haiti: Woodring, 4, 5.
- Hawaiian Islands: Powers, 5.
- Kaula, Nikoa, Necker, and Gardner islands: Palmer, H. S., 9.
- Kilauea: Stone, J. B., 1.
- Honduras: Redfield, 8.
- Idaho, Bingham, Bonneville, and Caribou counties: Kirkham, 3.
- Boundary County: Kirkham, 7.
- Buffalo Hump district: Beckwith, 4.
- Camas Creek basin: Piper, 4.

Igneous and volcanic rocks—Continued.

Idaho—Continued.

- Cassia County, Goose Creek basin: Piper, 1.
- Coeur d'Alene district: Shannon, 14.
- Craters of the Moon National Monument: Stearns, H. T., 14.
- Fort Hall Indian Reservation: Mansfield, G. R., 3.
- granitic rocks: Ross, C. P., 16.
- Idaho batholith: Beckwith, R. H., 1.
- Lapwai area: Kirkham, 11.
- Mineral and Cuddy Mountain mining districts: Livingston, 4.
- Mud Lake area: Stearns, 9.
- north central: Thomson, F. A., 3.
- Orofino area: Kirkham, 11.
- Owyhee County, South Mountain district: Sorenson, 1.
- Pend Oreille district, granodiorites: Gillson, 6.
- Pine Creek district: Jones, Edw. L., 4.
- Rocky Bar quadrangle: Ballard, 4.
- Salmon River Mountains: Ross, C. P., 13.
- Seven Devils district: Livingston, 3.
- Shoshone County: Umpleby, 3.
- Silver City region: Piper, 6.
- south central: Umpleby, 2.
- southeastern: Mansfield, G. R., 10, 29.

Igneous intrusion, after-effects: Kemp, 12.

- Illinois, Hardin County: Weller, S., 1.
- Inclusions in magmas: Emmons, R. C., 1.

Intrusive Triassic diabase, Goose Creek, Loudoun County: Shannon, 46.

- Kansas, Riley County: Moore, R. C., 7.
- Rose dome, Woodson County: Twenhofel, 23, 32.

Kentucky, Cave in Rock quadrangle: Weller, 16.

- western: Currier, 2.

Lanai: Wentworth, 15.

Leeward Islands: Washington, 33.

Lesser Antilles: Lacroix, 1.

Louisiana, Cretaceous: Bramlette, 2.

- Richland Parish, nepheline basalt: Campbell, I., 1.

Magmatic differentiation: Vogt, 1, 3.

Maine, Kennebec River to Penobscot Bay: Perkins, E. H., 3.

- Mount Desert Island: Bascom, 1.

- Mount Kineo: Smith, E. S. C., 3.

- Ogunquit: Keeley, 2.

- Portsmouth Basin: Wandke, 2.

Manitoba, Beresford Lake area: Wright, D. G. H., 2; Wright, J. F., 4.

- Bigstone and Fox Rivers area: Merritt, C. A., 4.

- Cross-Pipestone area: Alcock, 4.

- Flinflon area: Alcock, 15.

- Island Lake area: Wright, J. F., 12.

Igneous and volcanic rocks—Continued.

Manitoba—Continued.

- Knee Lake district: Bruce, 4.

- northern: Bruce, 5.

- Oiseau River area: Wright, J. F., 10.

- Oxford and Knee Lakes area: Wright, J. F., 11.

- Reed and Wekusko lakes region: Alcock, 3.

- Rice Lakes area: Wright, J. F., 3.

Maryland, Elkton quadrangle: Bascom, 2.

- Harford County, serpentines: Johannsen, 14.

- western Piedmont: Jonas, 4.

Massachusetts, Cape Ann: Warren, C. H., 2.

- Dracut norite stock: Fairbanks, 10.

- Essex County: Clapp, C. H., 1.

- Westfield, gabbroid diabase: Shannon, 6.

Mexico, Aguascalientes, Asientos-Tepezala district: Anderson, G. E., 2.

- Chapala region: Palmer, R. H., 1.

- Chihuahua, Yoquiva district: Hall, C. W., 1.

- Coahuila, northern: Cummings, 2.

- Colima (part): Vivar, 4.

- El Oro and Tlalpujahua districts: Flores, 1.

- Guanajuato mining district: Wandke, 8.

- Guerrero: Bonillas, 1; Paredes, 1; Zumpango del Rio: Waitz, 2.

- Hidalgo, Atotonilco el Grande: Wittich, 10; El Chico: Wittich, 9.

- Hidalgo-Vera Cruz region: Palmer, R. H., 4.

- Lower California: Gálvez, 2; La Purísima region: Heim, 1; southern: Gálvez, 7.

- Michoacan, Morelia Valley: Camacho, 3.

- Minillas, Cerro Prieto, Pichagua, and Sierra de Ramírez: Bonillas, 2.

- northeastern: Staub, 1.

- Panuco oil field: Baker, C. L., 8.

- Puebla, San Juan de los Llanos: Wittich, 12.

- San Quintin volcanic field: Woodford, 6.

Michigan, Presque Isle, peridotite: Creveling, 1.

Minnesota, Cook County, sulphide diabase: Schwartz, 12.

- Giants Range batholith: Allison, I. S., 1.

- granite and gabbro intrusions of Ely greenstone: Schwartz, 7.

- Gunflint district: Broderick, 3.

- Kekequabic granite: Stark, 1.

- Pigeon Point: Grout, 27.

- St. Louis County, northern: Grout, 20.

- Vermillion batholith: Grout, 18.

Igneous and volcanic rocks—Continued.

- Montana, Beartooth Mountains, Bevan, 2.
 faulted area south of Bearpaw Mountains: Reeves, F., 8.
 Melrose phosphate field: Richards, R. W., 2.
 Sweet Grass Hills: Kemp, 8.
 Mt. Pelé: Shepherd, 5.
 Nevada, Candelaria district: Knopf, A., 5.
 Divide district: Knopf, A., 3.
 Gilbert district: Ferguson, H. G., 10.
 Jarbidge district: Schrader, 5.
 Manhattan district: Ferguson, H. G., 2, 5.
 Mineral County, Cedar Mountain: Knopf, A., 4.
 Ploche district: Westgate, 6.
 Rochester district: Knopf, A., 7.
 Round Mountain district: Ferguson, H. G., 4.
 Santa Fe district, Mineral County: Clark, C. W., 2.
 New Brunswick, Burnthill Brook area: Young, G. A., 1.
 Dalhousie area: Howard, W. V., 2.
 Newfoundland, Notre Dame Bay: Sampson, 8.
 southeastern: Buddington, 3.
 west coast: Brunton, 3.
 New Hampshire, Ammonoosuc district: Ross, C. P., 2.
 Hanover district: Merritt, J. W., 3.
 Portsmouth Basin: Wandke, 2.
 White Mountains, North Conway quadrangle: Billings, 5.
 New Jersey, Beemerville: Aourousseau, 1.
 New Mexico: Darton, 26.
 Mogollon district: Ferguson, H. G., 3, 8; Scott, D. B., 1.
 northeastern: Garrett, 1.
 Pecos Valley: Semmes, 4.
 Puertecito district: Wells, E. H., 2.
 Raton-Brilliant-Koehler area: Mertie, 9.
 Sandia Mountains: Ellis, R. W., 2.
 Taos Range: Gruner, 1.
 Taylor Creek district: Hill, J. M., 3.
 Tyrone district: Paige, 2.
 New York, Adirondack gabbros: Gillson, 10.
 Adirondacks: Alling, 3.
 Ausable quadrangle: Kemp, 23.
 Gouverneur quadrangle: Cushing, 1.
 Ithaca: Martens, 1, 3.
 Lake Bonaparte quadrangle: Smyth, 2.
 Lake Clear region: Alling, H. L., 1.
 Lewis County: Buddington, 2.
 Luzerne quadrangle: Miller, W. J., 19.
 Lyon Mountain quadrangle: Miller, W. J., 26.
 Mount Marcy quadrangle: Kemp, 7.

Igneous and volcanic rocks—Continued.

- New York—Continued.
 southeastern: Colony, 3.
 West Point quadrangle: Berkey, 3.
 North Carolina, Deep River region: Stuckey, 1.
 Nova Scotia, North Mountain, Cape Breton: Guernsey, 2.
 Richmond County, Stirling area: Weeks, L. J., 1.
 Oahu: Wentworth, 22.
 Oklahoma: Gould, 9.
 Arbuckle Mountains: Taff, 7.
 Cimarron County: Rothrock, 4;
 Black Mesa basalt: Shead, 5.
 southern Ouachita Mountains: Honess, C. W., 4.
 Wichita Mountains: Taff, 7.
 Olivine bombs near Globe, Arizona: Lausen, 5.
 Ontario, Batchawana area, District of Algoma: Moore, E. S., 19.
 Brocktown-Mallorytown area: Wright, J. F., 2.
 Cochrane district: Hawley, J. E., 3.
 Kirkland Lake area: Burrows, 4, 12;
 Todd, 8; Lebel and Gauthier townships: Hopkins, 7.
 Lake St. Joseph area: Bruce, 8.
 Matabitchuan area: Todd, E. W., 5.
 Matachewan district: Cooke, H. C., 1.
 Michipicoten district: Collins, W. H., 1, 15.
 Missinaibi area: Thomson, E., 11.
 north shore of Lake Huron: Collins, 11.
 Red Lake area: District of Patricia: Bruce, 12.
 Red Lake gold area, District of Kenora: Bruce, 22.
 Sault Ste. Marie, District of Algoma: McConnell, 1.
 Sudbury district: Bain, 5, 18; Phe-mister, 4.
 Sutton Lake area: Hawley, J. E., 1.
 Timiskaming district, Abitibi-Night Hawk gold area: Knight, C. W., 1;
 Argonaut mine: Cooke, H. C., 13;
 Larder Lake area: Cooke, 11;
 Redstone River area: Bruce, 19.
 Oregon: Smith, W. D., 1.
 Cornucopia, inclusions in porphyry dikes: Goodspeed, 1.
 Glass Buttes, Lake County: Waters, A., 2.
 Mount Jefferson: Hodge, E. T., 6.
 Riddle quadrangle: Diller, 12.
 southeastern: Smith, W. D., 14.
 Panama Canal Zone: MacDonald, 5.
 Pennsylvania, Indiana County, peridotite dike: Honess, A. P., 4.
 Lebanon County, Ordovician: Gordon, S. G., 3.
 McCalls Ferry quadrangle: Jonas, 2.
 New Holland quadrangle: Jonas, 5.

Igneous and volcanic rocks—Continued.

Pennsylvania—Continued.

Ordovician: Stose, 29.

Quarryville quadrangle: Jonas, 3.

Porto Rico: Berkey, 1.

Coamo-Guayama district: Hodge, E. T., 1.

Humacao district: Fetteke, 5.

Lares district: Hubbard, B., 3.

Ponce district: Mitchell, 7.

San Juan district: Semmes, 1.

Quantitative mineralogical and chemical classification: Hodge, E. T., 4, 11.

Quebec, Abitibi County, Duparquet and Destor townships: Buffam, 1.

Araprior-Quyon area: Wilson, M. E., 10.

Beauceville area: MacKay, B. R., 4.

Coleraine area: Knox, J. K., 1.

Dufresnoy area, Abitibi district: Harvie, 3.

Duparquet area: James, W. F., 1.

Gaspé County, Lemieux Township: Alcock, 14; Mailhot, 1.

Harricana-Turgeon basin: Tanton, 1.

Lake David area: Mawdsley, 5.

La Motte and Fournière areas, Abitibi County: James, 5.

Mount Albert area: Alcock, 6; Mailhot, 2.

Monteregian province extensions: Stansfield, 4.

Monteregian Hills outliers: Howard, W. V., 1.

Mount Serpentine, Gaspé County: Alcock, 22.

northern: Cooke, H. C., 2.

Pontiac County, Calumet Island: Goranson, 3.

St. Urbain area, Charlevoix district: Mawdsley, 1.

Shickshock Mountains: Alcock, 21.

Timiskaming County, Rouyn area: James, W. F., 2.

Saskatchewan, Lake Athabasca region, norite rocks: Alcock, 7.

Wapawekka and Deschambault lakes area: De Lury, 6.

South Dakota, Black Hills: Paige, 4.

central Black Hills: Darton, 14.

Lead area: Hosted, 1.

spodumene mine, Black Hills: Schwartz, 13.

Structure: Willis, 11.

Texas, Amarillo district: Harrison, T. S., 1.

Balcones fault region: Lonsdale, 10.

Fort Stockton quadrangle: Adkins, 4.

Medina County: Liddle, 3.

Solitario uplift: Powers, 9.

trans-Pecos Texas: Baker, C. L., 6.

Triangular representation: Johannsen, 5.

Igneous and volcanic rocks—Continued.

Ultra-basic rocks, origin: Bowen, 22.

Utah: Butler, 4.

Abajo Mountains: Thorpe, 1.

La Sal Mountains: Gould, L. M., 4.

Ophir district: Olmstead, 1.

Tintic district: Lindgren, 2.

Vermont, Barnard, Pomfret, and Woodstock townships: Richardson, C. H., 11.

Bethel, Barre, and Woodbury: Balk, 4.

Bethel Township: Richardson, C. H., 8.

Braintree: Richardson, C. H., 5.

central: Richardson, C. H., 1.

Cuttingsville: Eggleston, 1.

Northfield: Richardson, C. H., 2.

Plymouth and Bridgewater townships: Perry, E. L., 1.

Roxbury: Richardson, C. H., 3.

Whitingham area: Hubbard, G. D., 4.

Virginia, Jurassic? intrusives: Roberts, J. K., 3.

Louisa County, lamprophyre dike: Watson, 9.

northeastern Piedmont: Lonsdale, 2, 7.

Piedmont: Jonas, 8.

Pittsylvania County: Watson, 13.

Triassic: Roberts, J. K., 8.

Washington, Corbaley Canyon: Waters, A., 1.

San Juan Islands: McLellan, 2.

southwestern: Culver, 1.

Silver Hill deposits: Anderson, A. L., 5.

Spokane area: Pardee, 12.

Stevens County: Weaver, 2.

West Indies, northeast: Vaughan, 40.

Wyoming, Lost Soldier-Ferris district: Fath, 5.

Yukon, Aishihik Lake area: Cockfield, 19.

Mayo district, Beaver River area: Cockfield, 15.

Sixtymile and Ladue rivers area: Cockfield, 5.

Whitehorse district: Cockfield, 16.

Igneous intrusion. See Intrusions.

Illinois.

Boulder, Saline County: Bonnell, 3.

Decatur area: Leighton, 11.

Geological Survey, work: Hance, 1.

Glacial geology and engineering: Leighton, 18.

Publications on geology: Ill. G. S., 2.

Soils, DeKalb County: Mosier, 1.

Survey, administrative report, 1916-17: DeWolf, 2; 1917-19; DeWolf, 5.

Topographic and geologic mapping in Illinois, relation to engineering: DeWolf, 6.

Illinois—Continued.

Areas described.

Adams County, northeastern: Currier, 1.

Ava-Campbell Hill area: Root, 1.

Avon quadrangle: Savage, 6.

Brown County: Nebel, 1.

Calhoun County: Lamar, 6.

Canton quadrangle: Savage, 6.

Carbondale quadrangle: Lamar, 3.

Carlyle-Centralia district: Shaw, 9.

Colchester and Macomb quadrangles: Hinds, H., 1.

Dixon quadrangle: Knappen, 1.

Edgington quadrangle: Savage, 5.

Equality-Shawneetown area, Gallatin

and Saline counties: Butts, 5.

Gillespie and Mount Olive quadrangles: Lee, W., 1.

Good Hope quadrangle: Savage, 8; and La Harpe quadrangles: Nebel, 2.

Hardin County: Weller, S., 1.

Hennepin quadrangle: Cady, 3.

Herscher quadrangle: Athy, 1.

Joliet quadrangle: Fisher, D. J., 2.

Kings quadrangle: Bretz, 4.

La Harpe quadrangle: Nebel, 2; Savage, 8.

La Salle quadrangle: Cady, 3.

Milan quadrangle: Savage, 5.

Morris quadrangle: Culver, 2, 7.

New Athens quadrangle: Shaw, 8.

Okawville quadrangle: Shaw, 8.

Oregon quadrangle: Bevan, 3.

Pike and Adams counties: Coryell, 1.

Saline County: Cady, 12; western, Cady, 11.

Williamson County, northeastern: Cady, 11.

Economic geology.

Allendale oil field, Wabash County: Moulton, 6, 21; extension: Collingwood, 7.

Ayers anticline, Bond County: Bell, A. H., 4.

Bituminous shales: Barrett, 6.

Calhoun County: Lamar, 6.

Carbon ratios and petroleum: Moulton, 4.

Central eastern Illinois: Mylius, 1.

Centralia area: Bell, A. H., 2.

Clay, Mountain Glen, Union County: St. Clair, 2.

Coal: Culver, 5.

analyses: Hawley, G. W., 1.

Carbondale quadrangle: Lamar, 3.

District III: Culver, 6.

District IV: Cady, 7.

District V (Saline and Gallatin counties): Cady, 4.

Hennepin quadrangle: Cady, 3.

Knox County: Jelliff, 2.

La Salle quadrangle: Cady, 3.

low-sulphur: Cady, 3, 9.

Milan quadrangle: Savage, 5.

southern Illinois: Cady, 13.

Illinois—Continued.

Economic geology—Continued.

Coal beds, correlation: Culver, 8; Jilison, 108.

Fire clays: Parmelee, 1.

Fluorite, optical, southern Illinois: Pogue, 3.

Fluorspar: Fay, 2; Fellman, 1; Schwerin, 1, 2; Spurr, 30.

Fuller's earth, Pulaski County: Lamar, 10.

Gravel and limestone: DeWolf, 3.

Gravel deposits: Leighton, M. M., 2.

Herrin coal near Duquoin: Fisher, D. J., 3.

Hoing sand oil pools, prospecting: Moulton, 11.

Jacksonville area, petroleum: Bell, A. H., 7.

La Salle district: Ede, 1; mineral resources: Buzzard, 1.

Limestone resources: Krey, 3.

Martinsville area, Clark County: Moulton, W. H., 1.

Mineral industries, map: Christensen, 1; Ill. G. S., 3.

Mineral resources: Barrett, N. O., 2, 3. Molding sand: Littlefield, 2, 3.

Oil and gas, east-central Illinois: Mylius, 7.

Monroe County: Mylius, 3.

Oil and gas development, Jacksonville area: Collingwood, 3; and possibilities, eastern Illinois: Mylius, 6.

Oil and gas fields, map: Richardson, G. B., 1.

Oil and gas prospecting, central eastern Illinois: Mylius, 1.

Oil and gas resources, Ava-Campbell Hill area: Root, 1.

Oil field operations: Clark, C. R., 1; Moulton, 14; Spoor, 1.

Oil fields, influence of faulting: Wheeler, H. A., 4.

Oil investigations, Centralia area: Bell, A. H., 3.

Oil possibilities, Alexis quadrangle, Mercer and Warren counties: Wanless, 6.

Brown County: Nebel, 1.

Galesburg quadrangle: Poor, 2.

Goodhope and La Harpe quadrangles: Nebel, 2.

Oil prospecting, western Illinois: Bell, A. H., 11.

Oil prospects, Decatur area: Collingwood, 6.

Pile County: Bell, A. H., 1.

Petroleum: Barrett, N. O., 2; Collingwood, 2, 4, 5; Moulton, 3, 10, 12, 17.

Ayers anticline, Bond County: Bell, A. H., 9.

Crawford County: Hance, 2.

Flat Rock pool, Crawford County: Tough, 1.

Illinois—Continued.

Economic geology—Continued.

Petroleum—Continued.

- St. Francisville area, Lawrence County: Bell, A. H., 10.
 Trenton field: DeWolf, 4.
 Wabash County: Moulton, 19.
 Potash resources: Schroyer, 1.
 Potash shales: Austin, M. M., 1; Union County: Krey, 1.
 Pyrite in coal beds: Cady, 5, 8.
 Refractory clays: Parmelee, 2.
 St. Peter sandstone: Lamar, 9.
 Saline County, western: Cady, 11.
 Sandoval oil field: Bell, A. H., 6.
 Sorento dome, Madison, Montgomery, and Bond counties: Bell, A. H., 5.
 Sparta area, oil and gas possibilities: Moulton, 9.
 Staunton gas pool: Mylius, 2.
 Structural features suitable for oil testing: Moulton, 5.
 Structural relations in western Illinois: Moulton, 13.
 Wamac oil pool, Marion County: Wheeler, H. A., 5.
 Waterloo anticline: Lamar, 1; Moulton, 16.
 Williamson County, northeastern: Cady, 11.
 Yanaway well in Siggins pool: Lamar, 13.

Zinc: Boericke, 1.

Historical geology.

- Adams County, Payson anticline: Cox, B. B., 1.
 Allendale oil field: Moulton, 6.
 Basal Pennsylvanian conglomerate: Poor, 1.
 Bond County, Ayers anticline: Bell, A. H., 9.
 Boring, Monmouth: Workman, 1.
 Carboniferous: Culver, 3.
 Centralia area: Bell, A. H., 2.
 Chester series: Ulrich, 5; Weller, 2.
 Clark County, eastern: Moulton, 22.
 Coal beds, correlation: Culver, 9.
 Crawford County: Hance, 2.
 Decatur area: Collingwood, 6.
 Devonian: Savage, 3, 7, 14.
 Alto Pass quadrangle: Bassett, 1.
 Southwestern Illinois: Savage, 4.
 Drift sheets of northwestern Illinois: Leighton, 10.
 East-central Illinois: Mylius, 7.
 Farm Creek Pleistocene section near Peoria: Leighton, 17.
 Faunal horizons, Pennsylvanian rocks: Savage, 11.
 Galesburg quadrangle: Poor, 2.
 Geologic map: Ill. G. S., 1.
 Geological section: Keyes, 118.
 Glenwood limestone: Bevan, 4, 6.
 Igneous pebbles and boulders in Carboniferous limestone: Savage, 18.
 Jacksonville area: Bell, A. H., 7; Collingwood, 3.

Illinois—Continued.

Historical geology—Continued.

- Joliet district: Fisher, D. J., 6.
 Kinderhook group, western Illinois: Moore, R. C., 1.
 Knox County, Knox Township: Jelliff, 2.
 La Salle anticline: Cady, 6; Ede, 1; Mylius, 5.
 Loess deposits, Alton: Baker, F. C., 4.
 Maquoketa and Richmond rocks, correlation: Savage, 13.
 Martinsville area, Clark County: Moulton, 15.
 Media anticline, Henderson County: Bell, A. H., 8.
 Mississippi Valley: Krey, 2.
 New Richmond sandstone, northern Illinois: Cady, 2.
 Northeastern Illinois: Anderson, C. B., 1; Grant, U. S., 1.
 Northern Illinois: Thurston, 1; Thwaites, 7.
 Orchard Creek shale: Savage, 1.
 Oriskany limestone: Savage, 10, 15.
 Paleozoic rocks in deep wells: Thwaites, 3.
 Pennsylvanian, northwestern Illinois: Culver, 4; Wanless, 5.
 subdivisions: Cady, 14; Savage, 17.
 unconformities: Savage, 17.
 Pleistocene: Baker, F. C., 8, 9; Leighton, M. M., 3.
 Lawrence County: Cox, F. W., 1.
 succession near Alton: Leighton, M. M., 5.
 Pre-Illinoian till, Randolph County: MacClintock, 3.
 Pre-Pennsylvanian surface west of Duquoin anticline: Henbest, 2.
 Richmond beds: Savage, 12.
 Ste. Genevieve formation: Lamar, 5.
 St. Peter sandstone: Dake, 6; Lamar, 1, 9; Sardeson, 21.
 Saline and Gallatin counties: Cady, 4.
 Silurian: Savage, 16.
 Sorento dome, Madison, Montgomery, and Bond counties: Bell, A. H., 5.
 Southern Illinois: Weller, 11.
 geological history: Weller, 6, 15.
 Staunton gas pool: Mylius, 2.
 Thebes sandstone: Savage, 1.
 Tradewater formation: Henbest, 1.
 Waterloo anticline: Lamar, 1.
 Western Illinois: Culver, 6.
 Windrow formation: Thwaites, 2.
 Yanaway well in Siggins pool: Lamar, 13.

Mineralogy.

- Fluorite: Pogue, 3.
 Mineral collections in State Museum: Crook, 2.

Paleontology.

- Alton mammalian fauna, age: Leighton, M. M., 6.
 Angiosperm, Paleozoic, in coal: Hoskins, 1.

Illinois—Continued.

Paleontology—Continued.

- Black River Brachiopoda: Fenton, C. L. 5.
 Braidwood flora: Noé, 2.
 Bryozoa, Chester series: McFarlan, 1.
 Carboniferous, Galesburg: Jeliff, 3.
 Carboniferous plants, structure: Hoskins, J. H., 4.
 Coal balls: Noé, 7.
 Coal flora, Richland County: Reed, F. D., 1.
 Coal measures fossils near Galesburg: Jeliff, 1.
 Devonian, western Illinois: Savage, 7.
 Elephas primigenius boreus, Golconda: Crook, 4, 5.
 Elephas roosevelti, Cass County: Hay, 26.
 Fusulina, distribution: Culver, 3.
 Fusulinella, Stonefort limestone: Henbest, 1.
 Hardin County: Weller, S., 1.
 Harrisburg flora: Noé, 11.
 Loess deposits, Alton: Baker, F. C., 4.
 Mammalian faunas, shifting: Adams, L. A., 2.
 Mazon Creek: Moodie, 12.
 Mollusca of loess deposits: Baker, F. C., 13.
 Myeloxylon, coal measures: Seward, 1.
 Orchard Creek shale: Savage, 1.
 Paleozoic angiosperm, Harrisburg: Noé, 5.
 Pennsylvanian flora, northern Illinois: Noé, 6, 8.
 Pennsylvanian plants, structure: Hoskins, J. H., 2, 3.
 Pleistocene Mollusca: Baker, 8, 11, 12.
 Grundy County: Baker, 6.
 Joliet: Baker, 9.
 Pleistocene Vertebrata: Hay, 6.
 Problematic fossil, Silurian: Weller, 8.
 Richmond fauna, northeastern Illinois: Evans, J. R. C., 1.
 Silurian Gastropoda, northeastern Illinois: Wing, 1.
 Silurian worm, *Lecthaylus gregarius*: Weller, 9.
 Stigmairian root, Chester formation: Foerste, 14.
 Thebes sandstone: Savage, 1.

Petrology.

- Microscopic structure of rocks: Lamar, 2.

Physical geology.

- Central eastern Illinois: Mylius, 1.
 Chester series limestones, sedimentary analysis: Lamar, 7.
 Clark County, eastern: Moulton, 22.
 Coal balls: Feliciano, 1.
 Crystalline boulders in Pennsylvanian limestone: Savage, 18.
 Faulting, Alto Pass area: Ekblaw, 2.
 Iron sulphide pseudomorphs of plant structure: Schwartz, 20.

Illinois—Continued.

Physical geology—Continued.

- La Salle anticline: Cady, 6; Mylius, 5.
 Mississippi Valley, structure: Krey, 2.
 Oolite of Ste. Genevieve formation: Lamar, 5.
 Posten School structure, Monroe County: Mylius, 4.
 Saline County coal field, faults and dikes: Bonnell, 2.
 Sandoval oil field: Bell, A. H., 6.
 Structural features suitable for oil testing: Moulton, 5.
 Structural relations in western Illinois: Moulton, 13.
 Tilden meteor: Wylie, 1.
Physiographic geology.
 Alexis quadrangle: Wanless, 7.
 Cahokia mounds, origin: Crook, 3; Leighton, 8, 12.
 Chicago area: Downing, 1; Fryxell, 1; Salisbury, 2.
 Drift sheets, northern Illinois: Leighton, M. M., 4.
 northwestern Illinois: Leighton, M. M., 10.
 Driftless Area, erosional history: Trowbridge, 1.
 Farm Creek Pleistocene section near Peoria: Leighton, 17.
 Glacial drift sheets, northern Illinois: Leighton, M. M., 6.
 Glacial history, Elgin region: Leighton, 14.
 Glacial Kankakee torrent in northeastern Illinois: Ekblaw, 3.
 Glacial phenomena, Carbondale quadrangle: Lamar, 4.
 Glaciation, western Illinois: Leverett, 15.
 Illinois Valley: Cady, 1.
 Iowan and Illinoian drift sheets, relative age: Kay, 15.
 Joliet district: Fisher, D. J., 6.
 Karst topography, Alton: Lamar, 12.
 Monk's Mound, St. Clair County: Crook, 1.
 Northeastern Illinois: Anderson, C. B., 1.
 Northern Illinois: Thwaites, 7.
 Ohio River, genesis: Fowke, 1.
 Paleozoic karst topography: Ekblaw, G. E., 1.
 Pleistocene, northwestern Illinois: Leighton, 9.
 succession near Alton: Leighton, 5.
 Prairies, origin: Woodard, 1.
 Pre-Illinoian till, Randolph County: MacClintock, 3.
 Sangamon River at Decatur, glacial history: Leighton, 7.
 Southern Illinois: Bonnell, 1.
Underground water.
 Artesian waters, northeastern Illinois: Anderson, C. B., 1.
 Ground-water supplies: Habermeyer, 1.
 Northern Illinois: Thwaites, 7.

Ilmenite, Florida, beach deposits: Martens, 9.

Ilsemanite at Ouray, Utah: Hess, 17.

Immiscibility in silicate melts: Greig, 1.

Impressions on rocks: Twenhofel, 13.

Inclusions in igneous magmas: Bowen, 13.

Independence shale, Brandon, Iowa: Thomas, A. O., 5.

Indiana.

McCormick's Creek Canyon: Logan, 14.

Paleolithic stone age: Balcom, 1.

Soil surveys: Bushnell, 1.

Soils, Benton County: Jones, G. B., 1.

Carroll County: Erni, 1.

Cass County: Beals, 1.

Whitley County: Shiltz, 1.

Survey, reports: Barrett, E., 1, 6, 7;

Logan, 6, 7, 13, 16, 20, 26, 28, 29.

Areas described.

Jasper County: Bushnell, 2.

Lawrence County: Esarey, 1.

Economic geology.

Building stones: Logan, 8.

Cement materials: Logan, 9.

Clay, indianaitite, Monroe County: Logan, 2-4.

Clays and shales: Logan, 19.

Coal, Monroe County: Logan, 1.

Vigo County: Logan, 6.

Coal seams, distribution: Logan, 11.

workable: Barrett, E., 8.

Coals, correlation: Jillson, 108.

Flints and cherts: Bennett, L. F., 2.

General: Logan, 10.

Indiana limestone: Anderegg, 1.

Indianaite: Ries, 5; origin: Logan, 3, 4.

Kaolin: Logan, 4, 6; origin: Bucher, 5.

Mineral resources: Logan, 6.

Molding sand: Hole, 1.

Natural gas: Wright, Floyd E., 2.

conservation: Logan, 21.

New Albany oil shale: Reeves, J. R., 4, 6.

Oil and gas fields: Barrett, E., 5; Wright, Floyd E., 1.

Oil fields, southwestern Indiana: Logan, 18.

Oil in middle Ordovician: Heald, 9.

Oil shales: Esarey, 3; Reeves, J. R., 2, 3, 5.

Peat deposits: Logan, 12.

Petroleum: Bownocker, 3; Logan, 22; Reeves, J. R., 1; and natural gas: Logan, 5.

conservation: Logan, 17.

southwestern Indiana: Moulton, 20.

Placer gold: Hafer, 1.

Pyrite in coals: Barrett, E., 8.

Sullivan County oil field: Visher, 2.

Tri-County oil field, southwestern Indiana: Esarey, 2.

Historical geology.

Borden (Knobstone) rocks, southern Indiana: Stockdale, 4.

Borings: Logan, 24.

Indiana—Continued.

Historical geology—Continued.

Chester formations, Orange County: Hole, 1.

Chester series, southern Indiana: Malott, 2.

Cincinnati anticline, dimensions: Hubbard, G. D., 5.

structural features: Logan, W. N., 27.

General: Cumings, 1; Logan, 5, 15, 24.

Greene County, eastern: Malott, 1.

Hamburg section: Shideler, 4.

Niagaran, northern Indiana: Cumings, 5; Shrock, 2.

coral reefs: Cumings, 3, 4.

Ordovician, Madison: McEwan, 2.

Pennsylvanian and Mississippian, southwestern Indiana: Logan, 25.

Saluda limestone, Madison: Sulzer, 1.

Southwestern Indiana: Logan, 18.

Sub-Trenton formations: Logan, 23.

Upper Chester: Malott, 8.

Paleontology.

Brassfield limestone fauna, Jefferson County: Culbertson, J. A., 1.

Chester formations, Orange County: Hole, 1.

Crinoid occurrence at Crawfordsville: Ehrenberg, 1.

Elephas roosevelti: Hay, 26.

Niagaran, northern Indiana: Cumings, 5; Shrock, 2.

Ordovician, Madison: McEwan, 2.

Pleistocene Mollusca: Baker, F. C., 3.

Pleistocene shell, Porter County: Lyon, 1.

Scorpion, Pottsville formation, Clay County: Moore, J. I., 1.

Physical geology.

Concretions in Knobstone, Monroe County: Tucker, W. M., 2.

Erosion, Clifty and Butler ravines, Jefferson County: Culbertson, 2.

Laurel limestone, erosion forms: Sulzer, 2.

Lawrence County, structural features: Esarey, 1.

Marengo Cave: Speckman, 1.

Petroleum in a fossil cast: Reeves, J. R., 9.

Planation stream piracy: Malott, 5.

Sphalerite in coal pyrite, Bicknell: Dove, 1.

Structural features: Visher, 4.

Structural geology: Barrett, E., 5.

Stylolites, nature and origin: Stockdale, 1.

Widening of valleys by frost action: Culbertson, G., 1.

Physiographic geology.

Abandoned channels, Randolph and Delaware counties: Breeze, 1.

Anderson esker: Reeves, J. R., 1.

Bell Creek-Fall Creek Valley: Carter, 1.

Indiana—Continued.

Physiographic geology—Continued.

- Drainage changes in Porter's Cave area: Addington, 2.
- Dunes, northwestern Indiana: Barrett, E., 2.
- Lake Michigan: Cressey, 3.
- General: Malott, 6.
- Glacial boundary: Malott, 9.
- Greene County, eastern: Malott, 1.
- Hancock County: Tharp, 1.
- Indian Creek, Lawrence County, subterranean phenomena: Malott, 7.
- Kankakee region: Bushnell, 4.
- Knobstone cuesta region, southern Indiana: Malott, 3, 4.
- Lakes near La Porte: Tucker, W. M., 3.
- Litten natural bridges, Owen County: Addington, 4.
- McCormicks Creek: Barrett, E., 4.
- Marengo Cave: Addington, 3.
- Miami County: Tharp, 2.
- Ohio River, genesis: Fowke, 1.
- Owen County, drainage changes: Addington, 1.
- Porter's Cave, Morgan County: Addington, 2.
- Raccoon Creek, Parke County, change of drainage: Bartle, 1.
- Sand dunes, Lake Michigan: Cressey, 1, 2; Parkins, 1.
- Shades: Barrett, E., 3.
- Stream piracy near Greencastle: Smith, E. R., 3.
- Subterranean drainage phenomena: Addington, 5.
- Terraces, Ohio River, Jefferson County: Culbertson, 3.
- Wabash drainage basin: Shrock, 1.
- Wayne County: Bushnell, 3.
- Incompetent beds, use of thickness of: Rubey, 4.
- Indianaite, Indiana: Ries, 5; origin: Logan, W. N., 3, 4.
- Inequalities of sedimentation: Kindle, 3.
- Ingomar anticline, Treasure and Rosebud counties, Montana: Heald, 18.
- Iniskin Bay district, Alaska: Moffit, 3.
- Iniskin-Chinitna Peninsula, Alaska: Moffit, 7.

Insecta.

- Beetles, Fox Hills strata, South Dakota: Northrop, S. A., 1.
- Caddice fly cases, Green River formation, Wyoming: Bradley, W. H., 1.
- Caddis case, Eocene, Tennessee: Berry, 84.
- Miocene, Washington: Berry, 9, 7.
- Collecting insects: Cockerell, 33.
- Colorado, Eocene: Cockerell, 8, 24.
- Florissant, Miocene: Cockerell, 36, 41; beetles: Cockerell, 32.
- Green River: Cockerell, 27.
- Culex winchesteri, Cathedral Bluffs, Colorado: Cockerell, 3.
- Dragon fly, Eocene, Colorado: Cockerell, 42.

Insecta—Continued.

- Description of material in United States National Museum: Cockerell, 24.
- Eocene, Rocky Mountains: Cockerell, 2.
- Texas: Cockerell, 19.
- Eomyza holoptera, Green River beds, Colorado: Cockerell, 26.
- Florida, Vero, beetles: Wickham, 1.
- Fulgoridae, Eocene: Cockerell, 9.
- General: Brues, 1.
- Hoplissus, Green River formation, Colorado: Cockerell, 15.
- Hymenoptera, earliest: Cockerell, 10.
- Florissant, Colorado: Cockerell, 4, 23.
- Inocellia (Neuroptera), Florissant, Colorado: Cockerell, 28.
- Kansas, Permian: Carpenter, F. M., 1; Dunbar, 4; Tillyard, 1.
- Copeognatha: Tillyard, 8.
- Delopteridae: Tillyard, 11.
- Hemiptera: Tillyard, 9.
- Mecoptera: Tillyard, 7.
- Paleodictyoptera: Tillyard, 2, 4.
- Protodonata and Odonata: Tillyard, 5.
- Prothymenoptera: Tillyard, 3; and Odonata: Tillyard, 6.
- Protopterlaria: Tillyard, 10.
- Maryland, Carboniferous: Cockerell, 37.
- Mosquitoes, oldest: Cockerell, 3.
- Moth, Hydriomena, Florissant: Cockerell, 13.
- Oregon, eastern, Tertiary: Cockerell, 41.
- Paleozoic insects, revision: Handlirsch, 1.
- Sawflies, Florissant, Colorado: Cockerell, 12.
- Scorpion-fly, Green River Eocene: Carpenter, F. M., 3.
- Siphurites, Miocene May fly, Florissant, Colorado: Cockerell, 22.
- Taphacris bittaciformia, Florissant: Cockerell, 30.
- Termite, Eocene, Tennessee: Collins, R. L., 2.
- Typus gilmorei, Grand Canyon: Carpenter, F. M., 2.
- Wyoming, Eocene: Cockerell, 8.
- Intercision, Pike River, Wisconsin: Ball, S. H., 4.
- Interglacial periods. See Glacial geology.
- Internationalization of mineral resources: Leith, 2.
- Intraformational corrugated rocks: Miller, W. J., 17.
- Intrageology: Chamberlin, T. C., 33.
- Intrusions. See also Dikes; Igneous and volcanic rocks; Laccoliths; Magmas.
- Alaska, Coast Range: Buddington, 13.
- Association of faulting with dike intrusion: Sheldon, 3.
- Basic dike injections in magmatic vein sequences: Spurr, 20.

Intrusions—Continued.

- Batholiths, problems of: Grout, 24.
 Granitic intrusives: Kemp, 24.
 Hawaii, Kilauea: Powers, 1.
 Idaho, western: Fuller, R. E., 2.
 Igneous intrusion, after-effects: Kemp, 12.
 Laccoliths and sills: Davis, 27.
 New Mexico, Pecos Valley: Semmes, 4.
 Mexico, southern Oaxaca: Palmer, R. H., 9.
 Ontario, Michipicoten area: Collins, 15.
 Sudbury district: Bain, 18.
 South Dakota, central Black Hills: Darton, 14.
 Stresses in laccolithic intrusions: Gould, L. M., 2.
 Vermont, Bethel, Barre, and Woodbury: Balk, 4.
 Virginia, Louisa County, lamprophyre dike: Watson, 9.

Invertebrates (general). See also the classes of invertebrates.

- Alberta, Banff area: Warren, P. S., 4.
 Birch Lake sandstone, marine fauna: Warren, P. S., 3.
 Crowsnest Pass, Devonian and Carboniferous: Warren, P. S., 2.
 Edmonton formation, Red Deer River: Warren, P. S., 2.
 Lake Minnewanka section: Shimer, 6.
 Beekmantown series, Levis, Quebec: Clark, T. H., 11.
 Baffin Island, corals, brachiopods, gastropods, and ostracodes: Hussey, 2.
 British Columbia, Rocky Mountains, Ordovician: Wilson, A. E., 4.
 southwestern, Pleistocene: Crickmay, 3.
 Vancouver Island, Sooke formation: Clark, B. L., 8.
 California, La Jolla quadrangle, Eocene: Hanna, M. A., 5.
 California Academy of Sciences, report of curator: Hanna, G. D., 3.
 Vacaville, Eocene: Palmer, D. B. K., 1.
 Cannonball fauna: Stanton, 3.
 Carboniferous, Oklahoma: Morgan, G. D., 5.
 Carolinas, Cretaceous: Stephenson, 9.
 Devonian, western Illinois: Savage, 7.
 western Tennessee: Dunbar, 2.
 Ellesmere Land: Tolmachoff, 2.
 Harvard College, Museum of Comparative Zoology, reports on invertebrate paleontology: Raymond, 1, 20, 22, 25, 33, 38.
 Illinois, northeastern, Richmond fauna: Evans, J. R. C., 1.
 Orchard Creek shale: Savage, 1.
 Thebes sandstone: Savage, 1.
 Idaho, southeastern, Carboniferous and Triassic: Girty, 10.

Invertebrates (general)—Continued.

- Indiana, Jefferson County, Brassfield limestone fauna: Culbertson, J. A., 1.
 Inorganic constituents: Clarke, F. W., 2.
 Iowa, Des Moines, Carboniferous: Thomas, 18.
 Hackberry stage: Fenton, C. L., 4.
 Fort Dodge, Ste. Genevieve marls: Lees, 4.
 Mississippian: Van Tuyl, 8.
 State Quarry beds: Stainbrook, 3.
 Shellrock stage: Belanski, 3.
 Kansas: Twenhofel, 17.
 Permian: Dunbar, 4.
 Maine, Chapman sandstone: Raymond, 21.
 Maryland, Silurian: Swartz, C. K., 9.
 Mesozoic, bibliography: Whitney, F. L., 1.
 Mexico, Coahuila, Permian: Haack, 1.
 Gulf of California, Pliocene: Hanna, G. D., 29.
 Michigan, Richmond formation: Hussey, 1.
 Mississippian: Weller, 13.
 Missouri, Bailey limestone fauna: Tansley, 1.
 Devonian: Branson, 5.
 Kimmswick and Plattin limestones: Foerste, 9.
 Mississippian: Moore, 41.
 Plattin formation: Fenton, C. L., 8.
 Ste. Genevieve County, Little Salline limestone: Stewart, G. A., 1.
 Multilamellar invertebrates: Bassler, 11.
 New York, Martinsburg, Trenton fauna: Clark, T. H., 1.
 Vernon shale fauna: Eaton, H. N., 5; Ruedemann, R., 2.
 North Carolina, Cretaceous: Stephenson, 4.
 Northwest Territories, Great Slave Lake, Ordovician and Silurian: Hume, 18.
 Ontario, Credit River section: Dyer, 3.
 Lake Timiskaming area: Hume, 14.
 Ordovician, black shales: Parks, 32;
 Ottawa region, Ontario: Wilson, A. E., 1; upper: Foerste, 15.
 Workman's Creek section, Cincinnati series: Fritz, 2.
 Pennsylvania, Broad Top coal field, Pocomo fauna: Girty, 12.
 Portage fauna, Mackenzie River valley: Kindle, 4.
 Pottsville fauna, Ohio: Morningstar, 1.
 Webster County, West Virginia: Price, W. A., 1.
 Quebec, Anticosti Island: Twenhofel, 30.
 upper Ordovician: Foerste, 15.
 Silurian: Foerste, 14.
 New York: Ruedemann, 19.

Invertebrates (general)—Continued.

Silurian—Continued.

Ohio: Foerste, 2.

southwestern Ontario: Williams, M. Y., 1.

Tennessee, Ripley fauna: Wade, B., 3.

Texas, Cretaceous: Adkins, 5; Scott, G., 2.

Fredericksburg and Washita formations: Adkins, 1.

Weno and Pawpaw formations: Adkins, 2.

Trenton fauna, Ontario and Quebec: Raymond, 10.

Triassic, York County, Pennsylvania: Wanner, 1.

Upper: Smith, J. P., 3.

Trinidad: Harris, G. D., 5.

Utah, Carboniferous and Triassic: Girty, 3.

Vermont, Fort Cassin: Foyles, 3.
fossil localities: Foyles, 5.

West Virginia, Mercer, Monroe, and Summers counties, Carboniferous: Girty, 8.

Nicholas County: Price, W. A., 7.

Webster County: Price, W. A., 1.

Wisconsin, Galena limestone: Ockerman, 1.

Iowa.

Conglomerate boulders, Centerville: Wilson, B. H., 1.

History of Iowa geology: Keyes, 18.

Pleistocene clays: Graham, H., 1.

State geologist's report: Kay, G. F., 1, 9.

Areas described.

Adair County: Gow, 1.

Cass County: Tilton, 3.

Clarke County: Tilton, 2.

Crawford County: Lees, 18.

Lucas County: Lugn, 6.

Pleistocene: Cable, 4.

Ringgold County: Arey, 1.

Taylor County: Arey, 2.

Economic geology.

Coal: Lees, 17; Rice, G. S., 1.

Fertilizer materials: Smith, J. E., 11.

Glass sand: Knight, N., 2, 3.

Gypsum: Stone, 11; Wilder, 2.

Mineral production: Kay, G. F., 2; Lees, 8, 11, 13, 14, 16.

Molding sand, eastern Iowa: Smith, 15.

Petroleum and natural gas: Howell, J. V., 4.

Refractory clays and shales: Galpin, 2.

Rock resources: Kay, 13.

St. Peter sandstone, oil possibilities: Osborn, W. G., 1.

Historical geology.

Adel, postglacial deposits: Lees, 15.

Affonian gravels, Union County: Kay, 5.

Ames, glacial tills: Smith, J. E., 4.

Anticlines: Dille, 2.

Iowa—Continued.

Historical geology—Continued.

Black bituminous shale near Palo, Linn County: Dille, 1.

Boring, Brighton: Lindly, 3, 4.

Davenport: Lindly, 6.

Holstein, Ida County: Lees, 10.

Laurens, Pocahontas County: Cable, 3.

Morning Sun: Lindly, 5.

Butler's Landing, Pennsylvanian outlier: Adams, J. E., 2.

Cambrian: Keyes, 89.

Comanchean fossils in glacial drift: Tester, 3.

Cone-in-cone in stratigraphic correlation: Tester, 1.

Cretaceous: Keyes, 240, 245.

nomenclature: Keyes, 203.

sandstone outcrop, Cherokee County: Cable, 10.

southwestern Iowa: Keyes, 68.

Dakota sandstone, Cherokee County: Cable, 7.

Decorah formation: Kay, G. M., 1; divisions: Kay, G. M., 2.

Devonian: Keyes, 186; Thomas, 12.

northern Iowa: Belanski, 2.

Drift sections, Des Moines: Keyes, 95.

Fort Dodge gypsum beds: Keyes, 137; Lees, 3, 12.

Gypsum deposits, age: Keyes, 166.

General: Folger, 1; Howell, J. V., 4; Keyes, 106.

Glacial period: Kay, 7.

Gravel deposits, Louisa and Washington counties: Schoewe, 1.

Hackberry stage, Devonian: Fenton, C. L., 2-4.

Hall's work in Iowa: Keyes, 113.

Independence shale, Brandon: Thomas, A. O., 5.

Jackson County: Ladd, H. S., 3.

Linn and Jackson Counties outliers, age: Norton, W. H., 4.

Maquoketa and Richmond rocks, correlation: Savage, 13.

Maquoketa shale: Bradley, J. H., jr., 1.

Jackson County: Ladd, H. S., 1.

Mississippian formations: Van Tuyl, 8.

Mississippian-Pennsylvanian and Pennsylvanian-Pleistocene unconformities, Lucas County: Lugn, 4.

Missouri series, southwestern Iowa: Tilton, 7.

Oolitic limestone in Otis beds: Dille, 5.

Ordovician, northeastern Iowa: Keyes, 252.

Paleozoic rocks: Keyes, 229.

Pennsylvanian system: Noé, 13.

Pleistocene, Des Moines: Lees, 9.

Preglacial Moingona River: Keyes, 3.

Richmond beds: Savage, 12.

Ste. Genevieve marls, Fort Dodge: Lees, 4.

Iowa—Continued.

Historical geology—Continued.

- St. Peter sandstone: Dake, 6; Osborn, W. G., 1; Sardeson, 21.
 Sandstone, Linn County: Hendricks, 1.
 Shakopee dolomite: Sardeson, 20.
 Shellrock stage of Devonian: Belanski, 1.
 Siouan Mountains, translocation: Keyes, 242.
 Southwestern Iowa: Smith, G. L., 1.
 State quarry beds, Devonian: Stainbrook, 3.
 Stratigraphic data from deep wells: Norton, W. H., 5.
 Stuart area: Tilton, 5.
 Sweetland shale: Keyes, 199.
 stratigraphic position: Keyes, 125.
 Volcanic ash, Des Moines: Keyes, 99;
 in glacial till: Keyes, 95.
 Wapsipinicon breccias: Norton, W. H., 1; nodules: Norton, W. H., 3.
 Windfield, boring: Lindly, 2.
 Wisconsin drift, relation to Iowan drift in Worth County: Cable, 1.
 Windrow formation: Thwaites, 2.

Mineralogy.

- Meteorites, Amana: Prior, G. T., 1.
 Estherville: Merrill, 9.

Paleontology.

- Annelid jaws, Devonian: Searight, 1.
 Aulopora, Devonian: Fenton, M. A., 1.
 Beaver tooth, Des Moines: Thomas, A. O., 7.
 Black River Brachiopoda: Fenton, C. L., 5.
 Bilobites bilobus, Niagaran, Jones County: Thomas, A. O., 25.
 Bone deposit, Cherokee: Cable, 9.
 Brachiopoda, Maquoketa shale: Bradley, J. H., Jr., 1.
 Ceraurus, McGregor: Thomas, A. O., 24.
 Coal measures flora, Johnson County: Adams, J. E., 1.
 Des Moines, Carboniferous: Thomas, 18.
 Echinodermata, Devonian: Thomas, A. O., 2, 12, 23; geographic distribution: Thomas, A. O., 16.
 Maquoketa beds: Slocum, 1; Thomas, 22.
 Eurypterus, Cambrian, Lansing: Walter, 2.
 Gastriceras, Mystic: Thomas, A. O., 6.
 Glass sponges: Thomas, 13.
 Hackberry fauna: Fenton, 1, 2, 4.
 Helicina occulta: Shimek, 1.
 Herpetocrinus, Monticello, Iowa: Thomas, A. O., 4.
 Lime Creek shales, micropaleontology: Thomas, A. O., 9.
 Mammalian remains: Thomas, 15.
 Maquoketa depauperate fauna: Ladd, H. S., 2.

Iowa—Continued.

Paleontology—Continued.

- Missouri series, southwestern Iowa: Tilton, 7.
 Pentameracea, Devonian: Belanski, 2.
 Pine cone from drift: Thomas, 21.
 Pleistocene bone deposits, Cherokee: Cable, 8.
 Pleistocene mammalian remains: Thomas, 20.
 Proboscidean remains, Clarke County: Kay, 6.
 Henry County: Jaques, 1.
 Red Oak and Ottumwa: Thomas, 26.
 Pugnoides, Devonian: Thomas, 14.
 Rhynchonellid brachiopods, Devonian: Thomas, 14.
 Salix: Reagan, 12.
 Ste. Genevieve marls, Fort Dodge: Lees, 4.
 Schizophoria, Devonian: Fenton, M. A., 3.
 Shellrock stage of Devonian: Belanski, 3.
 Sloth remains: Delavan, 1.
 Southwestern Iowa: Smith, G. L., 1.
 Stegomastodon: Osborn, 33.
 State Quarry beds, Devonian: Stainbrook, 2, 3.
 Stromatopora, Iowa City: Thomas, 11, 17.
 Terebratulacea, Devonian: Belanski, 4.
 Trilobites: Walter, 3.
 St. Lawrence limestone: Walter, 1.

Petrology.

- Dolomites, composition: Reed, B. B., 1.

Physical geology.

- Anticlines: Dille, 2.
 Clay bank erosion, Lee County: Wilson, B. H., 2.
 Devonian oolite, Linn County: Dille, 3.
 Eolian sands in interglacial deposits, Des Moines: Keyes, 105.
 Fort Dodge gypsum beds: Keyes, 137; Lees, 12.
 General: Keyes, 290.
 Gumbo: Keyes, 93.
 Gumbotil, origin: Kay, 4.
 Ice flutings on interglacial deposits: Keyes, 266.
 Iron streak in the loess: Keyes, 188.
 Limestone masses and septaria, origin: Lugn, 1.
 Mud pebbles, origin: Lugn, 5, 9.
 Nebraskan and Kansan tills: Kay, 8.
 Red Oak faulting: Keyes, 228.
 Rockford geodes: Galpin, 1.
 Sink hole, Pocahontas County: Cable, 5.
 Siouan fold: Keyes, 44.
 Status of sedimentation studies: Trowbridge, 8.
 Thurman-Wilson fault, southwestern Iowa: Tilton, 1.
Physiographic geology.
 Adel, postglacial deposits: Lees, 15.
 Aftonian gravels, Union County: Kay, 5.

Iowa—Continued.

Physiographic geology—Continued.

- Algona recessional stages of Wisconsin glaciation: Smith, J. E., 7, 12.
 Ames, glacial tills: Smith, J. E., 4.
 Boulders in Kansan drift: Kay, 3.
 Boyer Valley: Lees, 5.
 Camp Dodge region, Iowa: Lees, 1.
 Des Moines glacial lobe, retreat: Keyes, 263.
 Des Moines valley: Lees, 2.
 Drainage changes, Lee County: Wilson, B. H., 2.
 Drift deposits, Des Moines: Keyes, 17.
 Drift sheets, relation, Clarke County: Kay, 6.
 Driftless Area, erosional history: Trowbridge, 1.
 Early glacial sheets: Keyes, 206.
 Eskers, central Iowa: Smith, J. E., 5.
 Extinct glacial pond, Linn County: Dille, 6.
 Fort Dodge stages of retreating glaciers: Smith, J. E., 8.
 Glacial boulders, Des Moines County: Lugin, 3.
 Glacial deposits: Kay, 11; Keyes, 239; Des Moines: Keyes, 92.
 Glacial Lake Calvin: Schoewe, 3.
 Glacial lakelet near Cedar Rapids: Dille, 4.
 Glacial till sheets: Keyes, 126, 246.
 Gravel deposits, Louisa and Washington counties: Schoewe, 1.
 Gumbotil: Kay, 4.
 Humboldt stages of Wisconsin glaciation: Smith, J. E., 14.
 Interglacial volcanic ash, Des Moines: Keyes, 26.
 Iowan till: Kay, 12.
 Iowan and Illinoian drift sheets, relative age: Kay, 15.
 Iowan-Wisconsin border: Cable, 2, 6.
 Lake Calvin, origin and history: Schoewe, 6.
 Lake Cooper, physiographic evolution: Wilson, B. H., 3, 4.
 Loveland loess: Kay, 14.
 Mississippi River, temporary course: Schoewe, 4.
 Pleistocene: Cable, 44.
 Des Moines: Lees, 9.
 western Iowa: Kay, 10.
 Preglacial Molinegon River: Keyes, 3.
 Recessional moraines: Keyes, 232; central Iowa: Smith, J. E., 17.
 Stages in retreat of glaciers: Smith, J. E., 9.
 Story County, glacial geology: Smith, J. E., 16.
 Valley gravels of northwestern Iowa: Lees, 6.
 Webster County, eolian deposits: Smith, J. E., 3.

Iowa—Continued.

Physiographic geology—Continued.

- Wisconsin till: Smith, J. E., 13.
Underground water.
 Clarke County: Tilton, 2.
 Conservation of underground water: Lees, 7.
 Water table of the loess: Keyes, 124, 241.
 Iowan-Wisconsin border, Iowa: Cable, 2.
 Iron.
 Alabama, Bessemer-Vandiver quadrangle: Butts, 13.
 Birmingham district: Aldrich, T. H., 2; Crane, W. R., 1-4.
 brown iron ores: Adams, G. I., 4; Burchard, 26.
 Alberta: Allan, 6.
 Arizona, Eureka district, magmatic ore: Ball, S. H., 1.
 Plumosa district: Keyes, 146.
 Bacteria and iron deposition: Harder, 1, 3.
 Belcher Islands, Hudson Bay: Moore, E. S., 1; Woodbridge, 1; Young, G. A., 3.
 Biwabik formation, origin: Gruner, 3.
 British Columbia: Young, G. A., 6.
 Taseko Valley: Brewer, W. M., 1; MacKenzie, J. D., 1.
 Texada Island, magnetites: Swanson, C. O., 2.
 Vancouver Island, magnetite deposit, genesis: Uglow, 16.
 California: Boalich, 2.
 Madera County, magnetite: Dougherty, 6.
 Canada: Moore, E. S., 11.
 Arctic regions: Moore, E. S., 2.
 titaniferous ores: Goodwin, W. L., 1.
 Chrome iron ore, occurrences: Ross, J. G., 1.
 Clinton iron ore, origin: Galloway, J. J., 4.
 Cuba: Kuhn, 2; Weld, 1; Santiago: Kimball, 1.
 Distribution in meteorites and in earth: Adams, S. F., 1.
 General: Burchard, 2, 9, 12, 13, 15, 16, 21, 22; Harder, 4.
 Georgia: Haseltine, 1.
 Gogebic Range: Hotchkiss, 1, 7.
 Gunflint iron formation: Gill, J. E., 2.
 Hematite in certain ore deposits: Gilbert, G., 5.
 Illinois, Hardin County: Weller, S., 1.
 Indiana: Logan, 10.
 Investigation of iron ores, technique: Osborne, F. F., 2.
 Iron ore resources of the South: Burchard, 18.
 Iron protores, leaching of: Lovering, 1.
 Iron-depositing bacteria: Inman, 1; North, L., 1.
 Keewatin iron formations: Collins, 23.
 Kentucky: Miller, A. M., 1.

Iron—Continued.

Lake Superior region: Crowell & Murray, 1; Royce, 1; Winchell, A. N., 2.
 manganiferous iron ores: Zapffe, 4.
 Mackenzie: Kindle, 6.
 Maghemite: Wagner, P. A., 5.
 Magnetite: Gruner, 10; Newhouse, 6; Wagner, P. A., 5.
 North Carolina, origin: Bayley, 3.
 Magnetite and hematite, relations: Broderick, 1; Gilbert, G., 4.
 Magnetite-martite-hematite, oxidation of: Gruner, 8.
 Mesabi iron ores, enrichment: Allison, I. S., 2.
 Mesabi magnetic ores, origin: Grout, 7.
 Mexico, Bravo Valley: Paredes, 11.
 Cerro de Mercado: Salazar Salinas, 3.
 Guanajuato, Jalisco, and Michoacan: Paredes, 10.
 Hidalgo: Paredes, 2.
 Minnesota, Cuyuna range: Thiel, 7, 8; Zapffe, 1, 2, 3, 5.
 Gunflint district: Broderick, 3.
 magnetite segregation in banded syenite: Grout, 19.
 Mesabi range: Grout, 3; Gruner, 2, 5; Parsons, A. B., 1; Schwartz, 4; Wolff, J. F., 1.
 northern, magnetites: Grout, 9.
 St. Louis County, northern: Grout, 20.
 Vermilion ores: Gruner, 9.
 Missouri, Iron Mountain and Pilot Knob: Spurr, 33.
 Montana, Stanford hematite district: Westgate, 1.
 Sweet Grass Hills: Kemp, 8.
 New Brunswick, Bathurst mine: Parsons, C. S., 1.
 Newfoundland, Wabana: Hasebrink, 1; Hayes, A. O., 9.
 New Mexico, Chupadera Mesa: Keyes, 72.
 Iron Mountain: Smythe, 2.
 New York: Newland, 2.
 Adirondack Mountains, magnetite deposits: Miller, W. J., 13, 18; Newland, 1; genesis: Ailing, 10; magnetic ores, sedimentary phases: Nason, 1.
 Ausable quadrangle: Kemp, 23.
 Clinton County: Miller, W. J., 5; Newland, 1.
 Essex County, magnetic ores: Henry, 1.
 Lyon Mountain quadrangle: Miller, W. J., 26.
 southeastern, magnetites: Colony, 3.
 North Carolina, Lansing, magnetite-marble ore: Bayley, 4.
 magnetite ores: Bayley, 2, 6; Pratt, J. H., 6.
 western, brown hematite ores: Bayley, 5, 7, 11.
 Nova Scotia, sedimentary ores: Hayes, 4.

Iron—Continued.

Ohio, Vinton County: Stout, 6.
 Ontario: Bruce, 16; Collins, 7; Knight, C. W., 8; O'Connor, 1; Ontario Iron Ore Committee, 1.
 Gunflint iron-bearing formation: Gill, J. E., 1.
 Lake St. Joseph area: Bruce, 8.
 Leeds County, hematite: Wright, J. F., 1.
 Michipicoten district: Collins, W. H., 1, 2, 16.
 Missinaibi area: Thomson, E., 11.
 Mississagi Reserve and Goulais River iron ranges: Moore, E. S., 15.
 northwestern: Marks, 1.
 Sakkatawiche Lake section, Woman River iron range, District of Sudbury: Moore, E. S., 20.
 Thunder Bay district: Tanton, 12.
 Ore reserves, Tennessee River basin: Burchard, 27.
 Origin: Eng. and Min. Jour., 1.
 Oxidation products from sphalerite and galena: Boswell, 1.
 Paragenesis of martite and magnetite: Newland, 6.
 Pennsylvania: Pa. G. S., 1.
 Adams County: Stose, 25.
 Allentown quadrangle: Miller, B. L., 5.
 Porto Rico, eastern, magnetite deposits: Fettke, 6.
 Humacao district: Fettke, 5.
 Mayaguez, limonite: Fettke, 2.
 Pre-Cambrian iron formation, origin: Moore, E. S., 21.
 Quebec, Arnprior-Quyon area: Wilson, M. E., 10.
 Belcher Islands, Hudson Bay: Moore, E. S., 1.
 titaniferous magnetite deposits, Chicoutimi district: Robinson, A. H. A., 3.
 Saskatchewan, Lake Athabasca: Allen, 10.
 Sedimentary ores, origin: Quirke, 17.
 Southern States: Burchard, 23.
 Tennessee, eastern: Bayley, 7; Smith, A. F., 2.
 Waynesboro quadrangle: Miser, 6.
 western: Burchard, 24.
 west-middle, brown ores: Burchard, 25.
 Texas, eastern: Dumble, 1.
 Titaniferous iron ores: Osborne, F. F., 3.
 Utah, Iron Springs and Pinto districts: MacVichie, 1.
 southern: Rohlfing, 1.
 Virginia, Giles County: Hubbard, G. D., 6.
 Oriskany ores: Doak, 1.
 Wise and northern Scott counties: Eby, J. B., 1.
 Washington: Jenkins, 5.

Iron—Continued.

- West Virginia, Hampshire and Hardy counties: Tilton, 15.
 Mercer, Monroe, and Summers counties: Reger, 9.
 Wisconsin, Gogebic Range: Hotchkiss, 3.
 Yukon: Young, G. A., 6.
 Iron-stained sands and clays: MacCarthy, 4.
 Island arcs, unstable middle section: Hobbs, 22.
 Isocarbs, Kentucky: Russell, W. L., 5.
 Isostasy.

Abnormal densities in earth's crust: Bowie, 12.

Applications in geology: Kemp, 7.

Base for isostasy: Keyes, 112.

Basin Range faulting, Oquirrh Range, Utah: Gilluly, 6.

Bearing on geological problems: Bowie, 14.

Bibliography: Knopf, A., 8.

Cause of thrusting: Lawson, 2.

Comagmatic regions, distribution: Washington, 15.

Composition of crust, data from: Washington, 4.

Density of igneous rocks: Washington, 27.

Earth movements: Reid, 9.

Earthquakes, relation to isostasy: Bowie, 22, 25.

Elastasy vs. isostasy: Chamberlin, T. C., 33.

Equilibrium theory of earth's crust: Putnam, G. R., 2.

Fundamentals: Reid, H. F., 19.

General: Barrell, 4, 5; Bowie, 7, 11, 17, 20, 21, 26, 29; Brown, C. W., 1; Dutton, 1; Foley, 4; Hayford, 1, 2; Keyes, 191, 207, 212; Leith, 10; Longwell, 9; Putnam, G. R., 3; Taylor, 9; Van Orstrand, 3; Willis, 6; Wood, 4.

Geodetic data, results: Bowie, 10.

Geological aspects: Bowie, 27.

Geological directrix: Keyes, 39.

Geological implications: Lawson, 7.

Glaciation and deglaciation: Daly, 7.

Gravity, western Canada: Bowie, 31.

Gravity anomalies: Bowie, 15; and petroleum exploration: Hubbert, 3.

Gravity observations: Putnam, G. R., 1; from the standpoint of the local geology: White, D., 14.

Gravity results, Mackenzie basin: Miller, A. H., 1.

Herschel's view of isostatic adjustment: Longwell, 18, 19.

Isostasy as a result of earth shrinkage: Shepard, 4.

Isostatic adjustment: Daly, 19; Evans, J. W., 1.

Isostatic anomaly, interpretation: Melton, 2.

Isostasy—Continued.

Isostatic condition of the United States as indicated by groups of gravity stations: Bowie, 18.

Isostatic investigations: Bowie, 9.

Labrador ice sheet, relations to isostasy: Coleman, 2.

Mathematics: Chamberlin, T. C., 22; MacMillan, 1.

Minimum span of isostatic effect: Keyes, 34.

Mountain formation: Burrard, 1.

Ocean currents and isostasy: Bowie, 1.

Orogeny: Lawson, 9.

Periodic diastrophism: Shepard, 4.

Principle and theory: Eaton, J. E., 10.

Proof by gravity reduction method: Putnam, G. R., 5.

Raised beaches and thickness of ice sheets: Coleman, 20.

Regional isostatic reduction of gravity determinations: Putnam, G. R., 4.

Relation to mountain building: Swanson, C. O., 4.

Relation to seismology: Bowie, 23.

Relation to uplift and subsidence: Bowie, 4.

Rock density: Washington, 15.

Rocky Mountains: Keyes, 16, 132.

Rôle of isostatic stress: Willis, 8.

Size of block of earth's crust independently in isostatic equilibrium: Bowie, 15.

Theory: Bowie, 6; Putnam, G. R., 1.

Vertical movement of crustal material: Bowie, 28.

Weight of sedimentary rocks: Lane, 10.

Yielding of the earth's crust: Bowie, 5.

Isostatic theory and applied geology: Keyes, 40.

Ivory, fossil: Stone, 18.

Jack Bay district, Prince William Sound, Alaska: Johnson, B. L., 2.

Jamaica.

Bibliography: Matley, 2.

Government geologist, report: Matley, 1, 5, 9.

Liguanea plain: Matley, 3.

Areas described.

General: Brunton, 2; Cundall, 1.

St. Ann Parish: Matley, 11.

Economic geology.

Mineral resources: Brunton, 8.

Historical geology.

Barrettia beds: Trechmann, 2.

Cretaceous and Tertiary: Trechmann, 1.

Cretaceous limestones: Trechmann, 5.

Cretaceous shales: Hawkins, H. L., 3; Trechmann, 8.

General: Matley, 1, 2, 6, 12; Stockley, 1.

Richmond formation: Trechmann, 4.

Tertiary, marine: Woodring, 10.

Yellow limestone: Trechmann, 3.

Jamaica—Continued.

Paleontology.

- Barrettia: Trechmann, 2.
- Cretaceous: Trechmann, 8.
- Crab, Withers, 1, 8.
- Cretaceous and Tertiary decapod crustaceans: Withers, 2.
- Echinoidea: Arnold, B. W., 1; Hawkins, H. L., 1, 2.
- Foraminifera, Tertiary: Vaughan, 46.
- Miocene Mollusca, Bowden: Woodring, 10, 21, 22.
- Yaberiella jamaicensis: Vaughan, 47.
- Yellow limestone: Trechmann, 3.

Physical geology.

- Earthquakes: Taber, 2.

Underground water.

- General: Matley, 4; Stockley, 1.
- Mineral spring at Windsor: Matley, 10.
- Jarbridge district, Nevada: Schrader, 5.
- Jasperoid of Joplin district: Smith, W. S. T., 1.
- Jeffersite: Alderson, 5.
- Jennings oil field, Acadia Parish: Louisiana: Barton, 12.
- Jerome and Bradshaw Mountains quadrangles, Arizona, ore deposits: Lindgren, 17.
- Joint systems: Barrell, 10.
- Jointing: Swanson, C. O., 3.
- California, Merced Canyon: Morse, R. R., 2.
- in limestones as seen from the air: Rich, J. L., 15.
- Mechanical interpretation of joints: Bucher, 2.
- Joliet quadrangle, Illinois: Fisher, D. J., 2.
- Jordan sandstone: Stauffer, 5.
- Jurassic. See also Paleontology, Jurassic.
- Alaska: Martin, G. C., 15.
- Chignik region: Martin, G. C., 14.
- Cold Bay district: Capps, 5; Smith, W. R., 4.
- Cold Bay-Chignik district: Smith, W. R., 1.
- Cold Bay-Katmai district: Smith, W. R., 3.
- Iniskin Bay district: Moffit, 3.
- Iniskin-Chinitna Peninsula: Moffit, 7.
- Kamishak Bay region: Mather, 7.
- Kotsina-Kuskulana district: Moffit, 4.
- Matanuska Valley: Capps, 11.
- northern, Canning River region: Leflingwell, 1.
- Point Barrow region: Paige, 5.
- Snug Harbor district: Moffit, 7.
- Talkeetna Mountains, western: Capps, 3.
- Tuxedni Bay area: Moffit, 2.
- Alberta: Allan, 12.
- Bragg Creek area: Hume, 30.
- Crownest coal field, northern part: Rose, 1.
- foothills belt between McLeod and Athabaska rivers: Rutherford, 4.
- Saunders Creek and Nordegg coal basins: Allan, 9.

Jurassic—Continued.

- Arizona: Darton, 17; Keyes, 83.
- Hopi Buttes volcanic field: Reagan, 8.
- Lees Ferry region: Bryan, 8, 11.
- Navajo country: Reagan, 20.
- northwestern: Reeside, 4.
- British Columbia, Ainsworth district: Schofield, 4.
- Bridge River area: McCann, 3.
- Cariboo district, Barkerville area: Johnston, W. A., 22.
- coast region: Dolmage, 9.
- Coquihalla area: Cairnes, 4.
- Dease Lake area, Cassiar district: Kerr, F. A., 1.
- Driftwood Creek area, Babine Mountains: Hanson, 9.
- Eutsuk Lake area, Coast district: Marshall, J. R., 3.
- Harrison Lake district: Crickmay, 5.
- Hazleton: O'Neill, 1.
- Hudson Bay Mountain, Coast district: Jones, R. H. B., 1.
- Kitsault River to Skeena River: Hanson, 3.
- Kitsault Valley: Hanson, 2.
- Parson Bay: Crickmay, 9.
- Prince Rupert to Burns Lake: Hanson, 10.
- Salmon River district: Schofield, 7, 11.
- Selkirk Range: Schofield, 6.
- Slocan area: Bancroft, M. F., 2.
- Skeena River to Stewart: Hanson, 6.
- Taseko Lake-French Bar Creek: MacKenzie, J. D., 2.
- Taseko Valley: MacKenzie, J. D., 1.
- Texada Island: Swanson, C. O., 2.
- Vancouver area: Schofield, 17.
- Vancouver Island: Dolmage, 5.
- Barkley Sound: Dolmage, 2.
- Whitesail-Tahtsa Lakes area: Marshall, J. R., 3.
- Yale district: Cairnes, 5.
- Zymoetz River area, Coast district: Hanson, 11.
- California, Blackhawk Canyon, San Bernardino Mountains: Woodford, 7.
- Deep Spring Valley: Miller, W. J., 35.
- Kern County: English, W. A., 1.
- Point Sur quadrangle: Trask, 5.
- Santa Barbara County, Santa Ynez River district: Kew, 2; Nelson, R. N., 1.
- Colorado: Keyes, 162.
- Delta and Mesa counties: Weeks, H. J., 1.
- east-central: Lee, W. T., 19.
- La Junta area: Patton, H. B., 3.
- Moffat County: Sears, 3.
- Montezuma County, McElmo anticline: Coffin, 2.
- southwestern: Coffin, 3.

Jurassic—Continued.

- Cuba : O'Connell, 4.
 Oxfordian, western Cuba : Brown, B., 1.
 western : Brown, B., 2; Wright, A., 1.
 Greenland : Böggild, 1.
 Idaho, Bingham, Bonneville, and Caribou counties : Kirkham, 3.
 Fort Hall Indian Reservation : Mansfield, G. R., 3.
 southeastern : Kirkham, 1; Mansfield, G. R., 6, 29.
 Mesozoic floras of North and South America : Knowlton, 1.
 Mexico, Aguascalientes, Asientos-Tepezala district : Anderson, G. E., 2.
 eastern coast : Wittich, 24.
 Hidalgo-Vera Cruz region : Palmer, R. H., 4.
 northeastern : Böse, 7.
 Panuco oil field, Baker, C. L., 8.
 Sierra Madre Oriental, Tamazunchale : Heim, 3.
 southern Oaxaca : Palmer, R. H., 9.
 Vera Cruz-Puebla, Tecolutla-Misantla : Hisazumi, 1.
 Montana : Bauer, C. M., 3; Keyes, 234.
 Beartooth Mountains, Bevan, 2.
 Cat Creek oil field : Lupton, 1.
 central and eastern : Clapp, C. H., 2.
 Crow Indian Reservation : Thom, 4.
 Ellis formation : Howe, M. A., 4.
 Fergus County : Freeman, O. W., 1.
 Kevin-Sunburst oil field : Clark, F. R., 3.
 Soap Creek oil field : Thom, 1.
 Sweet Grass Hills : Kemp, 8.
 Morrison formation, age : Simpson, G. G., 7.
 Nevada : Keyes, 128.
 Mineral County, Cedar Mountain : Knopf, A., 4.
 Muddy Mountains region : Longwell, 1.
 New Mexico : Darton, 11, 26; Keyes, 14; Lee, W. T., 2.
 Gallup-Zuni Basin : Sears, 6.
 northeastern : Garret, 1.
 North America, southern : Stanton, 1.
 Oklahoma, Cimarron County : De Ford, 1; Rothrock, 4.
 Oregon : Smith, W. D., 1.
 central : Packard, 6.
 Riddle quadrangle : Diller, 12.
 Pacific coast : Goranson, 1.
 Red beds : Branson, 17.
 South Dakota, central Black Hills : Darton, 14.
 Texas, Malone formation : Kitchin, 1.
 trans-Pecos Texas : Baker, C. L., 6.
 Utah : Butler, 4; Dake, 3; Keyes, 152.
 eastern : Gilluly, 2.
 Grand and San Juan counties : Prommel, 1.

Jurassic—Continued.

Utah—Continued.

- La Sal Mountains : Gould, L. M., 4.
 San Juan Canyon : Miser, 14, 17.
 San Rafael Swell : Gilluly, 4.
 southeastern : Forrester, J. B., 2;
 Longwell, 1; Prommel, 4.
 southern : Moore, R. C., 17.
 southwestern : Reeside, 4.
 Western North America : Crickmay, 5.
 Wyoming, Bell Springs district : Dobbin, 5.
 central : Lee, W. T., 19.
 Chugwater-Sundance contact, Big-horn district : Bralnerd, 1.
 Lance Creek field : Hancock, 5.
 Maverick Springs : Collier, 6.
 Lost Soldier-Ferris district : Fath, 5.
 Wind River Mountains : Condit, 4.
 Yukon, Whitehorse district : Cockfield, 16.
 Kaibab limestone, Kaibab Gulch, Utah : Noble, 8.
 Kamishak Bay region, Alaska : Mather, 7.
 Kamiskotia gold area, District of Cochrane, Ontario : Finley, 1.
 Kansas.
 Geological history : Wooster, 2.
Areas described.
 Anderson County : Charles, 1.
 Eldorado oil and gas field, Butler County : Fath, 2.
 Ellis County : Bass, 2.
 Hamilton County : Bass, 2.
 Kansas City district : Elledge, 1.
 Russell County : Rubey, 3.
 Syracuse and Lakin quadrangles : Darton, 2.
Economic geology.
 Arkansas City district : Elledge, 1.
 Burket-Seeley oil pool, Greenwood County : Loomis, H., 2.
 Clay and shale, Arkansas City : Teetor, 1.
 Coal, chemistry : Allen, H. C., 2.
 occurrence : Young, C. M., 1.
 Eldorado oil field, Butler County, Stapleton oil horizon, age : Fath, 4.
 Elk City gas field : Boughton, 1.
 Golden Lanes, Greenwood County : Cadman, 2.
 Granite in oil fields : Greene, 7.
 Granite ridge, buried, relation to oil fields : Moore, R. C., 8.
 Gypsum : Stone, 11.
 Helium-bearing natural gas : Rogers, G. S., 7.
 Mid-Continent oil fields : Bosworth, 1.
 Mid-Continent oil-field structures : Monnett, 2; reflected buried hills : Powers, 11.
 Mineral resources : Moore, R. C., 37.
 Natural gas : Snider, 1.
 Eldorado field : Fath, 2.
 chemical survey : Allen, H. C., 1.

Kansas—Continued.

Economic geology—Continued.

- Oil and gas, Allen and Neosho counties: Moore, R. C., 5.
- Anderson County: Charles, 1.
- central Kansas: Williams, D. W., 2.
- Russell County: Rubey, 3.
- Wilson and Montgomery counties: Moore, R. C., 6.
- Oil and gas fields, map: U. S. Geol. Survey, 2.
- Oil and gas resources, 1927: Kesler, 1.
- Oil domes, central Kansas, origin: Blackwelder, 3.
- Oil possibilities, western Kansas: Lupton, 2.
- Oil sands, southeastern Kansas: Williams, D. W., 1.
- Petroleum: Moore, R. C., 9; Snider, 1.
- Butler County: Uhrlaub, 1.
- Eldorado field: Fath, 2.
- flank production of Nemaha Mountains: Thomas, C. R., 2.
- Woodson County: Moore, D. W., 1.
- Rainbow Bend field, Cowley County: Snow, 1.
- Rice County, age of petroleum-producing horizon: Ley, 7.
- Sallyards oil field, structure: Berger, 2.
- Salt deposits: Bass, 2; Darton, 8; Phalen, 1.
- Shoestring oil pools, eastern Kansas: Rich, 6, 9.
- Urschel oil pool, Marion County: Shea, 1.
- Volcanic ash resources: Landes, K. K., 5.
- Zinc-lead field: Naething, 2.

Historical geology.

- Allen and Neosho counties: Moore, R. C., 5.
- Boring, Gove County: Lupton, 3.
- Borings into granite, list: Greene, 5.
- Buried Pennsylvanian channels and sand bars of eastern Kansas: Rich, 8.
- Central and western Kansas: Twenhofel, 19.
- Comanchean, central Kansas: Twenhofel, 24.
- western Kansas, subsurface distribution: Twenhofel, 20.
- Comanchean and Dakota strata: Twenhofel, 6.
- Correlation of coals, Oklahoma and Kansas: Cooper, 4.
- Cretaceous: Stanton, 8; Twenhofel, 5, 17.
- Dakota sandstone, western Kansas: Bass, 1, 2.
- Dakota formation: Gress, 1.
- Eastern Kansas: Fath, 1.
- Elk City gas field: Boughton, 1.
- Ellsworth County, Sheridan well: Ley, 6.

Kansas—Continued.

Historical geology—Continued.

- General: Keyes, 279; Moore, R. C., 4, 37; Snider, 1.
- Granite boulders, southeastern Kansas: Twenhofel, 2.
- Granite ridge buried: Fath, 1; Ley, 4; Moore, R. C., 8, 14.
- Independence area: Reed, R. D., 1.
- Intrusive granite, Rose donre, Woodson County: Twenhofel, 23.
- Lower Cretaceous: Bullard, 4.
- Metamorphic rocks, Woodson County: Twenhofel, 8.
- Mid-Continent oil fields: Aurin, 2.
- Mississippi lime west of granite ridge: Ley, 5.
- Mississippian, central Kansas well: Moore, R. C., 36.
- Oil sands, southeastern Kansas: Williams, D. W., 1.
- Ordovician in deep wells of western Kansas: Twenhofel, 27.
- Ordovician sediments, western Kansas: Udden, Jon A., 2.
- Pennsylvanian west of Nemaha granite ridge: Denison, A. R., 2; Moore, R. C., 32.
- red beds, Sumner County: Buchanan, 1.
- Permian: Gould, 8, 14, 27.
- correlation: Gould, 10.
- Permian insects, environment: Dunbar, 4.
- Permian unconformity: Chadwick, 13.
- Rainbow Bend field, Cowley County: Snow, 1.
- Red beds and faunas of Appalachian and Kansas-Texas sections: Beede, 7.
- Red beds near base of Cherokee shales: Tarr, Rus. S., 1.
- Red beds of Chester age, Mid-Continent region: Greene, 4.
- Rose dome intrusive: Twenhofel, 32.
- Salina Basin: Barwick, 1.
- Salt beds: Bass, 2.
- Southeastern Kansas, subsurface conditions: Ley, 2.
- Subsurface correlation, Russell County to Marion County: Bramlette, 3.
- Volcanic ash: Landes, K. K., 4.
- Western Kansas: Heald, 12; Lupton, 2.
- Whitehorse sandstone: Clifton, 2.
- Wilson County, subsurface geology: Stryker, 1.
- Wilson and Montgomery counties: Moore, R. C., 6.
- Wreford and Foraker limestones: Twenhofel, W. H., 1.

Mineralogy.

- Meteorite, Anthony, Harper County: Merrill, 38.
- Meteorite (?), Zenith: Corbett, 3.

Kansas—Continued.

Paleontology.

- Algal deposits, Carboniferous: Twenhofel, 3.
 Amphibian, upper coal measures: Martin, H. T., 3.
 Amphibian footprints: Hanna, G. D., 19.
 Anguillavus hackberryensis, Niobrara beds: Martin, H. T., 1.
 Bison, Pleistocene: Martin, H. T., 5.
 Bison latifrons, Comanche County: Martin, H. T., 6.
 Celtis, Phillips County, Miocene: Brooks, B. W., 1.
 Cheyenne sandstone flora: Berry, 37.
 Cirriped, Niobrara: Withers, 5.
 Cretaceous fish spine: Moodie, 25.
 invertebrates: Twenhofel, 17.
 Dakota flora: Gress, 1.
 Fishes, Niobrara: Jordan, D. S., 14.
 Footprints in coal measures: Martin, H. T., 2.
 Fossils from wells in central Kansas: Moore, R. C., 27.
 Lithospermum nutlets: Berry, 101.
 Martinichthys, Cretaceous fish: McClung, 1.
 Onychopus (amphibian): Martin, H. T., 4.
 Ophiacodont reptile, Permian: Romer, 4.
 Paleolimulus, Permian xiphosuran: Dunbar, 3.
 Permian: Dunbar, 4.
 Dickinson County: Thomas, C. R., 3.
 Permian Insecta: Carpenter, F. M., 1;
 Tillyard, 1, 6.
 Copeognatha: Tillyard, 8.
 Delopteridae: Tillyard, 11.
 Hemiptera: Tillyard, 9.
 Mecoptera: Tillyard, 7.
 Paleodictyoptera: Tillyard, 4.
 Protodenata and Odonata: Tillyard, 5.
 Protohymenoptera: Tillyard, 3.
 Protoperlaria: Tillyard, 10.
 Pleistocene Mollusca, Wallace County: Hanna, G. D., 5.
 Reptilia, Niobrara group, Logan County: Wiman, 1.
 Rhinoceros, Rooks County: Lane, H. H., 1.
 Stigmaraia, Topeka: Reagan, 12.
 Tylosaurus, western Kansas: Gilmore, 11.
 Urodeles, Pliocene, western Kansas: Adams, L. A., 4.
 Vertebrates, collecting: Sternberg, C. H., 4.
- Petrology.*
 Altered volcanic ash, Cretaceous: Pinkley, 1.
 Common rocks: Schmidt, 1.
 Igneous rock, Riley County: Moore, R. C., 7.

Kansas—Continued.

Petrology—Continued.

- Pre-Cambrian rocks in borings: Landes, K. K., 3.
 Volcanic ash: Landes, 4.

Physical geology.

- Anticline in Benton shale area, origin: Thomas, C. R., 1.
 Aqueous loess: Todd, J. E., 2.
 Dakota sandstone, western Kansas, geologic structure: Bass, 1.
 Dolomitic limestone, Argentine, origin: Rogers, A. F., 21.
 Granite in wells: Gould, 3.
 Granite ridge: Powers, 11.
 Intrusive granite, Rose dome, Woodson County: Twenhofel, 23.
 Metamorphic rocks, Woodson County: Twenhofel, 8.
 Sallyards oil field, structure: Berger, 2.
 Shoestring sands of eastern Kansas: Rich, 6.
 Structure, relation to production of oil: Best, 1.
 Subsidence near Sharon Springs, Wallace County: Moore, R. C., 33, 34.
 Wamego anticline: Beede, 4.
- Physiographic geology.*
 Asymmetrical stream valleys, origin: Bass, 3.
 Kansas tills, southernmost extension: Schoewe, 2.
 Lacustrine beds near Atchison: Todd, J. E., 3.
 Northeastern Kansas, glacial geology: Schoewe, 5.
 Till-like deposits, Douglas County: Schoewe, 7.

Kahiltna Valley, Alaska: Mertie, 2.

Kantishna region, Alaska: Capps, 1.

Kaolin.

- Alabama: Clark, B. L., 1.
 Formation: Parsons, 7.
 General: Ries, 5.
 Georgia, Coastal Plain: Stull, 1, 2.
 Indiana: Logan, 4, 6, 10.
 North Carolina: Bayley, 1, 10; Ries, 5.
 Pacific Northwest: Wilson, H., 1.
 Quebec, Amherst township: Wilson, Morley E., 1.
 United States: Ries, 5.
 Washington, Spokane: Goodspeed, 2.
- Kaolinite associated with microlitic structure: Buddington, 6.
- Karst topography, Paleozoic, Illinois: Ekblaw, G. E., 1.
- Karsts. See also Sink holes.
 Kentucky: Jillson, 66.
 United States: Danes, 1.

Kentucky.

- Bibliography: Jillson, 42.
 Blue Grass region: Davis, D. H., 3.
 Calloway County, map: Ky. G. S., 47.
 Carlisle County, map: Ky. G. S., 48.

Kentucky—Continued.

Geological Survey, recent activities: Jillson, 91.

reports: Jillson, 26, 40, 69, 97.

Geological surveys, history: Jillson, 34, 42.

Geology: Miller, A. M., 1.

Jackson Purchase: Davis, D. H., 1.

McCreary County meteorite: Miller, A. M., 19.

Mammalian and human remains in caves: Miller, A. M., 11.

Mammoth Cave, bibliography: Jillson, 41.

Marshall County, map: Ky. G. S., 51.

Natural resources: Jillson, 79.

Pennyroyal region: Sauer, 3.

Recent geological investigations: Jillson, 78.

Soils, geologic derivation: Jillson, 72.

State parks: Jillson, 50.

Webster County: Glenn, 5.

Areas described.

Allen County: Miller, A. M., 5; Shaw, E. W., 1.

Barren County: Butts, 2.

Berea region: Burroughs, W. G., 5.

Caldwell County: Weller, 7.

Cave in Rock quadrangle: Weller, 16.

Edmonson County: Weller, J. M., 1.

Frankfort area: Jillson, 30.

Jackson Purchase region: Jillson, 28.

Jeptha Knob, Shelby County: Bucher, 10.

Knob region: Burroughs, W. G., 4.

Morgan County: Robinson, L. C., 1.

Princeton quadrangle: Weller, 7.

Warren County: St. Clair, 3.

Webster County: Glenn, 4.

Western Kentucky coal field: Burroughs, W. G., 2.

Woodford County: Miller, A. M., 22.

Economic geology.

Asphalt coal (Nolin coal): Jillson, 55.

Asphalt rock: Jillson, 25.

Barren County, oil and gas map: Ky. G. S., 23.

Bath County, oil and gas map: Ky. G. S., 35.

Bells Run anticline, Ohio County, structural map: Ky. G. S., 36.

Bibliography of petroleum, natural gas, asphalt, and oil shale: Jillson, 6.

Boyd County, oil and gas exploration: Jillson, 94.

oil and gas map: Ky. G. S., 25.

structural map: Ky. G. S., 11, 24.

Bracken County, oil and gas map: Ky. G. S., 30.

Breathitt County, oil and gas map: Ky. G. S., 37.

Building stones: Richardson, C. H., 6.

Butler County, oil and gas map: Jillson, 103.

Cannel coal: Jillson, 62.

Kentucky—Continued.

Economic geology—Continued.

Cement materials: Ky. G. S., 52;

Richardson, C. H., 13.

Clay: Jillson, 76; Ries, 5, 6.

Coal: Jillson, 21, 37, 52.

bibliography: Jillson, 14.

Buckhorn region, eastern Kentucky: Jillson, 27.

Clay County: Hodge, J. M., 3.

Sexton Creek area: Russell, P. G., 1.

Goose Creek region: Hodge, J. M., 3.

Kentucky River, north fork: Hodge, J. M., 2.

Leslie and Harlan counties: Hodge, J. M., 1.

Magoffin County: Browning, I. B., 1.

Martin County: Hudnall, 2.

Middlesboro Basin: Wentworth, 28.

production: Jillson, 15.

Stinking Creek area: Jillson, 3.

Webster County: Glenn, 4, 5.

Coal formations: Campbell, M. R., 4.

Coals, correlation: Jillson, 108.

low sulphur: Jillson, 11.

Cumberland County oil horizons: Beckner, 3.

Devonian black shales: Crouse, 3.

Devonian oil shale, microscopic composition: Thiessen, 10.

Eastern Kentucky: Jillson, 17.

Edmonson County map: Ky. G. S., 31.

Elkhorn coal field: Hudnall, 1.

Elliott County, oil and gas map: Ky. G. S., 27.

Elm Lick coal bed, Ohio County: Gardner, J. H., 5.

Fire clay, eastern coal field: Ries, 7.

northeastern Kentucky: Jillson, 75.

Floyd County, structural geology: Ky. G. S., 5.

Fluorspar: Fay, 2; Currier, 2; Fellman, 1; Jillson, 25; Schwerin, 1; Spurr, 30.

General: Jillson, 98.

Geologic map: Jillson, 20, 70, 86, 87.

Glass sands: Richardson, C. H., 4.

Grayson County, map: Ky. G. S., 32.

Green County, oil and gas map: Ky. G. S., 50.

Greenup County, map: Ky. G. S., 33.

Hancock County, oil and gas map: Ky. G. S., 13.

Henderson County, map: Ky. G. S., 40.

Irvine and Berea region, structural map: Ky. G. S., 14.

Irvine oil district: St. Clair, 1.

Island Creek oil pool, Owsley County: Jillson, 84.

Isocarbs and oil and gas production: Russell, W. L., 5.

Isonville oil pool, Elliott County, structural map: Ky. G. S., 15.

McLean County, map: Ky. G. S., 17.

Kentucky—Continued.

Economic geology—Continued.

- Martin County, structural map: Ky. G. S., 6, 18.
 Metcalfe County, map, oil and gas data: Ky. G. S., 19.
 Mica, eastern Kentucky: Jillson, 54.
 Mineral resources: Crouse, 4; Jillson, 29, 68, 74, 85.
 Molding sands: Richardson, C. H., 12.
 Monroe County, map, oil and gas data: Ky. G. S., 7.
 Mother plants of petroleum in Devonian black shales: White, D., 19.
 Muhlenberg County, map: Ky. G. S., 20.
 Natural gas: Jillson, 25.
 conservation: Jillson, 38.
 eastern Kentucky: Jillson, 5.
 Oil and gas: Jillson, 21, 23.
 Allen County: Jillson, 12.
 Barren County: Butts, 2.
 Breathitt and Knox Counties, Jillson, 13.
 eastern Kentucky: Fiske, 1.
 Warren County: Jillson, 18.
 Oil and gas industry, development: Jillson, 4.
 Oil and gas possibilities, Caldwell County: Weller, 5.
 Jackson Purchase region: Jillson, 28.
 Oil and gas resources: Jillson, 2.
 Oil developments, central southern Kentucky: Nelson, 15.
 Oil domes of Ashland, Boyd County: Jillson, 81.
 Oil fields: Glenn, 1; Leonard, W. C., 1.
 Oil horizons: Nelson, 16.
 Oil pools: Jillson, 73.
 Oil shale: Alderson, 3; Crouse, 5; Jillson, 25.
 Estill County: Crouse, 1.
 Paint Creek uplift, Johnson County: Jillson, 24; Rhodes, 1.
 Petroleum: Gardner, J. H., 3; Jillson, 25.
 Allen County: Miller, A. M., 5; Shaw, E. W., 1.
 eastern Kentucky: Jillson, 17, 32.
 southeastern Kentucky: Jillson, 8.
 Warren County: St. Clair, 3, 4.
 Wier sand horizon: Jillson, 16.
 Petroleum problems: Buckner, 2.
 Petroleum production: Jillson, 57.
 Pike County, structural map: Ky. G. S., 8.
 Powell County, oil and gas map: Ky. G. S., 44.
 Precious metal content of black Devonian shale: Crouse, 2.
 Road materials: Richardson, C. H., 9.
 Rock asphalt: Jillson, 64.
 Edmonson County: Weller, J. M., 1.
 Rockcastle uplift, Laurel and Clay counties, structural map: Ky. G. S., 9.
 Stinking Creek region: Jillson, 3.

Kentucky—Continued.

Economic geology—Continued.

- Taylor County, oil and gas map: Ky. G. S., 29.
 Warren County: Jillson, 18.
 oil and gas map: Ky. G. S., 54.
 Wayne County, oil and gas map: Ky. G. S., 45.
 Williamsburg anticline, Whitley County, map: Ky. G. S., 10.
Historical geology.
 Adair County, map: Miller, A. M., 20.
 Allen County: Jillson, 12; Shaw, E. W., 1.
 Bentonite in Ordovician: Nelson, 10.
 Bourbon County, map: Dunn, P. H., 1.
 Breathitt and Knox counties: Jillson, 13.
 Buckhorn region, eastern Kentucky: Jillson, 27.
 Butler County: Jillson, 103.
 map: Glenn, 11.
 Caldwell County: Weller, 5.
 map: Weller, 17.
 Carter County, map: Ky. G. S., 26.
 Chester series: Ulrich, 5.
 Christian County, map: Sutton, 2.
 Cincinnati anticline, dimensions: Hubbard, G. D., 5.
 Cretaceous sediments, western Kentucky: Jillson, 56.
 Dawson Springs quadrangle, map: Sutton, 1.
 Eastern Kentucky: Beckner, 1.
 Estill County, lower Miller Creek: Ky. G. S., 52.
 Garrard County, map: McFarlan, 1.
 General: Jillson, 72, 98.
 Geologic map: Jillson, 1, 20, 70, 86, 87.
 Golconda quadrangle: Weller, 4.
 Haddix-Coalburg geosyncline: Jillson, 44.
 Hartford quadrangle, Ohio, Butler, and Muhlenberg counties, map: Gardner, J. H., 4.
 Hopkins County, map: Theis, 1.
 Irvine district: St. Clair, 1.
 Island Creek oil pool, Owsley County: Jillson, 84.
 Jackson County, map: Eyl, 1.
 Jephtha Knobs, Shelby County: Bucher, 7.
 Kendrick shale: Jillson, 9.
 Lawrence County, map: Ky. G. S., 34.
 Lee County, map: Eyl, 2, 41.
 Lewis County, map: Perry, E. S., 1.
 Livingston County: Weller, 14.
 Lyon County, map: Roberts, 5.
 McCready County: Murphy, 1.
 Magoffin County: Browning, I. B., 1.
 Marine invasions in Pennsylvanian time in eastern Kentucky: Hudson, 3.
 Mauch Chunk, southeastern Kentucky: Jillson, 8.
 Middlesboro Basin: Wentworth, 28.

Kentucky—Continued.

Historical geology—Continued.

Mills Springs area, Monticello quadrangle: Foyles, 1.

Mississippian series, eastern Kentucky: Butts, 3.

Monticello quadrangle: MacLachlan, 1
Morgan County, map: Robinson, L. C., 1.

Nelson County: Ky. G. S., 53.

Nicholasville boring: Miller, A. M., 9.
Ohio County, map: Jillson, 88, 104.

Oil field stratigraphy: Jillson, 35.

Paint Creek uplift, Johnson County: Jillson, 24; Rhodes, 1.

Owsley County, map: Ky. G. S., 43.

Silurian, east central Kentucky: Foerste, 14.

Stinking Creek region: Jillson, 3.

Trenton: Raymond, 18.

Tuscaloosa formation: Roberts, J. K., 7.
Union County, map: Glenn, 10.

Warren County: Jillson, 18; Laird, 1; St. Clair, 4.

Webster County: Glenn, 5.

Woodford County, geological map: Miller, A. M., 21.

Mineralogy.

Général: Richardson, C. H., 10.

Marcasite in fluorite: Johnston, W. D., 2.

Meteorites, Cumberland Falls, Whitley County: Merrill, 5, 8, 13; Miller, A. M., 2, 4, 6.

Eagle station: Prior, G. T., 1.

Glasgow, Barren County: Merrill, 30; Miller, A. M., 12.

McCreary County: Miller, A. M., 3.

Paleontology.

Anisotrypa waynensis, Warsaw formation: Deiss, 1.

Black River Brachiopoda: Fenton, C. L., 4.

Bryozoa, Chester series: McFarlan, 1.
Coal measures invertebrates, eastern Kentucky: Jillson, 19.

Flora, western Kentucky coal field: Noé, 3.

General: Funkhouser, 1.

Kendrick shale: Jillson, 9.

Mississippian brachiopods: Ehlers, 10, 11.

Mother plants of petroleum in Devonian black shale: White, D., 11.

Niagaran, Jephtha Knob: Foerste, 14.

Pottsville faunas: Jillson, 53.

Terminalia, lower Eocene: Berry, 76.

Petrology.

Bentonite: Ross, C. S., 21.

Physical geology.

Abandoned entrenched meander, western Kentucky: Jillson, 100.

Bell County, structure map: Kentucky Geological Survey, 46.

Boyd County, structural map: Ky. G. S., 11, 24.

Kentucky—Continued.

Physical geology—Continued.

Breathitt County, structural geology map: Ky. G. S., 1.

Caldwell County, map: Weller, 17.

Carboniferous deformation, western Kentucky: Jillson, 102.

Caves, southern Kentucky: Miller, A. M., 13.

Clay County, structural geology: Ky. G. S., 38.

Creelsboro natural bridge, Russell County: Scott, I. D., 4.

Cryptovolcanic phenomena: Bucher, 11.
Cumberland, Monroe, and Clinton counties (parts), structural map: Ky. G. S., 12.

Eastern Kentucky, structural deformation: Jillson, 7.

Fault pattern: Jillson, 60.

Faulting, Cave in Rock quadrangle: Weller, 16.

north central Kentucky: Miller, A. M., 15.

Floyd County, map: Ky. G. S., 49.
structural geology: Ky. G. S., 5.

Golconda and Cave in Rock quadrangles, map: Weller, 10.

Haddix-Coalburg geosyncline: Jillson, 44.

Harlan County, map: Ky. G. S., 39.

Irvine and Berea region, structural map: Ky. G. S., 14.

Irvine oil field, structure: Miller, A. M., 18.

Isothrustic structure, Jephtha Knob: Jillson, 48.

Jephtha Knob: Bucher, 16.

Johnson County, structural geology map: Ky. G. S., 3.

Karst country: Jillson, 66.

Knott County, structural geology map: Ky. G. S., 2.

Knox County, map: Ky. G. S., 28.

Leslie County, structural geology: Ky. G. S., 16.

Lincoln County map, fault pattern: Ky. G. S., 42.

McCready County: Murphy, 1.

Magoffin County, structural geology: Ky. G. S., 4.

Mammoth Cave and cave region: Randolph, 1.

Martin County, structural map: Ky. G. S., 6.

Northeastern Kentucky: McFarlan, 4.

Paint Creek uplift map: Ky. G. S., 21.

Perry County, structural geology: Ky. G. S., 22.

Pike County, structural map: Ky. G. S., 8.

Pottsville-filled channel in Mississippian: Burroughs, W. G., 1.

Pre-Pennsylvanian deformation, western Kentucky: Jillson, 101.

Relief map: Jillson, 61.

Kentucky—Continued.

Physical geology—Continued.

Rockcastle uplift, Laurel and Clay counties, structural map: Ky. G. S., 9.

Sink hole region, western Kentucky: Jillson, 45.

Slate slide, Letcher County: Jillson, 46.

Stream capture, Floyd County: Jillson, 10.

Subsurface structure, eastern Kentucky: Perry, G., 1.

Western Kentucky faulting: Currier, 2.

West Hickman fault zone, Jessamine and Fayette counties: McFarlan, 3.

Physiographic geology.

Big Sandy River, drainage changes: Jillson, 80, 93.

Carter caves: Jillson, 92.

Eastern Kentucky: Davis, D. H., 2.

Filled valleys, western Kentucky: Theis, 2.

General: Jillson, 63, 82, 98.

Glacial boulders: Jillson, 67.

Glacial pebbles, eastern Kentucky: Jillson, 65.

Glaciation: Jillson, 71.

Mammoth Cave National Park: Jillson, 106; Lobéck, 10.

Migration of divide, Floyd County: Jillson, 10.

Ohio River, genesis: Fowke, 1.

Peneplains: Jillson, 107.

Shawnee Hills section: Flint, 7.

State parks: Jillson, 82.

Terraces, Ohio River, Carroll and Trimble counties: Culbertson, 3.

Tradewater River, preglacial drainage: Fowke, 2.

Valley-filled areas, western Kentucky: Jillson, 90.

Western Kentucky coal field: Burroughs, W. G., 2.

Kenora and Rainy River districts, Ontario: Bruce, 17.

Kerogen: Craig, 2; Van Tuyl, 9; and origin of oil: Trager, 4.

Kevin-Sunburst oil field, Montana: Clark, F. R., 3.

Keystone faults: Crosby, W. O., 4.

Kilauea, products and structure: Stone, J. B., 1.

Kimmswick and Plattin limestones, Missouri: Foerste, 9.

Kings quadrangle, Illinois: Bretz, 4.

Kirkland Lake gold area, Ontario: Burrows, 4, 12; Hopkins, P. E., 6.

Kiwalik-Koyuk region, Alaska: Harrington, 5.

Knee Lake district, northeastern Manitoba: Bruce, 4.

Knik-Matanuska district, Alaska: Landes, K. K., 2.

Kodiak Island, Alaska: Maddren, 2.

Kotsina-Kuskulana district, Alaska: Moffit, 4.

Labrador: Canada, G. S., 2.

Lake Melville district: Kindie, 25.

terraces: Kindie, 31.

northeastern: Coleman, 6.

Physical geology.

Concretions: Kindie, 24.

Sand bar, unusual type: Kindie, 19.

Labrador ice sheet, extent and thickness: Coleman, 2.

La Cloche area, District of Sudbury, Ontario: Douglas, G. V., 3.

Laccoliths: Chamberlin, R. T., 16; Davis, 21, 27; McCarthy, 2.

formation: Keyes, 47, 98.

Montana, Fergus County, South Mountain: Palmer, H. S., 6.

New Mexico: Keyes, 41.

South Dakota, central Black Hills: Darton, 14.

Stresses in laccolithic intrusions: Gould, L. M., 2.

Utah, La Sal Mountains: Gould, L. M., 3.

La Harpe quadrangle, Illinois: Savage, 8.

La Jolla quadrangle, California: Hanna, M. A., 3.

Lake Athabasca, origin: Alcock, 6.

Lake Bonaparte quadrangle, New York: Smyth, 2.

Lake Chelan, origin and history: Runner, 4.

Lake David area, Chibougamau district, Quebec: Mawdsley, 5.

Lake Lahontan, geologic history: Jones, J. C., 2.

Lake Melville, district, Labrador Peninsula: Kindie, 25.

Lake ramparts: Scott, I. D., 3.

Lakelse Lake area, British Columbia: Marshall, J. R., 5.

Lakes.

Basin and Range province: Meinzer, 5.

Crater Lake, Oregon, origin: Diller, 11.

Finger Lakes, New York: Monnett, 3; origin: Fairchild, 20.

Great Basin, landslide lakes: Russell, R. J., 4.

Great Basin lakes, origin: Keyes, 116.

Idaho, Mud Lake: Stearns, 4.

Indiana, La Porte area: Tucker, W. M., 3.

Lake Timiskaming, a Roxen lake: Davis, 25.

Michigan, inland lakes: Scott, I. D., 1.

Minnesota, Mille Lacs: Sardeson, 9.

Ohio, Berea, Lake Abram: Speckman, 2.

Reelfoot Lake, Tennessee: Nelson, 14.

Lakes, extinct. See also Glacial lakes.

Green River lake: Knowlton, 11.

Lake Bonneville, origin: Keyes, 116; Pack, F. J., 2; Lake beds, origin: Keyes, 96.

Mackenzie River basin, postglacial lakes: Cameron, 2.

Lakes, glacial. See Glacial lakes.
 Lamellibranchiata. See Pelecypoda.
 Laminated anhydrite, Texas: Udden, 18.
 La Motte area, Abitibi County, Quebec: James, 5.
 Lance and Union formations, age: Schuchert, 19.
 Lance problem: Ward, 12.
 Landslides.
 Alaska, Katmai district, Mageik landslide: Griggs, 3.
 Canada: Nichols, D. A., 1.
 Cincinnati landslides: Rogers, J. K., 1.
 Colorado, Platoro-Summitville district: Patton, H. B., 1.
 Great Basin ranges: Davis, 5.
 Kentucky, Letcher County: Jiffson, 46.
 Panama Canal slides: Nat. Acad. Sci., 1.
 Quebec, Portneuf County: Wilson, M. E., 2.
 West Virginia: Ladd, G. E., 1.
 Morgantown, Conemaugh formation: Scheffel, 1.
 Wyoming, Gros Ventre: Alden, 6.
 Land tilting in Great Lakes region: Taylor, 12.
 Laramie problem: Knowlton, 8; Thom, 8.
 Larder Lake gold area, Ontario: Hopkins, P. E., 1, 8.
 La Sal Mountains, Utah: Gould, L. M., 4.
 Laterite, origin, composition and distribution: Swanson, C. O., 1.
 Lava Beds National Monument, California: Stearns, H. T., 15.
 Lavas.
 Alaska, southeastern, submarine pillow lavas: Buddington, 10.
 Central America: Putnam, P. C., 2.
 Columbia River basalt, Asotin craters: Fuller, R. E., 3.
 Columnar structure in lavas: James, A. V. G., 1.
 Hawaii, Keiwa: Stearns, 10.
 Hawaiian volcanos: Washington, 5.
 Hornitos: Sapper, 2.
 Idaho, Craters of the Moon National Monument: Stearns, H. T., 3, 14.
 Kilauea: Stone, J. B., 1.
 Mexico, San Quintin field: Woodford, 6.
 Mt. Pelé: Shepherd, 5.
 New Mexico: Lee, W. T., 4.
 Oxidation by steam: Ferguson, J. B., 3.
 Plateau basalts: Washington, 17.
 Surface fusion: Diller, 10.
 Types in Pacific region: Hobbs, 19.
 Viscosity of lava: Palmer, H. S., 10.
 Lead.
 Alaska: Brooks, 5, 12, 14; Martin, G. C., 4.
 Fairhaven district: Levensaler, 1.
 Ruby: Brown, J. S., 8.
 Arizona, Aravaipa-Stanley region: Ross, C. P., 5.
 Courtland-Gleeson region: Wilson, E. D., 2.

Lead—Continued.

Arizona—Continued.
 Ray quadrangle: Ransome, 11.
 Saddle Mountain and Banner mining districts: Ross, C. P., 6, 14.
 Arkansas, Sharp and Lawrence counties: U. S. G. S., 14.
 British Columbia: Robinson, A. H. A., 2.
 Ainsworth district: Schofield, 4.
 Atlin district: Cockfield, 17.
 Slocan district: Bateman, 14; Cairnes, 10.
 Windermere area, Kootenay district: Walker, J. F., 1.
 Canada: Bingay, 1.
 eastern: Alcock, 23; Robinson, A. H. A., 4.
 Central States: Dunlop, 1, 4, 6, 9, 12, 16.
 Colorado, Creede district: Emmons, W. H., 4.
 Red Cliff District: Crawford, R. D., 3.
 Eastern States: Dunlop, 3, 7, 11, 15, 18.
 General: Lindgren, 19; Siebenthal, 3, 5, 7, 10, 12, 16, 17, 19, 21, 24, 25, 27.
 Idaho: Gerry, 1, 3, 5, 8, 10, 13.
 Birch Creek district: Shenon, 2.
 Boise County: Ross, C. P., 10.
 Boundary County: Kirkham, 7.
 Halley, native lead: Shannon, 73.
 Pine Creek district: Jones, Edw. L., 4.
 Shoshone County: Umpleby, 3.
 Vienna district: Ross, C. P., 12.
 Wardner district: Richard, 3.
 Mexico, Ahumada, Chihuahua: Rickard, 10.
 Missouri: Keyes, 114.
 Montana: Gerry, 2, 4, 7, 12, 15.
 Nevada, Mineral County, Cedar Mountain: Knopf, A., 4.
 Pioche district: Westgate, 6.
 Oklahoma, Miami district: Netzeband, 1.
 Picher district, lead and zinc: Spurr, 32.
 Oklahoma-Kansas-Missouri field: Naething, 2.
 Ontario: Alcock, 23.
 Annprior-Quyon area: Wilson, M. E., 10.
 Galletta: Wilson, M. E., 12.
 Sudbury mining division, Genoa township: Moore, E. S., 16.
 Pennsylvania: Miller, B. L., 3; Pennsylvania G. S., 1.
 Quebec: Alcock, 23, 29.
 Gaspe Peninsula: Beidelman, 1, 2; Mailhot, 5.
 Gaspe County, Lemieux Township: Alcock, 14.
 Pontiac County, Calumet Island: Goranson, 3.

Lead—Continued.

- Rapid formation of lead ore: Wheeler, H. A., 3.
- South Dakota, central Black Hills: Darton, 14.
- northern Black Hills: Connolly, 4.
- Tri-State district: George, P. W., 1; Weidman, 5.
- Upper Mississippi Valley: Spurr, 12.
- Utah: Butler, 4.
- Bingham district: Hunt, R. N., 1.
- East Tintic district: Goodwin, L. H., 2.
- Ophir district: Olmstead, 1.
- Park City district: McKay, G. R., 1.
- Promontory Point mining district: Slegfus, 1.
- Tintic district: Lindgren, 2.
- Washington: Gerry, 1, 3, 6, 9, 11, 14.
- northeastern: Jenkins, 12.
- Pend Oreille and Stevens counties: Jenkins, 9.
- Yukon, Beaver River area: Cockfield, 12, 14, 15.
- Fifteenmile Creek: Cockfield, 21.
- Galena Hill, Mayo district: Stockwell, 1.
- Keno Hill: Cockfield, 6, 11.
- Mayo district: Cockfield, 7, 8, 13.
- Rude Creek: Cockfield, 22.
- Twelvemile area: Cockfield, 2.
- Lead and zinc pigments and salts: Siebenthal, 21.
- Leadville mining district, Colorado: Emmons, S. F., 1.
- Leeward Islands.
- Paleontology.*
- Tertiary Mollusca: Cooke, C. W., 1.
- Lenses, classification: Fillman, 1.
- Lesser Antilles: Davis, 18, 29, 31.
- Leverrierite, schist-forming mineral: Corbett, 2.
- Lightning River gold area, District of Cochrane, Ontario: Gledhill, 4; Knight, 12.
- Lignite: Darling, 1. See also Coal.
- Alaska, Kantishna region: Capps, 1.
- Louisiana: Glenk, 1.
- Montana, Ekalaka field: Bauer, 4.
- Scobey field, Valley, Daniels, and Sheridan counties: Collier, 9.
- North Dakota: Babcock, 1; Dove, 5; Hoffman, 1; Leonard, A. G., 7-9.
- Fort Berthold Indian Reservation: Bauer, C. M., 2.
- Marmarth field: Hares, 5.
- New Salem lignite field: Hancock, 6.
- Saskatchewan: Lee, R. J., 1; MacLean, 1.
- South Dakota: O'Harra, 1.
- Texas: Gentry, 1; eastern: Dumble, 1.
- Lime.**
- General: Loughlin, 4, 7, 11, 14, 27, 30.
- Massachusetts, eastern New York, and western Connecticut: Dale, T. N., 5.

Limestone.

- Florida: Mossom, 1.
- Illinois: Krey, 3.
- Indiana: Anderegg, 1.
- Iowa: Smith, J. E., 11.
- New Brunswick, Charlotte County, L'Etang deposits: Uglow, 17.
- New York: Newland, 2.
- Greene County: Jones, R. W., 2.
- North Carolina: Loughlin, 9.
- Ohio, Summerfield and Woodsfield quadrangles: Condit, 3.
- Ontario: Goudge, 3.
- Abitibi and Mattagami rivers: Malcolm, 6.
- Origin and utilization: Miller, B. L., 13.
- Pennsylvania: Miller, B. L., 4.
- Cambro-Ordovician limestones: Miller, B. L., 11.
- New Holland quadrangle: Jonas, 5.
- Petrological selection: Loughlin, 34.
- Quebec: Goudge, 3.
- Red limestones, origin: Galloway, J. J., 4.
- Vermont: Jacobs, 1.
- Washington: Shedd, 2.
- West Virginia, Mercer, Monroe, and Summers counties: Reger, 9.
- Wisconsin: Steidtmann, 5.
- Limestone alterations at Bingham, Utah: Winchell, 8.
- Limestone conglomerates, origin: Fillman, 2.
- Lingula, antiquity: Keyes, 85.
- Lithium: Landes, K. K., 7.
- Manitoba, Oiseau River area: Wright, J. F., 10.
- southeastern: DeLury, 8.
- New Mexico, Embudo: Roos, 1.
- South Dakota, Etta lithia mine: Lincoln, 4.
- spodumene mine, Black Hills: Schwartz, 13.
- Lithium pegmatites, genesis: Schaller, 7.
- Lithology. See Petrology.
- Lithosphere, dynamics of: Jones, O. C., 1.
- structural failure: Leith, 6.
- structure: Willis, 6.
- tidal stresses: Cotton, 1.
- Living micro-organisms in ancient rocks: Lipman, 1.
- Llanoria: Miser, 7.
- Loess.**
- Aqueous loess: Todd, J. E., 2.
- Definition: Tilton, 9.
- Illinois, Alton: Baker, F. C., 4.
- Iowa: Cable, 4.
- Jaundiced snow: Keyes, 227.
- Origin: Keyes, 170, 224; Owen, L. A., 1; and distribution: Wright, G. F., 4.
- Time of loess accumulation: Visher, 6.
- Washington, Palouse region: Treasher, 1.
- Palouse soil: Bryan, 26.
- Water table of loess: Keyes, 244.

Loess fossils: Shimek, 1.
 Logmeter: Burton, G. E., 1.
 Los Angeles Basin, California: Eaton, J. E., 3.
 Lost Soldier-Ferris district, Wyoming: Fath, 5.
 Louisiana.
 Compilation of Louisiana-Arkansas geology: Hull, 11.
 Petrified wood industry: Berry, 79.
Economic geology.
 Bayou Bouillon salt dome, St. Martin Parish: Donoghue, 2.
 Bellevue oil pool: Holman, 1; Hull, 6.
 Clay: Whittemore, J. W., 2.
 Shreveport area: Whittemore, J. W., 1.
 Cotton Valley oil and gas field, Webster Parish: McDonald, W. W., 1; Powers, 14.
 East Carroll Parish, natural gas: Spooner, 5.
 Edgerly oil field, Calcasieu Parish: Minor, 3.
 Five Islands: Vaughan, F. E., 2.
 Gulf Coast oil fields: Barton, 13.
 Gulf Coastal Plain salt domes, secondary intrusive origin: Matteson, 2.
 Gypsum: Stone, 11.
 Haynesville oil field, Claiborne Parish: Hull, 4; Scott, W. W., 1, 2; Teas, 2, 3.
 Explanation of production of wells: Albertson, 2.
 Interior salt domes: Spooner, 2.
 Jennings oil field, Acadia Parish: Barton, 12.
 Lignite: Glenk, 1.
 Mineral resources: Howe, H. V. W., 6.
 Monroe gas field: Bell, H. W., 1; Spooner, 1; Stroud, 1.
 Natural gas: Snider, 1.
 Natural resources: Irion, 1.
 Oil and gas fields: Richardson, G. B., 2; map: U. S. G. S., 5.
 Oil and gas pools, northern Louisiana: Hull, 5.
 Petroleum: Snider, 1.
 Red River field: Bates, 1.
 Pine Island field gas: Crider, 4.
 Pine Prairie salt dome, Evangeline Parish: Barton, 7.
 Prothro salt dome, Bienville Parish: Hull, 13.
 Red River-Crichton oil field: Bates, 1.
 Richland Parish gas field: Campbell, I., 1.
 Sabine uplift: Powers, 2.
 Salt deposits: Phalen, 1.
 Salt dome structure: Lucas, A. F., 1.
 Salt domes: Deussen, 1; Thacker, 1; Wolf, 1.
 Spring Hill-Sarepta gas field, Webster and Bossier parishes: Ponton, 1.
 Stratigraphy of oil-producing sands in northern Louisiana: Hull, 10.

Louisiana—Continued.

Economic geology—Continued.

Structural features of oil fields, northern Louisiana: Crider, 2.
 Sulphur salt dome, Calcasieu Parish: Kelley, 1.
 Surface indications of petroleum: Steinmayer, 1.
 Trinity sand, oil and gas possibilities: Easton, 2.
 Vinton oil field: Wrather, 1.
 Vinton salt dome, Calcasieu Parish: Thompson, S. A., 1.
 Waskom gas field: Grimm, 1.
 Webster Parish gas fields: Hull, 7.
 Welsh oil field, Jefferson Davis Parish: Reed, L. C., 1.

Historical geology.

Arkadelphia formation, stratigraphy: Howe, H. V. W., 4.
 Bayou Bouillon salt dome, St. Martin Parish: Donoghue, 2.
 Bentonite in Upper Cretaceous: Bramlette, 1.
 Coastal Plain: Applin, E. R., 1; Spooner, 3.
 Cotton Valley oil field: McDonald, W. W., 1.
 Cretaceous, northwestern Louisiana: Hammill, 1.
 De Soto-Red River oil field: Bates, 1.
 Edgerly oil field, Calcasieu Parish: Minor, 3.
 Five Islands: Vaughan, F. E., 2.
 Interior salt domes: Spooner, 2.
 Jennings oil field, Acadia Parish: Barton, 12.
 Lake Pontchartrain, subaqueous strata: Steinmayer, 2.
 Llanoria: Miser, 7.
 Many salt dome, Sabine Parish: Howe, H. V. W., 7.
 Midway formation: Howe, H. V. W., 8.
 Monroe gas field: Spooner, 1.
 Nacatoch formation: Howe, H. V. W., 5.
 Pine Prairie salt dome, Evangeline Parish: Barton, 7.
 Port Hudson beds: Emerson, F. V., 1.
 Red River-Crichton oil field: Bates, 1.
 Richland Parish gas field: Campbell, I., 1.
 Sabine uplift: Huntley, L. G., 3; Powers, 2.
 Salt domes: Powers, 12.
 Section 28 salt dome, St. Martin Parish: Donoghue, 3.
 Stratigraphy of oil-producing sands in northern Louisiana: Hull, 10.
 Sulphur salt dome, Calcasieu Parish: Kelley, 1.
 Volcanic ash, Calcasieu Parish: Hanna, M. A., 2.
 northern Louisiana: Crider, 3.
 Volcanic rocks in Cretaceous: Bramlette, 2.

Louisiana—Continued.

Historical geology—Continued.

Welsh oil field, Jefferson Davis Parish: Reed, L. C., 1.

Paleontology.

Foraminifera: Cushman, 22.

Orthophragmina: Cushman, 11.

Pliocene Mollusca: Smith, E. R., 2.

Petrology.

Nepheline basalt, Richland Parish gas field: Campbell, I., 1.

Salt dome cap rock: Goldman, 12.

Physical geology.

Differential compacting the cause of certain Claiborne dips: Teas, 5.

Salt domes: Powers, 12.

Sandstone inclusion in salt in mine on Avey's Island: Heald, 14.

Structural features of oil fields, northern Louisiana: Crider, 2.

Underground water.

Salt dome waters: Minor, 1.

Sulphur waters: Henniger, 1.

Lower Silurian. See Ordovician.

Luling oil field, Caldwell and Guadalupe counties, Texas: Brucks, 1; Selards, 19.

Lunar craters, origin: Campbell, W. W., 1.

Luzerne quadrangle, New York: Miller, W. J., 19.

Lyon Mountain quadrangle, New York: Miller, W. J., 26.

Lytton Springs oil field, Caldwell County, Texas: Collingwood, 8.

McCall's Ferry quadrangle, Pennsylvania: Jonas, 2.

Mackenzie.

Areas described.

Franklin Mountains: Williams, M. Y., 14, 16.

Great Slave Lake region: Cameron, 1; Hume, 2.

Mackenzie River region between Great Slave Lake and Simpson: Whitaker, 2.

between Simpson and Wrigley: Williams, M. Y., 13.

between Wrigley and Norman: Hume, 8.

Providence to Simpson: Whittaker, 5.

Norman oil area: Hume, 5.

North Nahanni and Root Rivers area and Caribou Island: Hume, 3.

Economic geology.

Fort Norman oil area: Hume, 7.

Iron, Mackenzie River valley: Kindle, 6.

Lead-zinc deposits near Great Slave Lake: Dawson, C. B., 1.

Mackenzie River basin: Cammell, 1; Thompson, P., 1.

Norman oil fields: Hume, 4.

Oil fields: Bosworth, 2, 3, 4; Kindle, 9, 15; Kitto, 1; Ness, 2; Redfield, 2; Anon., 10, 11.

Mackenzie—Continued.

Economic geology—Continued.

Oil prospecting, Mackenzie River valley: Kindle, 12; Ness, 1.

Historical geology.

Athabaska series: Alcock, 5.

Franklin Mountains: Williams, M. Y., 16.

Kinderhook, Liard River: Hume, 6.

Lower Mackenzie Valley: Kindle, 9.

Mackenzie oil field: Bosworth, 3.

Mackenzie River basin: Dowling, 17; Kindle, 15; Ness, 1; geologic structure: Dowling, 15.

Mineralogy.

Anthraxolite: Rutherford, 10.

Paleontology.

Devonian Crinoida: Springer, 4, 14.

Kinderhook, Liard River: Hume, 6.

Macropetalichthyids, head: Stensiö, 1.

Portage fauna, Mackenzie River valley: Kindle, 4.

Tertiary plant remains: Bell, W. A., 3.

Physical geology.

Gravity results, Mackenzie basin: Miller, A. H., 1.

Lower Mackenzie Valley: Kindle, 9.

Mackenzie River region, geologic structure: Dowling, 15.

Physiographic geology.

Postglacial lakes, Mackenzie River basin: Cameron, 2.

McKittrick oil field, California: English, W. A., 4.

Magma and magmatic differentiation. See also Intrusions; Laccoliths; Lavas.

Alkaline rocks, genesis: Smyth, 3.

Angular inclusions in ore deposits: Merritt, C. A., 3.

Anorthositic, formation: Loewinson-Lessing, 1.

origin: Lodochnikow, 1.

Assimilation and assimilation processes, evidence: Bain, 14; Phemister, 5.

Assimilation and petrogenesis: Stansfield, 7.

Assimilation by Sudbury norite sheet: Bain, 5; Bowen, 19; Phemister, 3.

Assimilation during the Katmai eruption of 1912: Fenner, 4.

Basic dike injections in magmatic vein sequences: Spurr, 20.

British Columbia, Vancouver Island, East Sooke Peninsula: Cooke, H. C., 5.

Contact phenomena: Eskola, 1.

Corundum and albitite bodies, hydrothermal origin: Larsen, 21.

Crystallization-differentiation: Bowen, 1, 7.

Deformation of crystallizing magma: Bowen, 5.

Definition: Spurr, 21.

Diabase differentiation: Emmons, R. C., 4.

Magmas, etc.—Continued.

- Differentiation: Day, 1.
 by deformation: Bowen, 6.
 of lamprophyric magma at Corbally Canyon, Washington: Waters, 1.
 Diffusion in silicate melts: Bowen, 9.
 Duluth gabbro, basal phases: Nebel, 3.
 Duluth lopolith: Bowen, N. L., 1.
 Emulsions of silicates: Tanton, 18.
 Final consolidation phenomena in the crystallization of igneous rock: Colony, 4.
 General: Day, A. L., 1; Fenner, 8; Hixon, 5; Nicol, 1; Vogt, 4.
 Granitic intrusives: Kemp, 24.
 Idaho, Idaho batholith: Beckwith, R. H., 1.
 Igneous ore deposits, genesis: Campbell, J. M., 3.
 Igneous rocks: Vogt, 1, 3.
 Igneous intrusion, after-effects: Kemp, 12.
 Inclusions in magmas: Bowen, 13; Emmons, R. C., 1.
 Killarney magma, Sudbury, Ontario: Bain, 19.
 Liquid immiscibility in silicate magmas: Bowen, 20; Greig, 3.
 Magmas, dikes, and veins: Spurr, 26.
 Magmatic differentiation and vein formation: Ross, C. S., 26.
 Metallic concentrations: Spurr, 10.
 Metals in intrusive magmas: Spurr, 12.
 Minnesota, Giants Range batholith: Allison, I. S., 1.
 Pigeon Point: Grout, 27.
 Vermillion batholith: Grout, 18.
 "Molten magma": Lewis, 10; Strauss, 1.
 Movements in crystallizing magmas: Grout, 6.
 Ontario, Agate Point, evidence of liquid immiscibility in magmas: Tanton, 13.
 Porcupine, syntectic porphyry: Whitman, 4.
 Sudbury district: Bain, 18.
 Ore deposits, classification: Zavaritsky, 1.
 formation: Lindgren, 18.
 Pressure in magmas: Morey, 1.
 Reaction principle in petrogenesis: Bowen, 12.
 Regional metamorphism, relation to: Barrell, 7.
 Relation of crystallization to water content and vapor pressure of water in a cooling magma: Morey, 2.
 Roof collapse in late Paleozoic alkaline batholiths: Billings, 3.
 Stresses in laccolithic intrusions: Gould, L. M., 2.
 Tectonic conditions accompanying intrusion of basic and ultra-basic igneous rocks: Benson, W. N., 1.

Magmas, etc.—Continued.

- Ultra-basic rocks: Bowen, 22.
 Magmatic carbons and hydrocarbons: Lewis, 14.
 Magnesite: Dolman, 1; Stone, R. W., 2.
 British Columbia, Lillooet-Prince George region: Reinecke, 3.
 California: Bradley, W. W., 6; Palmer, L. A., 3.
 Nevada, southern: Anon., 20.
 Origin: Turner, H. W., 4.
 Quebec, Grenville: Bain, 1.
 Types of magnesite deposits and their origin: Bain, 4.
 United States: Phalen, 2.
 Washington: Petrascheck, 1; Siegfus, 2; Whitwell, 1; Willis, 26.
 Stevens County: Dolman, 1; Handy, 1; Weaver, 2.
 Magnesium: Loughlin, 16; Stone, 4, 9.
 Magnesium salts.
 Saskatchewan: Cole, L. H., 10.
 Western Canada: Cole, L. H., 9.
 Magnesium sulphate.
 British Columbia: Goudge, 1.
 Magnetic methods for exploration: Hotchkiss, 5.
 Magnetic surveying on copper-bearing rocks of Wisconsin: Aldrich, H. R., 2.
 Magnetite. See Iron.
 Magnetite-hematite relations: Gilbert, G., 4.
 Magnetite and hematite, relations: Broderick, 1.
 Magnetite, fumarolic: Zies, 1.
 Maine.
 Turners Lake, Isle-au-Haut: Bishop, 2.
Areas described.
 Mount Desert: Wood, G. M., 1.
 Portsmouth Basin: Wandke, 2.
Economic geology.
 Cordierite-anthophyllite mineralization, Blue Hill: Lindgren, 14.
 General: Burr, 1.
 Granite: Dale, T. N., 4; Smith, G. O., 15.
 Mineral resources: Burr, 2.
 Peat, Livermore quadrangle: Burr, 1.
Historical geology.
 Cambrian, northern Maine: Smith, E. S. C., 5, 6.
 Graptolite locality, Waterville: Perkins, E. H., 2.
 Kennebec River to Penobscot Bay: Perkins, E. H., 3.
 Moose River sandstone: Perkins, E. H., 4.
 Mount Desert Island: Bascom, 1.
 Portsmouth basin: Wandke, 1.
 Rangeley conglomerate: Smith, E. S. C., 2.
 Silurian tillite(?): Smith, E. S. C., 4.
 Waterville region, evolution of drainage: Perkins, E. H., 5.
Mineralogy.
 Beryllonite, Newry: Palache, 32.
 Buckfield: Hess, 28.

Maine—Continued.

Mineralogy—Continued.

Calcium phosphate mineral, Stoneham
Holden, E. F., 3.

Chrysoberyl pegmatite, Hartford: Pa-
lache, 14.

Gems: Marble, 1.

Granite pegmatites, central Maine, para-
genesis: Landes, K. K., 1.

Greenwood mine: Marble, 2.

Hartford chrysoberyl prospect: Marble,
4.

Olivine, Monhegan Island: Wheeler, E.
P., 1.

Petalite, Peru: Marble, 5.

Pollucite, Hebron: Hess, 31.

Newry: Fairbanks, 11.

Rumford tin mine: Marble, 3.

Paleontology.

✓Chapman sandstone: Raymond, 21.

✓Macroporaster nylanderi, Silurian,
New Sweden: Raymond, 11.

✓Monograptus, Waterville: Perkins, E.
H., 2.

✓Oldhamia, Cambrian: Smith, E. S. C.,
5.

✓Ostracoda, Chapman sandstone: Ulrich,
1.

Petrology.

Cape Neddick gabbro, York County:
Wandke, 3.

Igneous rock, Mt. Kineo: Smith, E. S.
C., 3.

Ogunquit, igneous rocks: Keeley, 2.

Portsmouth Basin, intrusive rocks:
Wandke, 2.

Physical geology.

Granite pegmatites, central Maine, para-
genesis: Landes, K. K., 1.

Physiographic geology.

Androscoggin River, former courses:
Crosby, I. B., 1.

Champlain submergence, depth along
coast: Meserve, 1.

Gulf of Maine, morphology: Johnson,
D. W., 7.

Kennebec River to Penobscot Bay:
Perkins, E. H., 3.

Mount Desert Island: Bascom, 1.

Postglacial uplift: Fairchild, 7.

Quaternary changes of level: Antevs,
16.

Submarine physiography of Gulf of
Maine: Johnson, D. W., 11.

Three Pleistocene tills, southern Maine:
Sayles, 19.

Underground water.

Flowing well, Winslow: Little, H. P., 1.

Mammalia.

Agate fossil quarry, Sioux County,
Nebraska: Matthew, 25.

Age of mammals, close: Osborn, 26.

Agriochoerus, John Day beds: Thorpe,
7.

Mammalia—Continued.

Alberta, Paskapoo formation: Simpson,
G. G., 14; footprints: Rutherford,
7.

Alticamelus, Mohave Desert: Davidson,
P., 2.

Amebelodon fricki, Nebraska: Barbour,
9.

Amphicyon, Pawnee Creek beds, Colo-
rado: Cook, H. J., 9.

Amynodontidae: Troxell, 7.

Anchitherium agatense: Romer, 6.

Antillean, affinities and origin: Mat-
thew, W. D., 1.

Apatemyidae: Troxell, 22.

Araecyon: Thorpe, 10, 13.

Archidiskodon maibeni, Nebraska: Bar-
bour, 7, 8.

Arctoid carnivore, Miocene, Wyoming:
Romer, 9.

Arctotherium, Pleistocene, California:
Merriam, 17.

Texas: Matthew, 9.

Arizona, Lake Cochise area: Bryan,
23.

San Pedro Valley, Proboscidea and
Edentata: Gidley, 7.

Artiodactyls: Lull, 3.

dentition: Loomis, 14.

Bassariscinae: Hall, E. R., 1.

Bear, Pleistocene, Florida: Gidley, 12.

Bear family, distribution: Merriam, 6.

Beaver tooth, Des Moines, Iowa:
Thomas, A. O., 7.

Bison remains, Cape Cod, Massachu-
setts: Allen, G. M., 1.

Colorado and Dawson County, Texas:
Hay, 41.

Folsom, New Mexico: Hay, 41.

Minnesota: Hay, 17.

Pleistocene, Kansas: Martin, H. T.,
5.

Bison skull, Yukon Territory: Clark,
T. H., 15.

Bison chaneyi, Vernon, Texas: Cook,
H. J., 14.

Bison latifrons, Kansas: Martin, H. T.,
6.

Bison occidentalis, occurrence in Okla-
homa: Crabb, 2.

Blastomeryx: Lull, 4.

Blastomeryx marshi, restoration: Lull,
10.

Bothriodonts: Troxell, 4.

Brain of Jurassic mammals: Simpson,
G. G., 20.

Bridger Carnivora: Thorpe, 17.

Brown's Park formation, Colorado:
Peterson, 11.

Caenopus: Troxell, 9.

California, Mohave Desert: Merriam,
J. C., 1.

Pleistocene ruminant: Stock, 19.

Rancho La Brea, rodents and lagoon-
morphs: Dice, 1.

Siestan, Hipparion: Stock, 8.

Mammalia—Continued.

California—Continued.

- southern coast ranges: Stock, 3.
 Tumbler Miocene, sperm-whale: Kellogg, R., 15.
 Camel, Utah: Romer, 14.
 Camelidae: Lull, 7.
 Canid and proboscidean remains, Mohave Desert, California: Stöck, 25.
 Canid and rhinocerotid remains, Pliocene, California: Stock, 16.
 Canidae, phylogeny: Matthew, 21.
 Capromeryx, Nuevo Leon, Mexico: Furlong, 1.
 Carnivora, Tertiary: Thorpe, 14.
 Uinta, Utah: Thorpe, 18.
 Catopsalis, Paskapoo formation, Alberta: Russell, L. S., 2.
 Cats, Rancho La Brea, California: Merriam, 13.
 Cetacea, phosphate beds, Florida: Allen, G. M., 3.
 Archacodelphis: Allen, G. M., 2.
 Xenoruphus, South Carolina: Kellogg, R., 5.
 Cetacean research: Kellogg, R. 13.
 Claenodonts, Eocene, Montana: Gidley, 2.
 Colorado, Brown's Park: Peterson, 6.
 Yuma County, Pliocene: Cook, H. J., 2.
 Colorado Museum, fossil mammals: Cockerell, 21.
 Cyclopidius: Thorpe, 4.
 Deer, phylogeny: Loomis, 19.
 Desmostylus: Hay, 18.
 Tertiary: Hannibal, 1.
 Vancouver Island: Cornwall, 1.
 Desmostylus and Cornwallius, osteology and dentition: Hay, 21.
 Diabelodon edensis, southern California: Osborn, 25.
 Diceratheres: Peterson, 2.
 Diceratherium: Troxell, 10.
 Dolichorhinus: Peterson, 7.
 Diplodocus, skull: Holland, W. J., 3.
 Diplolophus, Oreodon beds, Nebraska: Troxell, 19.
 Edentata, Cenozoic history: Stock, 1.
 gravi-grade: Stock, 13.
 Oligocene: Simpson, G. G., 15.
 Wasatch and Wind River beds: Matthews, W. D., 3.
 Elephants: Hay, 13, 14; and mastodons: Osborn, 35.
 California, Pleistocene: Stock, 21.
 Columbia Plateau, Washington: Bryan, 26.
 Mexico: Freudenberg, 2.
 Minnesota: Stauffer, 4.
 Michigan, Oakland County: Sherzer, 2.
 Oklahoma, Frederick: Hay, 41.
 (Trilophodon), Nebraska: Cook, H. J., 16.

Mammalia—Continued.

- Elephas cf. jeffersoni, Frederick, Oklahoma: Cook, H. J., 17.
 Elephas eelsi, Port Williams, Washington: Hay, 34.
 Elephas jeffersoni: Osborn, 20.
 Elephas primigenius boreus, Golconda, Illinois: Crook, 4, 5.
 Elephas roosevelti: Hay, 26.
 Elephas scotti, Nebraska: Barbour, 2.
 Entelodonts: Troxell, 1, 3.
 Badlands, South Dakota: Sinclair, 4, 5.
 Eocene didelphids: Simpson, G. G., 24.
 Eporeodon, John Day beds: Thorpe, 6, 8.
 Equidae, Oligocene: Buwalda, 2.
 Equus laurentius: Hay, 38.
 Eurhinodelphis, Calvert County, Maryland: Kellogg, R., 11.
 Eusmilus, Oreodon beds, South Dakota: Sinclair, 10.
 Felidae, White River beds: Thorpe, 2.
 Florida, Pleistocene: Hay, 1.
 Citrus County: Simpson, G. G., 26.
 Fort Union beds: Matthew, W. D., 38.
 General: Osborn, 13.
 Giraffa nebrascensis, Nebraska: Matthew, 33.
 Glires, Wasatch and Wind River beds: Matthew, W. D., 3.
 Helalates: Troxell, 15.
 Herpetotherium marsupium, Bridger Basin: Troxell, 23.
 Hesperopithecus, Snake Creek beds: Gregory, W. K., 7, 18; Osborn, 18, 21, 22; Pycraft, 1; Woodward, A. S., 1; Anon., 19.
 Hipparion mohavense, Puente formation, California: Stock, 26.
 Homogalax: Troxell, 14.
 Hoplophoneus, South Dakota: Jepson, 2; Sinclair, 2.
 Horse and elephant, evolution: Loomis, 20.
 Horses: Gidley, 10.
 ancestry: Matthew, 29.
 evolution: Loomis, 15; Matthew, 34.
 history in North America: Abel, 5.
 remains, North Carolina: Cobb, C., 3.
 Hyaenarctid bear, John Day Basin, Oregon: Merriam, 24.
 Hyaenodontidae: Thorpe, 12.
 Hyopsodus, Eocene, Colorado: Abel, 1.
 Hypsodus: Troxell, 2.
 Hypohippus, Fish Lake valley, Nevada: Stock, 17.
 Hyrachyus: Troxell, 17.
 Hyracodon: Troxell, 8.
 Big Badlands, South Dakota: Sinclair, 6.
 Oligocene, Sioux County, Nebraska: Wood, H. E., 4.
 Illinois, Alton, Pleistocene: Leighton, M. M., 5.

Mammalia—Continued.

Insectivora, Wasatch and Wind River beds: Matthew, W. D., 3.

Internal mandibular groove of Jurassic mammals: Simpson, G. G., 25.

Iowa, Cherokee: Cable, 9.

Henry County, Proboscidea: Jaques, 1.

Pleistocene mammalian remains: Thomas, A. O., 20.

Ischyromys: Troxell, 11; Badlands, South Dakota: Miller, G. S., 1.

John Day Felidae: Eaton, G. F., 1.

Jurassic: Simpson, G. G., 3.

Kentriodon pernix, Miocene porpoise, Maryland: Kellogg, R., 14.

Kentucky, cave remains: Miller, A. M., 11.

Lance formation: Simpson, G. G., 19.

Lance vertebrates: Matthew, 20.

Leptauchenia: Thorpe, 4; and Cyclopiidus: Loomis, 13.

Llama, Pleistocene, California: Merriam, 18.

Mammoths, American Pleistocene: Osborn, 20.

hairy, Utah: Hansen, 1.

Mammoth tusk, Banks Island: Kindle, 29.

Marine invertebrates associated with Mammalia: Stock, 10.

Marsupial, John Day beds, Logan Butte, Oregon: Stock, 9.

Marsupialia: Wood, H. E., 2.

Maryland, Calvert Cliffs, whale: Kellogg, R., 7.

Calvert County, Eurhinodelphis: Kellogg, R., 11.

squalodonts: Kellogg, R., 4.

western, cave deposits: Gidley, 3.

Mastodons: Hay, 30; Osborn, 14, 16; and mammoths: Osborn, 45.

ancestry: Osborn, 4.

Clallam County, Washington: Culver, 11.

extinction: Russell, J. W., 1.

Gratiot County, Michigan: MacCurdy, H. M., 1.

inferior dentition: Peterson, 10.

Mexico: Freudenberg, 2.

New York: Clarke, J. M., 22; Osborn, 27.

Orange County: Bishop, 1.

Texas: Hay, 25.

Megalomys, Pleistocene, Barbuda, West Indies: Hopwood, 1.

Megalonychinae and Mylodontidae, Rancho La Brea: Stock, 13.

Megaptera, Lompoc, California: Kellogg, R., 3.

Merychippus, Crooked River basin, Oregon: Maxson, 1.

Merychyus, restoration: Peterson, 5.

Merycochoerus and Promerycochoerus, distinctions: Thorpe, 22.

Mammalia—Continued.

Merycodus, Mohave Desert, California: Furlong, 2.

Merycoidodon: Thorpe, 9.

hyoid apparatus: Thorpe, 19.

Merycoidodontidae: Rutherford, 1; Thorpe, 21.

Meshippus, Protoceras beds: Sinclair, W. J., 9.

Mexico, Chihauhua, Mina Eruption: Eaton, G. F., 2.

Tepepan, Elephas: Díaz Lozano, 4.

Micromastodon: Osborn, 25.

Miocene oreodonts: Loomis, 11.

Molars, pre-Cretaceous evolution: Simpson, G. G., 9.

Montana, Hell Creek formation: Simpson, G. G., 13.

southern, Fort Union formation, Simpson, G. G., 21.

Moropus, habits: Osborn, 3.

Multituberculates: Simpson, G. G., 4. of the Morrison, taxonomy: Simpson, G. G., 17.

Wasatch formation: Granger, 1.

Musk-ox skull, Iroquois Beach, Toronto, Ontario: Bensley, 1.

Myiodon harlani, mounted skeleton: Stock, 5.

Nebraska, Agate, rhinoceros bone bed: Cook, L. M., 1.

Miocene: Matthew, 35.

western, Pleistocene: Matthew, W. D., 2.

Neohyaenodon: Thorpe, 12.

Neomeryx anni, Dundurn, Saskatchewan: Parks, 22.

Nevada, southeastern: Stock, 7.

Thousand Creek Pliocene: Merriam, 28.

New York, Orange County, Monroe: Clarke, J. M., 11.

Pleistocene: Hartnagel, 1, 4.

Notharctus, Eocene primate: Gregory, W. K., 2.

Notharctus gracilis: Troxell, 30.

Oklahoma, elephant: Crabb, 1.

Glyptodon: Gould, C. N., 30.

Oligobunus, Sioux County, Nebraska: Thorpe, 5.

Oregon, Newport: Packard, 1.

Tertiary Canidae: Thorpe, 11.

Pliocene bear: Merriam, 22.

Oreodon beds faunas, South Dakota: Sinclair, 8.

Oreodonts: Loomis, F. B., 3, 9; Thorpe, 4.

geological history: Thorpe, 26.

Oligocene, Montana: Loomis, 10.

Oreodontoides oregonensis, John Day formation, Oregon: Thorpe, 24.

Origin of mammalian faunas of North and South America: Scott, W. B., 6.

Origin of species: Osborn, 37.

Mammalia—Continued.

- Palaeocaster, Miocene, Wyoming: Romer, 10.
- Palaeologus: Troxell, 35.
- Paleocene mammals, new genera: Matthew, 16.
- Paleocene multituberculate, musculature and habits: Simpson, G. G., 27.
- Paleomastodon: Osborn, 4; and Moe-ritherium: Matsumoto, 1.
- Pantotheres from the Morrison: Simpson, G. G., 16.
- Parelephas: Osborn, 32.
- Pauromys, Bridger formation, Wyoming: Troxell, 18.
- Peccary, McKittrick Pleistocene, California: Stock, 23.
- California, Rancho La Brea: Merriam, 8.
- Maryland, Pleistocene: Gidley, 4.
- Nebraska, Crawford: Cook, H. J., 3.
- Pecora, primitive: Lull, 12.
- Pelagic mammals: Kellogg, R., 8.
- Pacific coast: Kellogg, R. 10.
- Pennsylvania, Frankstown cave: Peterson, 9.
- Perchoerus skulls, White River and John Day formations: Pearson, H. S., 1.
- Physeteroid cetacean, Santa Barbara County, California: Kellogg, R., 9.
- Pinnipeds, California: Kellogg, R. 16.
- Pliopedia, Pliocene: Kellogg, R., 1.
- Miocene and Pliocene, California: Kellogg, R., 2.
- Pleistocene: Hay, 24, 47; Romer, 14.
- Dallas, Texas: Lull, 8.
- early: Hay, 45.
- mastodons: Hay, 32.
- Plesippus, Blanco formation, Texas: Matthew, 29.
- Pliocene, eastern Asia and western North America: Stock, 11.
- Pliocyon, John Day Valley, Oregon: Thorpe, 5.
- Poebrotherium: Loomis, 18.
- Porpoise, California: Gregory, W. K., 21.
- Primates, Paleocene, Montana: Gidley, 6.
- Primitive foot: Gidley, 1.
- Princeton Museum mounts. Sinclair, W. J., 1.
- Proboscidea: Hay, 18; Ingalls, A. G., 4.
- distribution and classification: Osborn, 15.
- distribution in Oklahoma: Decker, 3.
- evolution: Osborn, 11, 29; and classification: Osborn, 11.
- Iowa: Thomas, A. O., 26.
- migrations and affinities: Osborn, 24.
- new genera and species: Osborn, 44.
- New York: Hay, 3.

Mammalia—Continued.

- Proboscidea—Continued.
- phylogeny: Osborn, 11, 34; and classification: Osborn, 11.
- Promerycochoerus, John Day beds: Thorpe, 3.
- Prosthennops (peccary), Oregon: Thorpe, 25.
- Prosthennops xiphodonticus, Nebraska: Barbour, 3.
- Radial exostosis in Daphoenus: Romer, 3.
- Rattlesnake fauna, Oregon: Merriam, 19.
- Reithroparamys, Bridger formation: Matthew, 11.
- Reptilian characters in mammals: Wortman, 1.
- Research methods, classification, etc.: Osborn, 13.
- Rhinoceros: Troxell, 20.
- Kansas: Lane, H. H., 1.
- (Trigonias), Oligocene, Colorado: Gregory, W. K., 19.
- Rhinoceroses and hydracodonts: Wood, H. E., 5, 6.
- Ricardo fauna, California: Stock, 25.
- Rodentia, Eocene: Troxell, 21.
- Sea cow, Metaxytherium floridanum: Hay, 11.
- Sloth remains, Iowa: Delavan, 1.
- Smilodectes or Notharctus: Troxell, 30.
- Snake Creek fauna: Matthew, W. D., 2.
- Snake Creek fossil quarries: Matthew, 24.
- South Carolina, phosphate beds: Allen, G. M., 4.
- South Dakota, Black Hills region: O'Harra, 3.
- Sparassodonts: Wood, H. E., 2.
- Sperm whale, Miocene (?), Florida: Cobb, C., 5.
- Squalodonts: Kellogg, R., 4.
- Stegomastodon, Proboscidea: Osborn, 33.
- Stehlinius, Eocene insectivore: Matthew, 17.
- Stenomylus, hyoid arch: Peterson, 4.
- Suina: Barbour, 3.
- Tathiodon to replace Tanaodon: Simpson, G. G., 18.
- Tanupolama, Pleistocene, California: Stock, 24.
- Teleoceras, Pliocene, Colorado: Cook, H. J., 11.
- Tetrabelodon abeli, Nebraska: Barbour, 6.
- Tertiary artiodactyls: Lull, 4.
- Tertiary Mammalia, extinction: Cockrell, 5.
- Texas, Miocene: Hay, 20.
- Pleistocene: Cook, H. J., 6.
- Ticholeptus rusticus: Loomis, F. B., 3.
- Tinodon and allies: Simpson, G. G., 2.

Mammalia—Continued.

- Titanotheres, Eocene, Colorado: Cook, H. J., 8.
 Huerfano formation, Colorado: Osborn, 7.
 Triassic: Simpson, G. G., 22.
 Triconodonts: Simpson, G. G., 1.
 Trigonias, Weld County, Colorado: Gregory, W. K., 19.
 Trilophodon, Colorado: Cook, H. J., 1.
 Ungulates, Eocene, horned: Troxell, 16.
 preorbital fossae: Gregory, W. K., 4.
 Uinta Basin, Eocene: Peterson, O. A., 1.
 Uintacolotherium, Moffat County, Colorado: Cook, H. J., 7.
 Uintatherium molars: Wood, H. E., 1.
 Wasatch and Wind River faunas: Matthew, W. D., 3.
 Whale, Monterey group, California: Hanna, G. D., 15.
 Zarhachis, Calvert formation, Maryland: Kellogg, R., 1, 12.

Man, fossil.

- Ancestry: Gregory, W. K., 22; Hill-Tout, 2; Osborn, 49.
 Antiquity: Lull, 9.
 in America: Cook, H. J., 10, 12; Figgins, 1; Goddard, 1; Hrdlička, 2; Science Service, 5; Anon., 71.
 in California: Merriam, 15.
 Artifacts, associated with Elephas, Melbourne, Florida: Loomis, 1.
 California, Los Angeles: Stock, 12.
 Folsom, New Mexico: Science Service, 10.
 Texas Pleistocene: Cook, H. J., 6, 10.
 Evidences of early man, Frederick, Oklahoma: Science Service, 9.
 Evolution: Baitsell, 1; Hrdlička, 4; Huntington, 5; Matthew, 14; Osborn, 9, 40.
 Florida: Cooke, C. W., 19; Gidley, 8; Hay, 44; Hrdlička, 1; Loomis, 1, 16; Sellards, 2; Sterns, 1.
 Melbourne and Vero deposits: Gidley, 9.
 Melbourne, Vero and St. Petersburg deposits: Cooke, C. W., 16.
 Melbourne artifacts, antiquity: Holmes, W. H., 1.
 General: Balcom, 1; Gregory, W. K., 25; Hay, 5; Lull, 20, 21; Osborn, 12, 23, 36, 47.
 Glacial man in America: Miller, A. M., 10.
 Hesperopithecus: Gregory, W. K., 18; and Pithecanthropus molars: Gregory, W. K., 10.
 Human dentition: Gregory, W. K., 15; Hellman, 1; evolution: Gregory, W. K., 6.
 Human origins: MacCurdy, 1.
 Nebraska and Oklahoma finds: Cook, H. J., 13.

Man, fossil—Continued.

- Nebraska, Pliocene pseudo-artifacts: Nelson, N. C., 1.
 western, fossil implements in Pliocene deposits: Sci. Serv., 4.
 Nevada: Krejci, 1.
 Occurrence with Pleistocene fossils, Dallas, Texas: Shuler, 2.
 Oklahoma, Frederick: Cook, H. J., 15; Hay, 43; Spier, 1, 2.
 Origin of man: Bretz, 11; Gregory, W. K., 12, 14, 17, 23; Headstrom, 1; Merriam, J. C., 2.
 and antiquity: Miller, A. M., 17; Osborn, 47, 48.
 and distribution: Hrdlička, 3.
 from anthropoid stem: Gregory, W. K., 16.
 Paleopathology: Moodie, 18.
 Phylogeny of man: Hill-Tout, 1.
 Pithecanthropus molars: Gregory, W. K., 10; Miller, G. S., 2.
 Place of origin: Gregory, W. K., 20.
 Plateau habitat of pro-dawn man: Osborn, 50.
 Pleistocene man: Johnson, J. H., 6.
 Social evolution: Matthew, 12.
 Tertiary man: Johnson, J. H., 5.
 Trenton gravels, New Jersey: Wright, G. F., 1.
 Upright posture: Gregory, W. K., 24.

Manganese.

- Appalachian Valley, Virginia and Tennessee: Stose, 4.
 Arkansas, Batesville district: Miser, 1, 5.
 Arizona: Jones, Edw. L., 6.
 Bibliography: Hewett, 3; Wheeler, H. L., 1.
 California, southeastern: Jones, Edw. L., 7.
 Canada: Mackenzie, G. C., 1.
 Colorado: Jones, Edw. L., 6; Muilenburg, 1.
 Red Cliff district: Crawford, R. D., 3.
 Colorado River desert region: Jones, Edw. L., 9.
 Costa Rica: Sears, 1.
 Cuba: Burch, 1, 2; Burchard, 3, 7.
 Búeycito: Calvache Dorado, 1.
 General: Harder, 2; Hewett, 1, 2, 3, 5; Leith, 15.
 Georgia: Hull, 1.
 Cartersville district: Anon., 1.
 Idaho: Livingston, 2.
 Bannock County: Hewett, 19.
 Maryland: Singewald, 5.
 Minnesota, Cuyuna range: Thiel, 4.
 Montana: Pardee, 8.
 Nevada: Pardee, 4.
 New Mexico: Jones, Edw. L., 5; Wells, E. H., 1.
 New York, Columbia County, postglacial: Dale, N. C., 2.
 Northwestern States: Pardee, 3.

Manganese—Continued.

- Nova Scotia: Hayes, A. O., 1; Jennison, 1.
 Lunenburg County: Fearing, 2; Reid, J. A., 1.
 western: Faribault, 2.
 Oklahoma, Bromide: Hewett, 8.
 Custer County: Reiter, 2.
 Oregon: Pardee, 8.
 southwestern: Kellogg, A. E., 7.
 Panama, Boqueron River: Sears, 2.
 Pennsylvania: Pa. G. S., 1.
 Porto Rico, Ponce district: Mitchell, 7.
 Precipitation by micro-organisms: Thiel, 8.
 Southern States: Stose, 7.
 Tennessee: Crane, W. R., 1.
 eastern: Stose, 17.
 Types of deposits: Burchard, 28.
 Utah: Pardee, 8.
 Virginia: Grasty, 1.
 Blue Ridge, west foot: Stose, 1.
 Giles County: Hubbard, G. D., 6.
 western: Stose, 16.
 Washington: Pardee, 8, 15.
 Wyoming, Laramie Mountains: Jones, W. F., 2.

Manganese minerals: Thiel, 2.

Manhattan district, Nevada: Ferguson, H. G., 5.

Manitoba.

Island Lake area: Wright, J. F., 12.

Arcas described.

- Athapapuskow Lake district: Bruce, 1.
 Beresford Lake area: Wright, J. F., 4.
 Bigstone and Fox rivers area, northern Manitoba: Merritt, C. A., 4.
 Cross-Pipestone area: Alcock, 4.
 Elbow Lake area, northern Manitoba: Armstrong, P., 3.
 Flinflon area: Alcock, 15.
 Knee Lake district: Bruce, 4.
 Oiseau River area: Cooke, H. C., 9; Wright, J. F., 10.
 Ospwagan Lake-Burntwood River area: Alcock, 9.
 Oxford and Knee lakes area, northern Manitoba: Wright, J. F., 11.
 Rat River: Alcock, 10.
 Reed and Wekusko lakes region: Alcock, 12.
 Reed-File lakes area: Alcock, 1.
 Reed Lake-Elbow Lake: Bruce, 2.
 Rice Lake area: Cooke, H. C., 9; Wright, J. F., 3.
 Upper Whitemouth area: Johnston, W. A., 3.
 Wekusko Lake area: Alcock, 2.
 Winnipegosis area: Johnston, W. A., 3.

Economic geology.

- Chalcopyrite deposits, northern Manitoba: Bruce, 5.
 Clays, Lake Agassiz Basin: Maynard, J. E., 1; Wallace, 11.
 Copper Lake gold district: Wallace, 3.

Manitoba—Continued.

Economic geology—Continued.

Copper-zinc and gold mineralization: Wallace, 22.

Cretaceous shale: Ells, 2.

East central Manitoba: Wright, J. F., 9.

Falcon Lake district: De Lury, 2.

Flinflon ore body: Wallace, 5.

General: DeLury, 5; Prather, 1.

Gold, Elbow Lake: Wallace, 6.

northern Manitoba: Gordon, J. P., 1.

Herb Lake region: Alcock, 12.

Knee Lake district, northern Manitoba: Anon., 7.

Maskwa River copper-nickel deposit: McCann, 1.

Maskwa River norite: Colony, 2.

Mineral resources: Wallace, 10, 13, 19.
 nonmetallic: McArthur, 1; Wallace, 18.

Mineral deposits, northwestern Manitoba: Wallace, 15.

Northern Manitoba: Wallace, 1, 2, 4.

Oiseau and Maskwa copper and copper-nickel deposits: Wright, J. F., 7.

Pegmatites, southeastern Manitoba: DeLury, 8.

Rice Lake gold area: Wright, J. F., 6.
 Sands: Wallace, 21.

Schist Lake region, Mandy mine: Hanson, 1.

Secondary processes in pre-Cambrian ore bodies: Wallace, 8.

Southeastern Manitoba: Bruce, 3; DeLury, 4.

Sulphide deposits, northern Manitoba: Hanson, 4.

The Pas mineral district: Alcock, 18; Wallace, 1.

Tin, West Hawk Lake region: DeLury, 3.

Historical geology.

Borings: Dowling, 3.

Correlation: Dowling, 2.

East central Manitoba: Wright, J. F., 9.

Falcon Lake district: DeLury, 2.

General: Wallace, 14.

Herb Lake region: Alcock, 12.

Hudson Bay area: Foerste, 22; Savage, 2.

Maskwa River copper-nickel deposit: McCann, 1.

Northern Manitoba: Bruce, 5; Hanson, 1.

Ordovician and Silurian, Hudson Bay area: Foerste, 22.

Pre-Cambrian: Alcock, 13.

northern Manitoba: Bruce, 7.

Rice Lake, Maskwa River, and Boundary districts: DeLury, 1.

Southeastern Manitoba: DeLury, 4.

Southern Manitoba: DeLury, 1.

Turtle Mountain coal measures: Dowling, 12.

Mineralogy.

- Chalmersite, Cold Lake: Thomson, E., 13.
 Cyanite, Reed-Wekusto area: Wallace, 6.

Manitoba—Continued.

Mineralogy—Continued.

Heavy minerals in sand horizons : Wallace, 23.

Paleontology.

Foraminifera, Cretaceous : Cushman, 33.
General : Wallace, 14.
Hudson Bay area : Foerste, 22.

Petrology.

Dolomitization in Paleozoic horizons : Birse, 1.
Granite, local differentiation, Churchill River : Alcock, 8.
Maskwa River norite : Colony, 2.
Pegmatites, southeastern Manitoba : DeLury, 8.

Physical geology.

Dolomitization of limestones : Birse, 1.
Marlite balls : Kindle, 22.
Secondary processes in pre-Cambrian ore bodies : Wallace, 8.
Varve materials and banded rocks : Wallace, 20.

Physiographic geology.

General : Wallace, 14.
Glaciation : Burwash, 7.
Pleistocene changes of level : Johnston, W. A., 2.
Seal-Churchill divide, terminal moraine : Alcock, 15.
Winnipegosis area, surface deposits : Johnston, W. A., 1.

Manuscript bibliographies, list : Little, 3.

Map making. See Cartography.

Maps. See Geologic maps ; Relief maps.

Maps, interpretation and use : Smith, G. O., 20.

Marble : Burchard, 6.

Alaska, southeastern : Burchard, 6.
Constitution, characters, and history : Dale, T. N., 6.

Georgia, Tate quadrangle : Bayley, 13.
Mexico, Puebla : Wittich, 28.

Physical features : Bowles, 3.
Tennessee, east : Dale, T. N., 6 ; Gordon, C. H., 3.

Vermont, Roxbury : Richardson, C. H., 2.
West Virginia, Pocahontas County : Price, 2.

Marcasite, paragenesis : Newhouse, 1.

Markings on rocks.

Ontario, Toronto area : Fritz, 1.

Marl.

Florida : Mossom, 1.
North Carolina : Loughlin, 9.
Wisconsin : Steidtmann, 5.

Marmarth field, North Dakota : Hares, 5.

Martinique.

Economic geology.

Petroleum indications : Barrabé, 1.

Historical geology.

General : Barrabé, 1.

Physical geology.

Gases of Mt. Pelé lavas : Shepherd, 5.

Maryland.

Areas described.

Kent County : Miller, B. L., 6.
Queen Annes County : Miller, B. L., 7.
Talbot County : Miller, B. L., 8.

Economic geology.

Chrome ore, northeastern Maryland : Knopf, E. B., 2.
Chromite deposits : Diller, 1 ; Gordon, S. G., 7 ; Lewis, J. V., 1 ; Singewald, J. T., 1, 2.
Coal : Swartz, C. K., 3.
Feldspar, quartz, chrome, and manganese : Singewald, 5.
Fire clay localities : Hall, G. M., 2.
Fire clays : Watts, A. S., 1.
western Maryland : Mathews, 4.
Mineral resources : Mathews, 6.
Molding sands : Trainer, 2.
Talc, Harford County : Diller, 5.

Historical geology.

Bluff sections, St. Marys County : Mansfield, W. C., 4.
Cambrian : Bassler, 13.
Carboniferous : Swartz, C. K., 5.
Clinton formations : Ulrich, 9.
Coal measures : Swartz, C. K., 2, 4.
Cretaceous, Federal Hill, Baltimore : Berry, 16.
Crystalline schists, eastern Maryland : Knopf, E. B., 3.
Elkton quadrangle : Bascom, 2.
Metamorphic rocks, eastern Maryland : Jonas, 1.
Newark system : Dorsey, 1.
Ordovician : Bassler, 13.
overlap, Piedmont province : Stose, 18.
Pleistocene : Mansfield, W. C., 6.
Pre-Cambrian : Jonas, 6.
western Piedmont : Jonas, 4.
Rose Hill and McKenzie formations, sections : Prouty, 9.
Silurian : Swartz, C. K., 6.
correlation : Swartz, C. K., 8 ; Ulrich, 8.
Wills Creek and Tonoloway formations : Swartz, C. K., 7.

Mineralogy.

Almandite-spessartite garnet, Gwynns Falls, Baltimore : Shannon, 75.
Apatite, Wiant's quarry, Pilot : Shannon, 71.
Beaumontite, Baltimore : Shannon, 52.
Chrome ore, Etchison, Montgomery County : Shannon, 62.
Gahnite, cobaltiferous, Carroll County : Shannon, 43.
"Halloysite," Jones Falls : Shannon, 56.
Kensington mica mine, Montgomery County : Shannon, 64.
Magnesite and kammererite, Cecil County : Shannon, 60.
Margarite, Montgomery County : Shannon, 48.
Remingtonite, Carroll County : Shannon, 50.

Maryland—Continued.

Mineralogy—Continued.

Vermiculites, Bare Hills near Baltimore: Shannon, 77.

Paleontology.

Arundel fauna: Gilmore, 8.

Caecum, protoconchs: Berry, E. Will., 2.

Cambrian: Bassler, 13.

Canthelophorus, Carboniferous: Bassler, 12.

Carboniferous insects: Cockerell, 37.

Coal measures: Swartz, C. K., 2.

Cretaceous, Federal Hill, Baltimore: Berry, 17.

Dinosaur, ornithomimid, Arundel formation: Gilmore, 5.

Eurhinodelphis, Calvert County: Kellogg, R., 11.

Kentriodon pernix, Miocene porpoise: Kellogg, R., 14.

Labyrinthodont footprints: Lull, 11.

Ordovician: Bassler, 13.

Pleistocene: Mansfield, W. C., 6.

cave deposits, western Maryland: Gidley, 3.

Mollusca, Walles Bluff: Smith, E. R., 1.

peccaries, Cumberland: Gidley, 4.

Vertebrata: Hay, 6.

Silurian: Swartz, C. K., 8.

Squalodonts, Calvert Cliffs: Kellogg, R., 4.

Terebratula, Eocene: Roberts, J. K., 1.

Upper Cretaceous Ostracoda: Berry, E. Will., 1.

Whale, Calvert Cliffs: Kellogg, R., 7.

Xenohelix, Chesapeake Bay, St. Marys County: Mansfield, W. C., 4.

Zarhachis, Calvert formation: Kellogg, R., 6.

Zarhachis flagellator, Calvert Cliffs: Kellogg, R., 12.

Petrology.

Elkton quadrangle: Bascom, 2.

Gabbros, Harford County: Insley, 1.

Granitic pegmatites: Gordon, S. G., 2.

Serpentines, Harford County: Johannsen, 14.

Physical geology.

Black shale formation: Goldman, 11.

Ocean inlets, storm effect: Hite, 1.

Mascall flora, Oregon: Chaney, 17.

Maskwa River norite, Manitoba: Colony, 2.

Massachusetts.

Boston area: Crosby, I. B., 5; Foye, 18.

Worcester area: Foye, 17.

Economic geology.

Granite: Dale, T. N., 4.

Lime belt: Dale, T. N., 5.

Silver, Newburyport: Green, F. E., 1.

Historical geology.

Connecticut Valley, geological history: Miller, W. J., 10.

Dighton conglomerate, origin: Perkins, E. H., 1.

Dracut norite stock: Fairbanks, 10.

Essex County: Clapp, C. H., 1.

Massachusetts—Continued.

Historical geology—Continued.

Scree, Triassic, Connecticut Valley: Reynolds, 1.

Silurian, Essex County: Foerste, 6.

Squantum tillite: Sayles, 18.

Unconformity between Berkshire schist and Stockbridge limestone, Adams: Dale, T. N., 2.

Wamsutta red beds igneous rocks: Eaton, H. N., 6.

Mineralogy.

Amesite, Chester: Shannon, 8, 16.

Bucholzite, Blandford: Shannon, 17.

Chester emery mine: Shannon, 4.

Corundophilite, Chester: Shannon, 16.

Datolite, Westfield: Shannon, 23.

Gedrite, Chesterfield: Shannon, 17.

Monazite, Weymouth: Palache, 10.

Pelham asbestos mine: Shannon, 3.

Pigeonite, Westfield: Gillson, 5.

Rockport, Cape Ann: McKinstry, 2.

Scapolite deposits, Bolton: Palache, 13.

Talc, Russell: Foshag, 14.

Westfield, datolite locality: Shannon, 1.

diabantite: Shannon, 1.

Paleontology.

Aspidella-like markings, Cambridge slate: Clark, T. H., 10.

Bison remains, Cape Cod, Allen, G. M., 1.

Boston area, Cambrian: Clark, T. H., 10.

Footprints, Attleboro: Lull, 5.

Connecticut Valley: Abel, 4.

Mollusca, Boston Basin boulder clay: Morse, E. S., 1.

Oldhamia, Lower Cambrian: Howell, B. F., 2.

Petrology.

Contact phenomena, gneiss and limestone in western Massachusetts: Eskola, 1.

Essex County, igneous rocks: Clapp, C. H., 1.

Dracut norite stock: Fairbanks, 10.

Gabbroid diabase in Westfield: Shannon, 6.

Granites and pegmatites of Cape Ann: Warren, C. H., 2.

Physical geology.

Boston, earthquake risk: Crosby, I. B., 2.

Earthquake, January 7, 1925: Porter, W. W., 1.

Keystone fault, Purgatory Chasm, Sutton Crosby, W. O., 4.

Mechanics of dike intrusion: Billings, 1.

Medford dike: Jones, W. F., 4.

Postglacial faulting, Mount Toby: Loomis, F. B., 4.

Shapes of beach pebbles, Nantasket: Wentworth, 10.

Physiographic geology.

Camp Devens area: Atwood, W. W., 1.

Cape Cod region: Brigham, 1.

Mount Toby: Loomis, F. B., 4.

- Massachusetts—Continued.
Physiographic geology—Continued.
 Physical features, central Massachusetts: Alden, 2.
 Postglacial uplift: Fairchild, 7.
 Till on overthrust gravels, Cambridge: Lane, 29.
 Mastodontoidea. See Mammalia.
 Matabitchuan area, Ontario: Todd, E. W., 5.
 Matachewan district, northern Ontario: Burrows, 2; Cooke, H. C., 1.
 Matanuska coal fields, Alaska: Martin, G. C., 3.
 Matanuska Valley, upper, Alaska: Capps, 11.
 Maverick Springs, Fremont County, Wyoming: Collier, 6.
 Mayo area, Yukon: Cockfield, 1, 4, 15.
 Meandering.
 Colorado Plateau country: Moore, R. C., 31.
 Inclosed, Colorado Plateau: Moore, R. C., 30.
 Missouri, Ozark region, intrenched and incised meanders: Tarr, 13.
 Tidal streams: Barton, 18; Campbell, M. R., 13.
 Measurement of folded beds: Hewett, 6.
 Mechanics of geologic structure: Mead, 1.
 Mechanics of vein formation: Taber, 1.
 Meetings. See Associations.
 Megadiastrophism: Chamberlin, R. T., 7; Chamberlin, T. C., 12, 17; Jones, W. F., 2.
 Megatectonics: Chamberlin, T. C., 30.
 Melikaria: Burt, 5.
 Melilite, composition: Winchell, 9; genesis: Bowen, 15.
 Melilites, natural and synthetic: Buddington, 5.
 Melrose phosphate field, Montana: Richards, R. W., 2.
 Mendon kame area, New York: Fairchild, 19.
 Mercury. See Quicksilver.
 Mesozoic (undifferentiated).
 Alaska, Alaska Railroad region: Capps, 6.
 Chichagof Island, western part: Overbeck, 1.
 Goodnews Bay region: Harrington, 6.
 Jack Bay district: Johnson, B. L., 2.
 Kahiltna Valley: Mertie, 2.
 Ruby-Kuskokwim region: Mertie, 11.
 Tolstoi district: Harrington, 2.
 Arctic regions, Ellesmere Land: Holte dahl, 1.
 British Columbia, Nickel Plate mountain: Schofield, 5.
 Chugwater-Sundance contact: Dobbin, 4.
 Idaho, granitic rocks: Ross, C. P., 16.
 Washington, Stevens County: Weaver, 2.
 Yukon, Sixtymile and Ladue rivers area: Cockfield, 5.
 Metallic concentrations by magmation, origin: Spurr, 10.
 Metallogenetic zones: Rastall, 2.
 Metamorphic rocks, feldspar method of determining: Carlson, 1.
 identification: Leith, 12.
 Metamorphism.
 Adirondacks, contact metamorphism: Agar, 1.
 California, Catalina Island: Woodford, 1.
 Riverside County, Crestmore: Eakle, 1.
 Clinkertill: Dove, 4.
 Colorado coals: Eby, 4.
 Contact action, Etta mine: Schwartz, 22.
 Contact metamorphism: Hess, 11; Foshag, 27.
 processes: Geijer, 2.
 Vermont: Bain, 25.
 Corundum and albitite bodies, hydrothermal origin: Larsen, 21.
 Crystalline schists, southeastern Pennsylvania and Maryland: Knopf, E. B., 3.
 Dolomitization: Walker, T. L., 55.
 Duluth gabbro, basal phases: Nebel, 3.
 Factors in rock metamorphism: White, D., 36.
 General: Schaller, 7.
 Granite, weathered, twice metamorphosed: Allison, I. S., 3.
 Grenville limestone, Quebec: Bain, 2.
 Grünerite rocks, Lake Superior region, origin: Richarz, 9.
 Kansas, Woodson County: Twenhofel, S.
 Kaolin, formation: Parsons, 7.
 Killarney gneisses and migmatites, Ontario: Quirke, 22.
 Lake Superior iron formations: Richarz, 11.
 Limestone alterations at Bingham, Utah: Winchell, 8.
 Massachusetts, Essex County: Clapp, C. H., 1.
 Metasomatic processes in silicate rocks: Goldschmidt, V. M., 1.
 Meteorites: Merrill, 16.
 Mineralization of the Platteville-Decorah contact zone, Minneapolis-St. Paul region, Minnesota: Stauffer, 6.
 Minnesota, Ely greenstone, contact metamorphism: Schwartz, 7.
 Mount Royal contact metamorphic zone, Quebec: Dolan, 1.
 New kind of: Winchell, 15.
 New Hampshire, Hanover district: Merritt, J. W., 3.
 New York, Grenville sediments: Alling, 13.
 Lake Bonaparte quadrangle: Smyth, 2.
 Lewis County: Buddington, 2.

Metamorphism—Continued.

- Paleozoic altered volcanic materials:
 Ross, C. S., 21.
 Pegmatites, formation: Schaller, 10.
 Pennsylvania and Maryland, crystalline schists: Knopf, E. B., 3.
 Porosity and crushing strength as indices of regional alteration: Russell, W. L., 11.
 Porto Rico, Humacao district: Fetteke, 5.
 Pseudo-igneous rocks, Texas: Lonsdale, 11.
 Regional metamorphism: Barrell, 7.
 Secondary processes in pre-Cambrian ore bodies: Wallace, 8.
 Shale, Cretaceous, Rocky Mountain region: Wilson, J. H., 3.
 Tactite: Hess, 1.
 Utah, Bingham: Lindgren, 12.
 Tintic district: Lindgren, 2.
 Vermont, Whitingham area: Hubbard, G. D., 4.
 Metasomatism: Boydell, 7, 9; Goldschmidt, V. M., 2; Lindgren, 16; Lovering, 3; Spencer, A. C., 1; Taber, 13.
 and the pressure of growing crystals: Boydell, 14.
 physico-chemical theory: Boydell, 3, 12; Goldschmidt, V. M., 3.
 processes in silicate rocks: Goldschmidt, V. M., 1.
 solubility and pressure: Boydell, 9.
 Meteor Crater, Arizona: Barringer, 1, 3; Boot, 1; Thurmond, 1.
 Meteor crater, Texas: Bibbins, 1.
 Meteorites.
 Alpine, Brewster County, Texas: Merrill, 19.
 Amana, Iowa: Prior, G. T., 1.
 Anaheim, Saskatchewan: Johnston, R. A. A., 1.
 Anthony, Harper County, Kansas: Merrill, 39.
 Arkansas, western: Merrill, 53.
 Baldwin, Mississippi: Glenn, 7; Merrill, 41.
 Blithfield, Ontario: Johnston, R. A. A., 2.
 Chondrules and chondritic structure: Merrill, 10.
 Colby, Wisconsin: Merrill, 42.
 Cold Bay, Alaska: Merrill, 19, 20.
 Composition: Merrill, 46; and structure: Merrill, 1, 4.
 Copper in a meteorite vein: Quirke, 3.
 Cumberland Falls, Kentucky: Merrill, 5, 8, 13; Meunier, 1; Miller, A. M., 2, 4, 6.
 Cumpas, Sonora, Mexico: Palache, 17.
 Deal, New Jersey: Keeley, 1.
 Dungannon, Virginia: Merrill, 28.
 Eagle Station, Kentucky: Prior, G. T., 1.
 Ehrenberg, Yuma County, Arizona: Palache, 17.

Meteorites—Continued.

- Estherville, Iowa: Merrill, 9; Meunier, 1.
 Etching, iron meteorites: Farrington, 1.
 Florence, Texas: Lonsdale, 9.
 Forksville, Virginia: Merrill, 47, 50.
 Four Corners, San Juan County, New Mexico: Merrill, 39.
 General: Clarke, F. W., 10; Merrill, 43; Miller, A. M., 14.
 Glasgow, Kentucky: Merrill, 30; Miller, A. M., 12.
 Gun Creek, Gila County, Arizona: Palache, 17.
 Harvard University collection: Palache, 16, 17.
 Johnstown, Colorado: Hovey, 12.
 Kansas City, Missouri: Merrill, 3.
 McCreary County, Kentucky: Miller, A. M., 3, 19.
 McDowell County, North Carolina: Merrill, 34.
 Merrillite and chlorapatite in stony meteorites: Shannon, 53.
 Mesa Verde Park, Colorado: Merrill, 29, 31.
 Metal in meteorites: Merrill, 56, 57.
 Metamorphism in meteorites: Merrill, 16.
 Mount Ouray, Chaffee County, Colorado: Palache, 17.
 Navajo, Arizona: Merrill, 20.
 New Baltimore, Somerset County, Pennsylvania: Merrill, 31, 32.
 Nickelsville, Virginia: Merrill, 23.
 Oakley, Idaho: Merrill, 47, 52.
 Observations of falling meteorites: Merrill, 24; Miller, A. M., 12.
 Odessa, Texas: Merrill, 22.
 Oklahoma: Shannon, C. W., 2.
 Owens Valley, California: Merrill, 17, 21, 49.
 Oxidation of meteoric irons: Shannon, 68.
 Palahatchle, Mississippi: Merrill, 40.
 Pennsylvania: Stone, 16.
 Percentage number of falls with reference to varying basicity: Merrill, 2.
 Pitts, Georgia: McCallie, 3.
 Quartz in meteoric stones: Merrill, 37.
 Richardson, North Dakota: Quirke, 1, 2, 3.
 Rose City, Michigan: Hovey, 6, 7, 8.
 Savannah, Tennessee: Merrill, 29.
 Savik, Greenland: Bøggild, 5.
 Sharps, Virginia: Watson, 14.
 Seneca Township, Michigan: Merrill, 53.
 Signal Mountain, Lower California: Merrill, 19.
 Smithville, Oklahoma: Shead, 1.
 Social Circle, Georgia: McCallie, 6.
 Sundry meteorites: Merrill, 4.
 Temperature: Jones, A. T., 1, 2.

Meteorites—Continued.

- Tilden, Illinois: Wylie, 1.
 Troup, Texas: Merrill, 15; Udden, 10.
 Tulia, Texas: Palache, 20.
 Undescribed meteorites in American
 Museum of Natural History collec-
 tion: MacNaughton, 1.
 Wallapai Indian Reservation, Arizona:
 Merrill, 54.
 Washington County, Colorado: Pa-
 lache, 34.
 Zenith, Kansas: Corbett, 3.

Mexico.

- Cardenas-Tampico: Diaz Lozano, 5.
 Geology: Freudenberg, 1.
 Glossary of geologic terms: Muñoz
 Lumbier, 6.
 Instituto Geológico Nacional: Paredes,
 4.
 Islands: Muñoz Lumbier, 2.
 Lower California, southern: Gálvez, 7.
 Michoacan: Barrera, 2.
 Northeastern Mexico: Staub, 2.
 Valley of Mexico: Salazar Salinas, 5.
 West Mexican islands: Hanna, G. D.,
 32.

Areas described.

- Catorce district, San Luis Potosi:
 Baker, C. L., 3.
 Cerro de Mercado, Durango: Salazar
 Calinas, 3.
 Coahuila, northern: Cumming, 2.
 Coahuila and Nuevo Leon: Cumming,
 1; Carboniferous area: Müllerried,
 2.
 Colima (part): Vivar, 4.
 El Oro district, Mexico: Flores, 1;
 Villafañá, A., 1; Winchell, H. V.,
 1.
 Guadalucazar, San Luis Potosi: Wit-
 tich, 16.
 Lower California: Gálvez, 2; Marland
 Oil Co., 1; Wilhelm, 2.
 Morelia Valley, Michoacan: Camacho,
 3.
 Ojinaga region, Chihuahua: Vivar, 3.
 Pachuca district, Hidalgo: Winchell,
 H. V., 1.
 San Juan de los Llanos, Puebla: Wit-
 tich, 11.
 Southern Oaxaca: Palmer, R. H., 9.
 Tlalpujahua district, Michoacan:
 Flores, 1; Villafañá, A., 1.
 Vera Cruz-Puebla, Tecolutla-Misantla
 region: Hisazumi, 1.

Economic geology.

- Ahumada lead mine, Chihuahua: Rick-
 ard, 10.
 Asientos-Tepezala district, Aguascalien-
 tes: Anderson, G. E., 2, 5.
 Barite: Wittich, 18.
 Cananea, Sonora, ore injection: Mit-
 chell, 11.
 supergene enrichment of copper:
 White, C. H., 3.
 Caridad mine, Sonora: Wandke, 5.

Mexico—Continued.

Economic geology—Continued.

- Chiautla, Puebla: Wittich, 25.
 Coal and graphite, Sonora: Paredes, 6.
 Coal and petroleum: Obregón, 1.
 Colorado region, Sonora: Honigmann,
 1.
 Copper, Sonora: Tovote, 1.
 Zacatecas: Keyes, 153.
 Cuyutlan area, Colima: Paredes, 3.
 Durango: Zubiría y Campa, 1.
 El Chico, Hidalgo: Wittich, 9.
 El Oro district, Mexico: Flores, 1.
 El Tigre district, Sonora: Mishler, 1.
 Feldspar-chalcopyrite rock-ore, Sonora:
 Spurr, 34.
 Fluorite: Wittich, 13.
 Guadalucazar, San Luis Potosi: Wit-
 tich, 5.
 General: Wittich, 27.
 Gold, Mezquital, Zacatecas: De Silva
 1.
 Gold and silver, El Oro district, Mex-
 ico: Winchell, H. V., 1.
 Graphite: Garcia, 1.
 Sonora: Flores, 2; Honigmann, 4, 5,
 6.
 Guadalucazar, San Luis Potosi: Wit-
 tich, 4.
 Guanacevi, Durango: Terrones Beni-
 tez, 1.
 Guanajuato mining district: Wandke,
 8.
 Guerrero, central: Santillán, 1.
 northern: Santillán, 2.
 Hermosillo district, Sonora: Honig-
 mann, 2.
 Huautla, Morelos: Wittich, 25.
 Iron, Bravo Valley, State of Mexico:
 Paredes, 11.
 Cerro de Mercado, Durango: Salazar
 Salinas, 4.
 Guanajuato, Jalisco, and Michoacan:
 Paredes, 10.
 Hidalgo: Paredes, 2.
 Isthmian oil fields: Redfield, A. H., 1.
 Jalisco: Navarro, 1.
 Limestone replacement deposits: Pres-
 cott, 1.
 Mica: Cervantes, 2.
 Mineral resources: Wittich, 23.
 Durango: Rangel, 1.
 Mineralized zones, Durango-Sinaloa:
 Santillán, 3.
 Jalisco-Navarrit: Barrera, 1.
 Sonora: Flores, 5, 6.
 Nacozari district, Sonora, Pilares
 mine: Wade, W. R., 1.
 Oil fields: Hartley, 2; Huntley, L. G.,
 1; Sansom, 1.
 eastern Mexico: Staub, 4.
 southern Mexico: Ver Wiebe, 3.
 Tabasco: Ver Wiebe, 4.
 Tehuantepec Isthmus: Ver Wiebe, 6.
 Oil possibilities, Lower California:
 Wilhelm, 2.

Mexico—Continued.

Economic geology—Continued.

- Ore deposits: Lewis, S. J., 1.
 Onyx marble, Puebla: Wittich, 28.
 Pachuca district: Hullin, 4.
 Panuco oil field: Baker, C. L., 8; Torres, 1.
 Petroliferous formations of Tampico embayment: Semmes, 5.
 Petroleum: Huntley, L. G., 1; Iglesias, 1; Ortega, G., 1; Shaw, 3.
 bibliography: Mexico, Dept. Petrol., 1.
 Chiapas and Tabasco: Vivar, 1.
 indications, Pacific coast: Aguilar, 1.
 islands in Gulf of California: Paredes, 5.
 Isthmus of Tehuantepec: Huntley, S., 1.
 Lower California: Bustamante, 1, 2.
 occurrence and origin: Juarez, 1.
 Panuco district: Baker, C. L., 7.
 Panuco River valley: Trager, 5.
 southern Tamaulipas: Ordóñez, 1, 2.
 submarine deposits: Urbina, 1.
 Tabasco: Jones, W. F., 3.
 Tabasco and Chiapas: Lajous, 1.
 Petroleum geology in Mexico: Hartley, 1.
 Potash: U. S. G. S., 15.
 Primary chalcocite, Cananea: Mitchell, 10.
 Puerto de Nieto, Guanajuato: Gálvez, 1.
 Quicksilver: Segura, 1; and gold placers, Guadalcázar, San Luis Potosí: Wittich, 7.
 Guadalcázar, San Luis Potosí: Wittich, 11.
 Salt, Puebla: Wittich, 28.
 Salt domes, formation: Lajous, 3.
 Tehuantepec Isthmus: Ver Wiebe, 7.
 San José de Guaymas district, Sonora: Honigsmann, 3.
 Santa Barbara, Parral district, Chihuahua: Schmitt, 2.
 Sierra Madre: Taft, 1.
 Sierra Mojada district, Coahuila: Shaw, S. F., 1.
 Silver: De Iongh, 1.
 Pachuca district, Hidalgo, Mexico: Winchell, H. V., 1.
 Sinaloa: Pagliuchi, 1.
 Sonora: Flores, 2, 4; Arizpe district, Las Chipas mine: Montijo, 1; Lucky Tiger mine: Mishler, 2; mineralized areas: Mitchell, 3; ore deposits: Tovote, 2.
 Sulphides, relation to water level: Lucke, 1.
 Sulphur: Cervantes, 1.
 San Luis Potosí: Wittich, 6.
 Tecuanapa field, Vera Cruz: Allera, 1.
 Tehuantepec Isthmus: Ver Wiebe, 5.
 Tepetate-Chinampa oil pool, graphic model: Huntley, L. G., 2.

Mexico—Continued.

Economic geology—Continued.

- Tepezala - Asientos, Aguascalientes: Villafañá, E., 1.
 Tin: García, 2.
 Tin placer deposits: Sampson, E. H. S., 1.
 Tlalpujahua district, Michoacan: Flores, 1; Villafañá, A., 1.
 Yoquívolo district, Chihuahua: Hall, C. W., 1.
 Zacamixtle oil pool: De Golyer, 3.
 Zacatecas, Mazapil district, Santa Rosa mine: Barrera, 3.
 Zimapán district, Hidalgo: Brinmade, 1.
 Zinciferous chalcocite, Sinaloa: Eichler, 1.
 Zona minera entre los minerales de Atotonilco el Chico y Zimapán, Hidalgo: Flores, 3.

Historical geology.

- Asientos-Tepezala district, Aguascalientes: Anderson, G. E., 2.
 Boring, Idolo Island, Vera Cruz: Dumble, 6.
 Carboniferous, Peregrina Canyon: Girty, 9.
 Catorce district, San Luis Potosí: Baker, C. L., 3.
 Cedros Island and Turtle Bay, Lower California, Pliocene: Jordan, E. K., 3.
 Chapala region: Palmer, R. H., 1.
 Chapeño salt dome, Tamaulipas: Belt, 1.
 Chiapas and Tabasco: Vivar, 1.
 Cretaceous: Hill, R. T., 5.
 Zacatecas, Durango, and Guerrero: Böse, 6.
 Zumpango, Guerrero: Burckhardt, 1.
 Cretaceous, Lower, Nazas, Durango: Burckhardt, 2.
 Cretaceous and Tertiary, northern Mexico: Böse, 8; Tatum, 1.
 Devonian, Coahuila: Haack, 1.
 East coast: Wittich, 24.
 El Chico, Hidalgo: Wittich, 9.
 El Tigre district, Sonora: Mishler, 1.
 General: De Iongh, 1; Lewis, S. J., 1; Wittich, 27.
 Geologic map: Mexico, Secr. Agr., 1.
 Geologic maps, list: Salazar Salinas, 1.
 Guadalcázar, San Luis Potosí: Wittich, 4.
 Guerrero: Paredes, 1.
 Hidalgo, Atotonilco el Grande: Wittich, 10.
 Hidalgo and Vera Cruz: Palmer, R. H., 4.
 Jurassic, Tamazunchale, Sierra Madre Oriental: Heim, 3.
 Lower California: Darton, 10; Johnston, I. M., 1.
 Distrito Sur: Bustamante, 2.
 La Purísima region: Heim, 1.

Mexico—Continued.

Historical geology—Continued.

- Marine Wilcox: Dumble, 4.
 Mesozoic formations: Goranson, 1.
 Mesozoic history: Stanton, 1.
 Nacozari district, Sonora: Wade, W. R., 1.
 Northeastern Mexico: Böse, 7.
 Oil fields, eastern Mexico: Staub, 4.
 Panuco district: Baker, C. L., 7, 8; Torres, 1.
 Panuco River valley: Trager, 5.
 Permian, Coahuila: Böse, 5; Haack, 1.
 Petroliferous area of eastern Mexico: Ver Wiebe, 1.
 Pleistocene, Oaxaca coast: Palmer, R. H., 2.
 Puerto de Nieto, Guanajuato: Gálvez, 1.
 Salado arch, Nuevo Leon and Tamaulipas: Jones, R. A., 3.
 Section along Rio de San Lorenzo, Sinaloa: Brown, W. H., 2.
 Sonora: Flores, 2.
 Carboniferous: Mitchell, G. J., 12.
 Southern Mexico, Mesozoic: Palmer, R. H., 7.
 oil fields: Ver Wiebe, 2.
 Tabasco: Jones, W. F., 3; Ver Wiebe, 4.
 Tajo de Andonegui, Tampico: Wittich, 19.
 Tamaulipas, southern: Ordoñez, 2.
 Tamaulipas and Nuevo Leon: Vivar, 2.
 Tampico district: Belt, 2.
 Tehuantepec Isthmus: Huntley, S., 1; Ver Wiebe, 5.
 Tepexi, Puebla: Díaz Lozano, 2.
 Tertiary, Lower California: Helm, 2.
 Valle de Toxi, Ixtlahuaca: Díaz Lozano, 1.
 Velasco formation, Tampico Embayment region: Cushman, 17.
 Yoquiva district, Chihuahua: Hall, C. W., 1.

Mineralogy.

- Alabandite, Puebla: Wyckoff, 3.
 Castillite, Durango: Kalb, 1.
 Catalogue of minerals: Mexico, Inst. Geol., 1.
 Clinozoisite, Lower California: Rogers, A. F., 20.
 Cocinerite, Ramos, San Luis Potosi: Hough, 1.
 Danburite, La Sirena near Zimapan: Kupferbürger, 1.
 Dumortierite, Guadalcázar: Wittich, 14, 15.
 General: Foshag, 33.
 Geographic distribution of minerals: Mexico, Inst. Geol., 2.
 Meteorite, Cumpas, Sonora: Palache, 17.
 Signal Mountain, Lower California: Merrill, 19.

Mexico—Continued.

Mineralogy—Continued.

- Minerals in granite, Guadalcázar: Kratzert, 1.
 Selenite caves, Naica: Foshag, 29.
 Stephanite, Sultepec: Shannon, 41.
 Sundry minerals: Wittich, 22, 26.

Paleontology.

- Aplocrinus, Tehuantepec: Springer, 10.
 Balanocrinus, Tamaulipas: Springer, 5.
 Carboniferous, Peregrina Canyon: Girty, 9.
 Cedros Island and Turtle Bay, Lower California, Pliocene: Jordan, E. K., 4.
 Cephalopoda, Jurassic, Oaxaca and Guerrero: Burckhardt, 3.
 Chitons, Pleistocene, San Quintin Bay, Lower California: Berry, S. S., 2.
 Corals, western Mexico: Palmer, R. H., 8.
 Cretaceous, ammonites: Böse, 9.
 Lower California: Anderson, F. M., 4.
 Zacatecas, Durango, and Guerrero: Böse, 6.
 Zumpango, Guerrero: Burckhardt, 1.
 Cretaceous, Lower, Nazas, Durango: Burckhardt, 2.
 Devonian, Coahuila: Haack, 1.
 Diatoms, Valle de Toxi, Ixtlahuaca: Díaz Lozano, 1.
 Dinosaur, Coahuila: Janensch, 1.
 Echinoids, Neogene, eastern Mexico: Lambert, 2.
 San Rafael and Tuxpam beds, Tampico region: Israelsky, 2.
 El Consuelo, Oaxaca, cycadeoids: Wieland, 22.
 Elephas, Tepexpan, Mexico: Díaz Lozano, 4.
 Eocene fauna, Moctezuma River: Cushman, 21.
 Foraminifera: Cushman, 22, 36.
 Chapapote formation: Cole, W. S., 2.
 Guayabal formation: Cole, W. S., 1.
 southern Mexico, Tertiary: Nuttall, 2.
 Tampico Embayment area: White, M. P., 1; Velasco shale: Cushman, 26.
 Gulf of California, Pliocene: Hanna, G. D., 29.
 Jurassic, Symon, Zacatecas: Burckhardt, 1.
 Mastodons and elephants: Freudenberg, 2.
 Miocene, Lower California: Hertlein, 4.
 marine diatoms, Maria Madre Island: Hanna, 27.
 plants, southern Mexico: Berry, 48.
 Mollusca, Pleistocene, San Quintin Bay, Lower California: Dall, 4, 5; Jordan, E. K., 3.
 Ochetoceras, phylogeny: O'Connell, 6.
 Pectens, Tertiary, Lower California: Hertlein, 1.
 Permian, Coahuila: Haack, 1.

Mexico—Continued.

Paleontology—Continued.

- Pleistocene, Mammalia : Furlong, 1.
 San Quintin Bay, Lower California : Orcutt, C. R., 1.
 Pliocene, María Madre Island : Jordan, E. K., 2.
 Polylepidina, Cretaceous, Cardenas : Galloway, J. J., 9.
 Proboscidea : Hay, 29.
 Quaternary Mollusca, Lower California : Jordan, E. K., 1.
 Rudistids, San Felipe formation : Stanton, 4.
 southern Mexico : Palmer, R. H., 7.
 Tamaulipas : Stephenson, L. W., 1.
 Spirulirostra, Tehuantepec : Berry, 61.
 Turonian ammonite fauna, Mexico : Böse, 3.
 Upper Triassic : Smith, J. P., 3.
 Vertebrate fossils, Mina Erupcion, Chihuahua : Eaton, G. F., 2.
 Vicksburg Mollusca, Vera Cruz : Cooke, C. W., 18.

Petrology.

- Eruptive rocks, Minillas, Cerro Prieto, Pichagua, and Sierra de Ramírez : Bonillas, 2.
 Guerrero : Bonillas, 1; Zumpango del Río : Waitz, 1.
 Lower California : Hirschi, 2, 4.
 southern : Gálvez, 7.
 San Martín Tuxtla volcanic area : Friedlaender, 7.
 San Quintin volcanic field, Lower California : Woodford, 6.
 Volcanic ash : Wittich, 15.
 Guadalcázar, San Luis Potosí : Wittich, 20.
 Volcanic sand, Popocatepetl : Martínez Quintero, 1.

Physical geology.

- Caliche and pseudo-anticlines : Price, 10.
 Caves in lava, Pedregal : Wittich, 1.
 Coast elevation : Wittich, 21; Lower California : Wittich, 8.
 Cordillera, dynamics : Fletcher, 1.
 Cracking of mountain massifs, Lower California : Keyes, 24.
 Desert phenomena, San Luis Potosí : Wittich, 2.
 Earthquakes : Muñoz Lumbier, 1.
 Guadalajara, 1912 : Waitz, 1.
 January 3, 1920 : Salazar, S., 2.
 Orizaba : Friedlaender, 3.
 Sonora, 1887 : Aguilera, J. G., 1.
 Mexico (State) : Jaeger, 1, 2.
 Mountain chains : Staub, 3.
 Northeastern Mexico, structure : Böse, 7.
 Popocatepetl : Camacho, 3; Heim, 4
 activity 1923-4 : Müllerried, 1.
 eruption : Atl, 1; Friedlaender, 4, 5; Waitz, 4.

Mexico—Continued.

Physical geology—Continued.

- Rhyolitic eruptions and faulting between Aguascalientes and San Luis Potosí : Waitz, 6.
 Salt domes, formation : Lajous, 3.
 San Martín Tuxtla volcanic area : Friedlaender, 7.
 San Quintin volcanic field, Lower California : Woodford, 6.
 Seismology in Mexico : Muñoz Lumbier, 1.
 Veining, Sierra de las Cucaras, Baja California : Keyes, 101.
 Volcanoes : Waitz, 3.
 Volcanic activity, extinct, northeastern Mexico : Staub, 1.
 Volcanic phenomena, Pedregal de San Ángel : Wittich, 3.

Physiographic geology.

- Glacier, Popocatepetl : Weitzberg, 1.
 Hornitos, Jorullo : Sapper, 2.
 Indications of glacial action : Prister, 1.
 Ixtaccihuatl : Paredes, 7.
 Lower California : Davis, W. M., 4; Nelson, E. W., 1.
 La Purísima region : Heim, 1.
 Sonora, island mountain topography : Waibel, 1.
 Yucatan Peninsula : Huntley, L. G., 5.

Underground water.

- Altar district, Sonora : Blázquez, 1.
 Artesian basin of Zavala, San Luis Potosí : Paredes, 8.
 Colima : Gálvez, 6.
 Hidalgo, Tlanalapan : Camacho, 1.
 Ixtaccihuatl : Paredes, 7.
 western slope : Paredes, 9.
 Magdalena and Altar basins, Sonora : Alcalá, 1.
 Morelia Valley, Michoacán : Camacho, 3.
 Puebla, Valsequillo : Camacho, 2.
 Querétaro, southeastern : Camacho, 5.
 Saltillo, Coahuila : Gálvez, 8.
 San Luis Potosí : Gálvez, 3, 4, 5; Hernández, 1, 2.
 Tepexi, Puebla : Díaz Lozano, 2.
 Zacatecas : Alcalá, 2.
 Zacatecas and San Luis Potosí : Blázquez, 2.

Mica.

- Alabama : Clark, G. H., 1.
 General : Hobson, 1; Schaller, 3; Sterrett, 1.
 Geology : Lewis, J. V., 7.
 Idaho, Latah County : Anderson, A. L., 1.
 Mexico : Cervantes, 2.
 United States : Sterrett, 1.

Michigan.

- General : Raasch, 1.
 History of surveys : Allen, R. C., 3, 4.
 Meteor, southwestern Michigan, November 26, 1919 : Hobbs, 14.
 Publications relating to Michigan geology : Mich. G. S., 1.

Michigan—Continued.

Reports of Douglas Houghton; Houghton, 1.

Areas described.

Menominee County: Ver Wiebe, 9.
Roscommon County: Ver Wiebe, 8.

Economic geology.

Clays and shales: Brown, G. G., 1.
Copper, Lake Superior region: Lang, S. S., 2; Spurr, 3.
 native, Nonesuch formation: Nishio, 1.
Copper district: Guck, 1; porphyry intrusions: Lang, S. S., 1; Woods, 1.
Gogebic iron range: Hotchkiss, 7.
Gypsum: Stone, 11.
Iron, Gogebic range: Hotchkiss, 1.
 Lake Superior region: Royce, 1; Winchell, A. N., 2.
Mineral resources: Allen, R. C., 1; Smith, R. A., 1, 2, 4, 5.
 metallic minerals: Pardee, F. G., 1.
 nonmetallic minerals: Poindexter, 1.
Oil development: Smith, R. A., 3.
Oil and gas development: Newcombe, 1.
Saginaw oil field: Carlson, 3.
Salt deposits: Phalen, 1.
Silver, native, Nonesuch formation: Nishio, 1.

Historical geology.

Alpena County: Ver Wiebe, 10.
Cataract formation: Ehlers, 7.
Chippewa County: Ver Wiebe, 11.
Collingwood formation: Ruedemann, 15.
Drill core section, Detroit: Vanderwilt, 1.
Coral deposits: Case, 25.
General: Pohl, 1.
Gogebic Range: Hotchkiss, 1.
Huronian formation, correlation: Allen, R. C., 2; Lane, 4.
Huronian slate areas, Baraga County: Barrett, 1.
Lake Superior iron deposits: Royce, 1.
Niagaran, northern peninsula: Ehlers, 4.
Pre-Cambrian: Cooke, H. C., 19; Leith, 16.
Racine formation, northern peninsula: Ehlers, 3.
Richmond formation, northern Michigan: Hussey, 1.
Sallina formation: Vanderwilt, 1.
Surface formations, map: Leverett, 14.
Stonington region, northern Michigan: Hussey, 1.

Mineralogy.

Eakleite, Isle Royale: Foshag, 13.
Float copper: Kraus, 4.
Isotropic quartz, Iron River: Winchell, 10.
Keweenawan copper deposits: Palache, 15.
Meteorite, Rose City, Ogemaw County: Hovey, 6, 7, 8.

Michigan—Continued.

Mineralogy—Continued.

Seneca Township, Lenawee County: Merrill, 53.

Paleontology.

Algal deposits, Huronian: Twenhofel, 3.
Cephalopoda, Alpena: Foerste, 23.
Cystoids, Trenton, Escanaba River: Hussey, 3.
Devonian crinoids: Ehlers, 9.
Devonian gastropod and cephalopod: Ehlers, 5.
Elephant, Oakland County: Sherzer, 2.
Grand Ledge Carboniferous fauna: Kelly, W. A., 1.
Hamilton fauna, southeastern Michigan: Ehlers, 12.
Heterolasma, Silurian, Mackinac County: Ehlers, 3.
Lipsanocystis traversensis, Devonian cystid: Ehlers, 6.
Mastodon, Gratiot County: MacCurdy, H. M., 1.
Silurian Cephalopoda, northern Michigan: Foerste, 17.

Petrology.

Grünerite rocks, Lake Superior region, origin: Richarz, 9.
Peridotite, Presque Isle: Creveling, 1.

Physical geology.

Erosion, Seul Choix Point Peninsula: Ehlers, 1.
Geotherms of Lake Superior copper country: Lane, 15.
Marlite balls: Kindle, 22.
Ordovician reef, Sulphur Island: Ehlers, 8.
Singing sands, Lake Michigan: Richardson, W. D., 1.

Phystrgraphic geology.

Camp Custer area: Leverett, 1.
Dunes, Lake Michigan shore: Parkins, 1; Scott, I. D., 2.
Kalamazoo area: Leverett, 5.
Lakes, inland: Scott, I. D., 1.
Northern peninsula, glaciation: Leverett, 7.
Shore lines, Elsie and Perrinton quadrangles: Leverett, 2.
Saginaw basin: Leverett, 6.
Surface formations, map: Leverett, 14.
Michipicoten district, Ontario: Collins, W. H., 1.
Michipicoten gold area, District of Algoma, Ontario: Gledhill, 7.
Microbarograph: Dodge, 1.
Microchemical reactions: Lindgren, 13.
Micrology, Texas, Denton County, Cretaceous: Winton, 3.
Micrometer, recording, for rock analysis: Wentworth, 12.
Microthermal observations on oil shales: Stadnichenko, 2.
Microthermal study of carbonaceous rocks: Stadnichenko, 1.

- Mid-Continent oil field, paleogeography and historical geology: McCoy, 4.
- Mid-Continent region, structural geology: Powers, 16.
- Migration of geosynclines: Grabau, 1.
- Military geology.
- Engineering geology in and after the war: Berkey, 2.
 - General: Bennett, L. F., 1; Brooks, A. H., 1; Bryan, K., 1.
 - Geology, use for military purposes: Vaughan, 5.
 - Geology in the Students' Army Training Corps: Gregory, H. E., 3.
 - Military and geologic mapping: Bateman, A. M., 1.
 - Military contribution of civilian engineers: Smith, G. O., 4.
 - Physiography, rôle in military operations: Bryan, 6.
 - United States Geological Survey, war work: Smith, G. O., 12.
 - War work by department of geology, University of Oregon: Smith, W. D., 4.
- Mineral deposits: Lindgren, 1, 23.
- Mineral industry of Utah: Lewis, J. V., 2.
- Mineral paints.
- Georgia, Cartersville, ocher deposits: Haney, M., 2.
- Mineral pipes, formation: Locke, 7.
- Mineral resources (general). See also Economic geology under names of States.
- Alabama: Jones, W. B., 3, 4; Maynard, T. B., 2; Smith, E. A., 4.
 - mineral production: Jones, W. B., 1, 2, 5, 11.
 - Alaska: Brooks, 13; Smith, P. S., 6, 12.
 - Arizona: Rowe, J. P., 5; Tenney, 1.
 - Navajo country: Reagan, 22.
 - Arkansas: Branner, G. C., 1, 3; Ferguson, J. G., 2.
 - British Columbia: Brewer, 3; Davis, A. W., 2; Nichols, H. G., 1.
 - Lardeau and Trout Lake mining divisions: Emmens, 2.
 - California: Bradley, W. W., 4, 7, 8, 9; Hamilton, F., 2; Symons, 1.
 - Canada: Adams, F. D., 1; Graham, R. P. D., 2, 3; Malcolm, 7, 8; Van Leckwyck, 1; Young, G. A., 5.
 - Hudson Bay region: Wallace, 16.
 - Colorado: Colorado, 1; George, R. D., 6.
 - Cuba: Calvache, 2.
 - Isla de Pinos: Allende, 1.
 - Oriente: Aguilera, E., 1.
 - Pinar del Rio: Allende, 2, 3.
 - Florida: Gunter, 6-10.
 - General: White, D., 21.
 - Georgia: McCallie, 4, 5; Maynard, T. P., 2.
- Mineral resources (general)—Continued.
- Greenland: Ball, S. H., 4.
 - Idaho, mining report for 1927: Campbell, S., 7.
 - Illinois, Calhoun County: Lamar, 6.
 - LaSalle region: Buzzard, 1.
 - Iowa: Kay, 13; Lees, 8, 11, 13, 14, 16.
 - Kansas: Moore, R. C., 37.
 - Kentucky: Crouse 4; Jillson, 68, 74, 85.
 - Labrador: Coleman, 22.
 - Louisiana: Howe, H. V. W., 6.
 - Maine: Burr, 2.
 - Manitoba: Wallace, 10, 13, 18, 19.
 - east central: Wright, J. F., 9.
 - nonmetallic: Wallace, 18.
 - Maryland: Mathews, 6.
 - Mexico: Wittich, 23.
 - Michigan: Smith, R. A., 2, 4, 5.
 - metallic minerals: Pardee, F. G., 1.
 - nonmetallic minerals: Poindexter, 1.
 - Mississippi: Lowe, 11, 12.
 - Missouri: Buehler, 4, 5, 8.
 - Nevada: Lincoln, 1.
 - Newfoundland: Snelgrove, 1.
 - New Jersey: Twitchell, 2, 3, 4, 6.
 - New York: Hartnagel, 2, 6.
 - Nonmetallic minerals: Ladoo, 4.
 - North Carolina: Bryson, 1, 2; Drane, 1, 3.
 - Nova Scotia: Anon., 34.
 - Ohio: Bownocker, 9; Peattie, 1.
 - Oklahoma: Gould, 6; Redfield, J. S., 1, 2.
 - Ontario: Corless, 2; Ontario Dept. Mines, 1; Rogers, W. R., 3-5.
 - Pennsylvania, Adams County: Stose, 25.
 - Quebec: Dresser, 2; Dufresne, 5.
 - mineral deposits: Alcock, 19.
 - South: Payne, 1.
 - South Carolina: Calhoun, 2.
 - South Dakota: Ward, 13.
 - Tennessee: Nelson, 19.
 - Tennessee River basin: Cudworth, 1; Smith, A. F., 1.
 - Texas: Sellards, 20.
 - United States: Loughlin, 20, 28.
 - Vermont: Perkins, G. H., 8, 10, 13.
 - Virginia: Watson, 17.
 - Washington: Shedd, 4.
 - West Virginia: White, I. C., 6.
 - Wyoming, Natrona County: Hagens, 1.
 - Platte County: Bartlett, 6.
- Mineral separation, apparatus for: Fraser, F. J., 1.
- Mineral supplies, United States: McCaskey, 1.
- Mineral water: Collins, W. D., 1-4; Ellis, A. J., 2-4.
- Colorado: George, R. D., 1.
 - West Virginia, Mercer, Monroe, and Summers counties: Reger, 9.
- Mineralization along the dikes of southern Vermont: Bray, 1.

- Mineralography of the feldspars: Alling, 3.
 Mineralogical phase rule: Bowen, 18.
 Mineralogy (general). For areal see names of States. See also Crystallography; Meteorites; Technique.
 Acmite and aegirite: Washington, 28.
 Acmitic pyroxenes: Washington, 35.
 Agate: Farrington, 2; Harstad, 2.
 Åkermanite-gehlinite: Ferguson, J. B., 4.
 Alabandite, crystal structure: Wyckoff, 3.
 Alkalies in rocks and minerals, determination: Shannon, 72.
 Allanite, composition: Watson, 6.
 Almandite-spessartite garnet, Maryland: Shannon, 75.
 Aluminum silicate minerals: Wherry, 28.
 Alunogen, nontronite, and griffithite: Larsen, 20.
 Amblygonite-montebrazite series, properties and composition: Winchell, 20.
 Amethyst and smoky quartz, pigments: Holden, 13.
 Amethyst, color: Holden, E. F., 14.
 Amphibole group: Winchell, 6.
 Amphiboles, monoclinic: Winchell, 13.
 Analcite, Brewster County, Texas: Lonsdale, 12.
 sedimentary: Ross, C. S., 22.
 structure determined by oscillation method: Gruner, 12.
 Anisotropism in metallic minerals: Sampson, 10.
 Anorthosites, origin: Lodochnikow, 1.
 Anthophyllite: Shannon, 21.
 optical properties: Bowen, 8.
 Anthraxolite, Mackenzie: Rutherford, 10.
 Apatite, crystallography: Whitlock, 19.
 Arfvedsonite, riebeckite, and crocidolite, Greenland: Gordon, S. G., 20.
 Argentite and acanthite: Emmons, R. C., 2; Schneiderhöhn, 1.
 Arsenides of iron, cobalt, and nickel, rate of oxidation: Walker, 43.
 Atomic volume isomorphism: Wherry, 25.
 Azurite: Palache, 21.
 Babingtonite: Washington, 26.
 Becke reaction: McCaughey, W. J., 1.
 Boidellite: Ross, C. S., 20.
 Bentonite: Ross, C. S., 12.
 as a one-dimensional colloid: Wherry, 27.
 Beryl crystal, Black Hills: Waldschmidt, 1.
 Beryllonite, Newry, Maine: Palache, 32.
 Biaxial calcite: Gillson, 9.
 Bindheimite as an ore mineral: Shannon, 9.
 Biotite: Grout, 12.
 pleochroic halos: Kerr-Lawson, 3.
 Mineralogy (general)—Continued.
 "Blythite" and Amelia manganese garnet: Shannon, 70.
 Boracite, chemical formula: Gruner, 13.
 Bornite as a furnace product: Guild, 5.
 Bornite and pyrrhotite, antipathy: Gilbert, G., 3.
 Bornite-chalcopyrite intergrowth, British Columbia: Uglow, 4.
 Calcites, behavior to radium radiations: Headden, 5.
 Chester County, Pennsylvania: Gordon, 23.
 force of crystallization: Rothrock, 2.
 luminescence: Headden, 6, 7.
 primary: Walker, 40.
 Calcite oolites of pentagonal dodecahedral form, Idaho: Shannon, 69.
 Camsellite and szaibelyite, identity: Schaller, 15.
 Canfield collection: Merrill, 55.
 Carnotite, crystalline, Utah: Hess, 30.
 Carrollite, identity with linnaeite: Shannon, 66.
 "Ceruleofibrite" is connellite: Holden, 8.
 Chalcopyrite and cubanite intergrowths, significance: Schwartz, 18.
 Chalmersite, occurrence: Schwartz, 2.
 Chemical relationships of minerals, chart: Putnam, P. C., 1.
 Chert and flint, origin: Tarr, 17.
 Chlorite: Winchell, 26; as a polycomponent system: Winchell, 16.
 Chlorophoenicite, Franklin, New Jersey: Foshag, 28.
 Citrine, transmission of light: Holden, 11.
 Clay minerals: Ross, C. S., 24.
 Clerici solution for mineral separation by gravity: Vassar, 1.
 Colloid chemistry, application to mineralogy: Fisher, L. W., 1.
 Color in rose quartz, cause: Holden, 9, 12.
 Columbia River Plateau, chlorphaeite, sideromelane, and palagonite: Peacock, 1.
 Copper deposits, Parry Sound, Ontario: Schwartz, 8.
 Credite, Colorado: Foshag, 9.
 Crystal cleavage and crystal structure: Huggins, 1.
 Crystal structure, analysis by X rays: Bragg, 1.
 Crystal structure of some metallic sulphides: Ramsdell, 1.
 Crystal structures of calcites: Wyckoff, R. W. G., 1.
 Crystal symmetry: Rogers, A. F., 23.
 Crystal types, relation to modes of occurrence: Tarr, 4.
 Crystallographic tables: Goldschmidt, V., 1.

Mineralogy (general)—Continued.

- Crystule: Keyes, 187.
 Cubanite, identity with chalmersite: Merwin, 5.
 Dachlardtite: Berman, 1.
 Density of minerals, measurement: Adams, L. H., 2.
 Determination of common minerals and rocks, tables for: Tarr, 7.
 Determination of ore minerals: Davy, 1.
 Determinative mineralogy: Lewis, 4.
 manual: Warren, C. H., 1.
 technique: Putnam, P. C., 3.
 Development of methods: Walker, 23.
 Dolomite, crystal structure: Wyckoff, 6.
 Double dispersion method of mineral determination: Emmons, R. C., 6.
 Doubtful mineral species: Winchell, 17.
 Drawing crystals: Slawson, 1.
 Dumortierite: Bowen, 21; Grawe, 5.
 Dyscrasite and the silver antimony constitution diagram: Schwartz, 25.
 Economic mineralogy: Bowles, 2.
 Ectropite and bementite, identity: Larsen, 19.
 Elasticity of some minerals: Johannsen, 8.
 Electrical conductivity of ore minerals: Fairbanks, 8.
 Enstatite, hypersthene, and actinolite: Washington, 19.
 Enstatite and clinno-enstatite: Wyckoff, 5.
 Epidote, Alaska: Matthes, 1.
 Euxenite, Sabine township, Nipissing district, Ontario: Ellsworth, 21.
 Feldspar group: Winchell, 14.
 Feldspars, mineralography: Alling, 3.
 Field book: Loomis, 8.
 Ferromagnetic ferric oxide: Sosman, 10.
 "Finger prints" of minerals: Winchell, 22, 23.
 Florence Pilkington Manchester collection: Wherry, 15.
 Fossil bone: Rogers, A. F., 19.
 Franklin minerals, phosphorescence and fluorescence: Palache, 29.
 Friedelite and schallerite: Bauer, L. H., 3.
 Friedel's law of rational symmetric intercepts: Rogers, A. F., 24.
 Gageite and tephroite, probable identity: Gordon, S. G., 21.
 Garnet: Myers, 2.
 Garnet group, X-ray determination: Stockwell, 2.
 Garnets, mineralogy: Myers, 4.
 Gems and gem materials: Kraus, 5.
 Gems and precious stones in U. S. National Museum: Merrill, 18.
 General: Whitlock, 16, 20.

Mineralogy (general)—Continued.

- Germanite: Thomson, E., 7.
 Gilpinite and johannite, identity: Larsen, 17.
 Glauconite: Schneider, 3.
 formula: Hallimond, 3.
 optical properties and chemical composition: Ross, C. S., 17.
 Goniometer, two-circle: Bascom, 3; Palache, 1.
 Green color of ferrous minerals: MacCarthy, 6.
 Grünerite, Lake Superior region: Richarz, 7, 8.
 Gypsum, dehydration: Parsons, A. L., 13.
 Gypsum and anhydrite: Wilder, 4.
 Hastingsite group of amphiboles: Billings, 6.
 Heat, effects on properties of minerals: Lonsdale, 1.
 Heavy minerals, Mid-Continent field, criteria for recognition: Edson, 2.
 Hematite and rutile: Merwin, 2.
 Hematite inclusions in Lake Superior amethyst: Holden, E. F., 14.
 Heulandite, thermo-optical properties: Slawson, 2.
 Hexagonal and trigonal minerals: Wherry, 8.
 History and outlook: Kraus, 3.
 Hornblende: Graham, W. A. P., 2.
 Humite group, optical properties: Larsen, 24.
 Hydrated ferric oxides: Posnjak, 1.
 Hydroboracite, California: Schaller, 16.
 Hydromagnesite, crystallography: Rogers, A. F., 15.
 Hydrotalcite group: Foshag, 2.
 Hydrous sulphates, United Verde mine, Jerome, Arizona: Lausen, 6.
 Idaho, Atlanta district: Shannon, 79.
 Iddingsite: Ross, C. S., 11.
 Identification of minerals: Grawe, 4.
 Intergrowth of certain minerals: Newhouse, 2.
 Iron coloration: MacCarthy, 3.
 Iron hydroxide minerals: Merwin, 1.
 Isometric minerals: Wherry, 6.
 Isomorphism of albite and anorthite: Zambonini, 1.
 Isomorphous siderite and calcite: Johnson, J. H., 1.
 Isotropic quartz, Iron River, Michigan: Winchell, 10.
 Keeleyite: Wherry, 32.
 Kernite: Gale, H. S., 6; or rasorite: Palmer, L. A., 4.
 Keweenawan copper deposits: Palache, 15.
 Keweenawite: Thomson, E., 9.
 Lead, native, Idaho: Shannon, 73.
 Lead and copper sulpho-salts, isomorphic relations: Foshag, 11.
 "Lehnerite" and ludlamite, identity: Berman, 2.

Mineralogy (general)—Continued.

- Leucoxene in Permian Mid-Continent sediments: Brown, L. S., 1.
- Leverrierite, schist-forming mineral: Corbett, 2.
- Lillianite and galenobismutite: Walker, 5.
- Lithium pegmatites, genesis: Schaller, 7.
- Louisite: Walker, T. L., 57.
- Magnetite: Gruner, 10; Newhouse, 6; Wagner, P. A., 5.
- Magnetite-martite-hematite, oxidation of: Gruner, 8.
- Manganese minerals: Thiel, 2.
 - identification: Fairbanks, 2.
- Marcasite, stalactitic forms: George, H. C., 3.
- Melanterite and chalcantite minerals: Larsen, 4.
- Mellilite, composition: Winchell, 9; genesis: Bowen, 15.
- Mellilites, natural and synthetic: Budington, 5.
- Merrillite and chlorapatite in stony meteorites: Shannon, 53.
- Method for checking index of a liquid: Rutherford, 2.
- Methods for heavy mineral investigations: Reed, 4.
- $MgSiO_3$ and $AlAlO_3$, isomorphous relations: Winchell, 25.
- Mica group: Hallimond, 1, 2; Winchell, 11, 24.
- Microscopic determination of non-opaque minerals: Larsen, 6; of minerals in sections: Johannsen, 6.
- Mimicry of minerals: Whitlock, 18.
- Mineral names: Eakle, 10.
- Mineral localities: Biernbaum, 2.
- Mineral replacements in pegmatites: Schaller, 13.
- Mineral separation in a finely divided state: Emmons, R. C., 7.
- Mineralogic instruction, needed extension: Eakle, 8.
- Mineralogical laboratory, University of Michigan: Kraus, 1.
- Mineralogical Society of America, proceedings of annual meetings: Van Horn, 1-5, 8-13.
- Mineralography: Thomson, E., 2.
 - of the feldspars: Alling, 5.
- Minerals, determination: Ellis, R. W., 4.
 - of the rarer elements: Lee, O. I., 2.
- Model cutting machine: Palache, 24.
- Modern study of mineralogy: Washington, 30.
- Molecular migration and mineral transformation: Wandke, 7.
- Monoclinic minerals: Wherry, 10.
- Morgan memorial hall of American Museum of Natural History: Whitlock, 13.

Mineralogy (general)—Continued.

- Morgenthau collection: Whitlock, 10.
- Mullite, silicate of alumina: Bowen, 16.
- Muscovite, composition: Winchell, 27.
- Names for symmetry classes based on axes: Wherry, 31.
- Natrojarosite, Arizona: Shannon, 76.
- New crystal forms of minerals: Whitlock, 14.
- New mineral names: Ford, 1.
- New minerals: Foshag, 12; Wherry, 14, 16.
- New Jersey, Franklin; Palache, 30; and Sterling Hill: Palache, 28.
- norbergite: Larsen, 23.
- Niobium, tantalum, and titanium, determination: Todd, E. W., 1.
- Oblique illumination in mineragraphy: Myers, 1.
- Obsidian Cliff, Yellowstone National Park: Foshag, 23.
- Olivine, Hawaiian Islands: Aurore-seau, 3.
- Opaque minerals, examination: Thomson, E., 2.
 - identification: McKinstry, 5, 6.
- Optic angle of crystal, determination: Phenister, 1.
 - new method for measuring: Johannsen, 7.
- Optical mineralogy: Winchell, N. H., 1, 2.
- Ore minerals, electrical conductivity: Kerr, P. F., 5.
 - plastic deformation: Buerger, 3.
- Orthorhombic minerals: Wherry, 9.
- Oxidation of iron in magnetite: Gilbert, G., 6; Twenhofel, L. H., 1.
- Pearls: Wright, E. E., 5.
- Pegmatites, origin: Schaller, 13.
- Phlogopite, zonal, pleochroic, twinned: Walker, 41.
- Phosphorescence and luminescence in calcites: Headden, 4.
- Plagioclase feldspars, determination: Goranson, 2.
 - as a case of atomic isomorphism: Wherry, 19.
- Planchette and shattuckite: Schaller, 1.
- Pleochroic halos: Kerr-Lawson, 2.
- Pollucite: Fairbanks, 11.
- Potash-soda feldspars: Alling, 11.
- Preparing specimens: Levison, 1.
- Preservation of mineral specimens: Parsons, 6, 12.
- Pucherite, pyrite, trichalcite, and wavelite: Shannon, 34.
- Pseudo-isomorphism as illustrated in thomsonite: Wherry, 29.
- "Pseudomorphous" quartz: Morgan, P. G., 1.
- Pyrite, crystallography: Whitlock, 15.
- Pyrite and marcasite, alternating deposition: Tarr, 18.
- Pyrite group: Thompson, E., 1.

Mineralogy (general)—Continued.

- Pyroxene group: Winchell, 5.
 Pyroxenes, X-ray diffraction patterns: Wyckoff, 5.
 Quartz, color of three varieties: Holden, 7.
 in meteoric stones: Merrill, 37.
 inversion in chalcedony: White, W. P., 1.
 spectograph in mineral analysis: Todd, E. W., 2.
 Quartz-diamond intergrowth: Colony, 5.
 Radioactive minerals, Canada: Ellsworth, 8; as age indicators: Ellsworth, 6; Ontario: Ellsworth, 3.
 Radio-detector minerals: Wherry, 26.
 Recognition of minerals in crushed rocks: Johannsen, 11.
 Refractive indices, determining: Winchell, 18.
 measuring under the microscope: Nakashima, 1.
 Relation of hardness to sequence of ore minerals: Gilbert, G., 2.
 Replacement crystals, form: Fairbanks, 5.
 Rock minerals, comparative losses in crushing and sifting: Johannsen, 10.
 Roebbling collection: Merrill, 55.
 Rossite and metarossite, San Miguel County, Colorado: Foshag, 31.
 Rotation apparatus: Kerr, P. F., 3.
 Rutile: Holden, 4.
 Scapolite, properties: Winchell, 7.
 Searlesite, crystallography: Rogers, A. F., 17.
 Seligmannite, Bingham, Utah: Palache, 33.
 Sequence of mineralization, Keystone pegmatites: Landes, K. K., 6.
 Serpentinization: Creveling, 1.
 Shattering of minerals and rocks about inclusions: Walker, 27.
 Silica, nomenclature: Hart, 2.
 Silica minerals, natural history: Rogers, A. F., 30.
 Silicates, alteration by Sonstadt's solution: Walker, 22.
 Sillimanite: Bowen, 17.
 Silver minerals, microscopic features: Guild, 6.
 Silver sulphide, crystal structure: Ramsdell, 3.
 Skeleton quartz crystals: Bain, 7.
 Soil mineralogy: Burt, 1.
 Species names for mineral groups: Van Horn, 7.
 Spectroscopy applied to mineral determination: Douglas, G. V., 1.
 Spencerite, dehydration: Walker, 11.
 Sperryllite, Sudbury, Ontario, crystal structure: Aminoff, 1.
 Standards for hardness of minerals: Talmage, 2.

Mineralogy (general)—Continued.

- Stannite and associated minerals: Schwartz, 5.
 Strain structure in quartz, Ducktown, Tennessee: Kerr, P. F., 6.
 Structure of crystals: Wyckoff, 2.
 Sulphate minerals in ore deposits: Butler, B. S., 3.
 Sulphide minerals, nomenclature and classification: Wherry, 11.
 Sulpho-salt minerals, classification: Wherry, 13.
 Sundry minerals described: Ford, 1; Gordon, S. G., 17.
 Surface of a crystal: Wherry, 24.
 Sussexite, optical data: Poltevin, 7.
 Symmetry classes, arrangement: Wherry, 33.
 Tables for recognition of minerals: Lane, 2.
 Tabulation of crystal classes: Rogers, A. F., 32.
 Tellurides: Thomson, E., 8, 14.
 Tetragonal minerals: Wherry, 7.
 Tetrahedrite-tennantite system, chemical constitution: Winchell, 19.
 Textbook: Dana, 2; Kraus, 2, 8; Rogers, A. F., 5.
 for beginners: Dana, 1.
 Thaumassite, constitution: Holden, 5.
 Thomsonite, composition: Gordon, S. G., 15; Wherry, 21.
 optical notes: Gordon, S. G., 13.
 Thucholite, Parry Sound, Ontario: Ellsworth, 19.
 Thucholite and uraninite, Wallingford mine, Buckingham, Quebec: Ellsworth, 20.
 Time factor in artificial minerals: Peck, A. B., 3.
 Topaz, etching figures: Honess, A. P., 1.
 Torbenite, abnormal birefringence: Bowen, N. L., 2.
 Trevorite: Walker, 29.
 Triclinic minerals, list: Wherry, 12.
 Triclinic pyroxenes: Winchell, 21.
 Valuation of minerals: English, G. L., 1.
 Variscite and peganite, identity: Larsen, 13.
 Vein quartz, microscopic study: Adams, S. F., 2.
 Volume isomorphism in silicates: Wherry, 20.
 Weissite, Colorado: Crawford, W. P., 1.
 Wentworth recording micrometer, improved: Hunt, W. F., 3.
 X-ray autographs of minerals: Winchell, 22, 23.
 X-ray determination of minerals: Mead, 3.
 Xanthoconite, Atlanta district, Idaho: Shannon, 79.
 Zeolites, composition: Winchell, 12.
 Grant County, Oregon: Hewett, 21.

Mineralogy (general)—Continued.

Zircon, North Burgess, Ontario:
Palache, 31.

Minerals, microscopical determination in
section: Johannsen, 6.

Minerva oil field, Milam County, Texas:
Hager, D. S., 1.

Mingan Islands: Twenhofel, 26.

Miniature hoodoos: Schroeder, 2.

Mining geology: Locke, 1.

Minnesota.

Bibliography: Gregory, W., 1.

Mesabi iron range: Niemi, 1.

General: Willard, D. E., 1.

Minnesota, geology of the name: Sar-
deson, 6.

Areas described.

Herman, Barrett, Chokio, and Morris
quadrangles: Sardeson, 1.

St. Louis County, northern: Grout,
20.

Economic geology.

Biwabik iron-bearing formation, east
Mesabi district: Broderick, 2;
nature and origin: Grout, 5.

Clay: Grout, 1, 11; texture and com-
position: Grout, 16.

Copper veins, Susie Island, Lake Su-
perior: Schwartz, 26.

Cuyuna iron ore district: Zapffe, 2, 5;
iron-bearing member, correlation:
Zapffe, 3.

Cuyuna range: Thiel, 12.

Foundry sands: Knapp, G. N., 1.

Iron, Cuyuna range: Thiel, 9.

Gunflint district: Broderick, 3.

Mesabi range: Gruner, 5; Wolff, J. F.,
1.

Iron sulphides in magnetic belts near
the Cuyuna range: Thiel, 5.

Lake Superior region: Winchell, A. N.,
2.

Magnetite deposits, East Mesabi range:
Grout, 3.

Magnetite pegmatites, northern Minne-
sota: Grout, 9.

Magnetite segregation in banded sye-
nite: Grout, 19.

Magnetite slates, Cuyuna range:
Thiel, 7.

Manganese, Cuyuna range: Thiel, 4.

Manganiferous iron ores, Cuyuna dis-
trict: Zapffe, 1.

Mesabi iron ores: Parsons, A. B., 1;
Schwartz, 4.

enrichment: Allison, I. S., 2.

Mesabi magnetic ores, origin: Grout, 7.

Mesabi range ores: Gruner, 2.

Native silver in an iron mine, Cuyuna
range, Crosby: Lane, 18.

Oil and gas possibilities: Stauffer, 7.

Origin of Biwabik iron formation:
Gruner, 3.

Peat: Soper, 1.

Portland cement materials: Sardeson,
5.

Minnesota—Continued.

Economic geology—Continued.

Potash in shales: Schmitt, 1.

Shale: Grout, 1.

Vermillion iron ores origin: Gruner, 9.

Historical geology.

Beloit formation and bentonite: Sar-
deson, 22.

Cretaceous, northern Minnesota: Alli-
son, I. S., 4.

Couchiching: Grout, 15.

Cuyuna iron ore district: Zapffe, 2.

Devonian: Stauffer, 2, 3.

East Mesabi range: Grout, 3.

General: Grout, 2; Stauffer, 7.

Geologic history: Meinzer, 11.

Geologic section: Keyes, 118.

Giants Range batholith: Allison,
I. S., 1.

Gunflint iron district: Broderick, 3.

Jordan sandstone: Stauffer, 5.

Lake Superior geosyncline: Hotch-
kiss, 8.

Mesabi range: Gruner, 3, 5.

Ordovician, southeastern Minnesota:
Sardeson, 30.

Paleozoic rocks: Keyes, 229.

Pre-Cambrian: Cooke, H. C., 19;
Leith, 16.

northeastern Minnesota: Grout, 22.

Red Clastic series, age: Stauffer, 9.

Rove slate area: Grout, 23.

St. Croix Valley: Peterson, E., 1.

St. Louis County, northern: Grout, 20.

St. Peter sandstone: Dake, 6; Sarde-
son, 21.

Shakopee dolomite: Sardeson, 20.

Shore line of Galena seas: Sardeson,
27.

Soudan formation: Gruner, 9.

Surface formations: Leverett, 4.

Type outcrops, Minnesota River val-
ley: Sardeson, 12.

Vermillion batholith: Grout, 18.

Vermillion granite: Grout, 9.

Volcanic ash, Ordovician: Sardeson,
13.

Windrow formation: Thwaites, 2.

Mineralogy.

Mesabi range: Gruner, 5.

Stilpnomelane: Grout, 13.

Xonotlite, Mineral Center, Cook
County: Schwartz, 6.

Xonotlite and pectolite in a diabase
pegmatite: Schwartz, 11.

Paleontology.

Algae, Archean: Gruner, 4.

Beloit formation: Sardeson, 24.

Bison: Hays, 17.

Cremacrinus: Sardeson, 31.

Elephant remains: Stauffer, 4.

Hudsonaster: Sardeson, 33.

Ordovician: Stauffer, 10.

Ordovician clams, habit: Sardeson, 15.

Ordovician kelp, sponges, and burrows:
Sardeson, 18.

Minnesota—Continued.

Paleontology—Continued.

- Organic structures, Biwabik iron-bearing formation: Grout, 4.
- Primitive cephalopods: Sardeson, 17.
- Starfishes, Decorah shale: Sardeson, 32.
- Strophocrinus and Carabocrinus: Sardeson, 16.

Petrology.

- Anorthosite and granite of Pigeon Point: Grout, 27.
- Diabase sill, Pigeon Point: Grout, 26.
- Duluth gabbro, basal phases: Nebel, 3.
- Duluth lopolith: Bowen, N. L., 1.
- East Mesabi range: Grout, 3.
- Ely greenstone, granite and gabbro intrusions: Schwartz, 7.
- Giants Range batholith: Allison, I. S., 1.
- Grünerite rocks, Lake Superior region origin: Richarz, 9.
- Kekequabic granite, northeastern Minnesota: Stark, 1.
- Shonkinite, St. Louis County: Grout, 17.
- Sulphide diabase, Cook County: Schwartz, 12.
- Vermillion batholith: Grout, 18.

Physical geology.

- Anorthosite and granite of Pigeon Point: Grout, 27.
- Block faulting, St. Croix Valley: Peterson, E., 1.
- southeastern Minnesota: Sardeson, 28.
- Granite, weathered, twice metamorphosed: Allison, I. S., 3.
- Intraformational phosphate pebbles, Twin City Ordovician: Pettijohn, 1.
- Ladder veins: Grout, 10.
- Mesabi range cherts, origin: Gruner, 7.
- Mineralization of the Platteville-Decorah contact zone, Minneapolis-St. Paul region: Stauffer, 7.

Physiographic geology.

- Buffalo Plains, origin: Sardeson, 10.
- Driftless Area, erosional history: Trowbridge, 1.
- Eskers: Sardeson, 8.
- Glacial drift sheets: Sardeson, 3.
- Mille Lacs: Sardeson, 9.
- South half of Minnesota: Leverett, 4.
- Minnesota and Mississippi rivers, drainage changes: Sardeson, 6.
- Minto coal basin, New Brunswick: Dyer, 8.
- Minturn district, Wyoming: Thom, 19.
- Miocene. See Tertiary.

Miscellaneous. See also Addresses.

- Abstracting geologic literature: Keyes, 141.
- Agricultural geology: Smith, J. E., 2.
- Airplanes for geologic exploration: Renick, 7.

Miscellaneous—Continued.

- American geologists, number: Powers, 8.
- Appalachian field trip: Morse, W. C., 1.
- Bibliographies: Lindgren, 25.
- Borderland of astronomy and geology: Eddington, 1.
- Colloids in geologic problems: Hubbard, G. D., 2.
- Composition of geological literature: Wentworth, 30.
- Continents and oceans, origin: Wegener, 1.
- Contributions of geology to engineering: Ries, 16.
- Cooperation in geology: DeGolyer, 6.
- Decadence of geology (?): Bastin, 11; Keyes, 172.
- Economic geologist: DeGolyer, 8.
- Education of a geologist: Brock, 2; Lindgren, 8.
- Employment of geologists: Sardeson, 2.
- Engineering geology in and after the war: Berkey, 2.
- Field trips in geology: Morse, W. C., 3.
- Fundamental problems in geology: Chamberlin, T. C., 29.
- Geodetic work, value to geology: Bowle, 8.
- Geologic teaching in mining engineering: Dake, 11.
- Geologists as expert witnesses: Ransome, 5.
- Geologists as witnesses in mining litigation: Leith, 4.
- Geologists in the United States, geographic distribution: Sellards, 22.
- Geology, U. S. National Museum: Merrill, 26.
- a growing science: Bastin, 11.
- and geography in the United States: Mathews, 5.
- as a basis of citizenship: Pogue, 1.
- as a synthetic science: Smith, W. D., 3.
- as a profession: Little, 2.
- as an aid to air navigation: Christie, 1.
- at Johns Hopkins University: Keyes, 21.
- in rural welfare: Smith, J. E., 6.
- in the law: Kemp, 4.
- in the Students' Army Training Corps: Gregory, H. E., 3.
- Investigation versus propagandism: Chamberlin, T. C., 3.
- International geological congresses: Kemp, 27.
- Marking geological features: Troxell, 24.
- Microscope and the decadence of geology: Cady, 10; Eng. and Min. Jour.-Press, 3; Joralemon, 1.
- Microscope in geology: Waldschmidt, 7.

Miscellaneous—Continued.

- Modern geology and its contribution to engineering : Leighton, 13.
- National Research Council, functions : Fenneman, 1.
- division of geology and geography, work of : Lawson, 5.
- Oil geology and science : Heald, 13.
- Outlook for geology : DeWolf, 1.
- Penrose medal : Kemp, 22.
- Petroleum geology, contributions to geologic science : DeGolyer, 4.
- Place of modern languages in geological research : Barrell, 3.
- Plain geology : Smith, G. O., 14.
- Pre-Cambrian life, medal : White, D., 38.
- Preparation in geological communication : Keyes, 145.
- Profession of ore-hunting : Locke, 1.
- Publication for geological abstracts : Tilley, 1.
- Publishing geological information : Geljer, 3.
- Quantitative studies : Hubbard, G. D., 9, 10, 11.
- Radium and geology : Snowden, 1.
- St. Francis dam disaster : Longwell, 17 ; Louderback, 9.
- Scientific by-products of applied geology : Smith, G. O., 10.
- Sources and tendencies in American geology : Barrell, 2.
- State geological surveys and economic geology : DeGolyer, 11.
- Stories in stone : Lee, W. T., 17.
- Strategy of minerals : Smith, G. O., 2.
- Technical papers and their presentation : Knapp, A., 2.
- Training of geologists : Mathews, 5.
- United States Geological Survey as a civic institution during the war : Paige, 1.
- Mispec group, New Brunswick : Matthew, G. F., 3.
- Mississippi.
 - Geological Survey, reports : Lowe, 1, 5, 6, 8.
 - Geology : Lowe, 2.
- Economic geology.*
 - Amory gas field : Jillson, 96, 99.
 - Bauxite deposits : Adams, G. I., 3 ; Morse, P. F., 1.
 - northeastern Mississippi : Burchard, 20.
 - Bentonite : Grim, 2.
 - Clay : Ries, 5.
 - Gypsum : Stone, 11.
 - Mineral resources : Lowe, 10, 11, 12.
 - Oil and gas prospecting : Grim, 1 ; Lowe, 3, 7.
 - Oil possibilities, Easton, 1.
 - Petroleum prospecting : Lowe, 9 ; Morse, P. F., 2.
 - Road-making materials : Lowe, 4.

Mississippi—Continued.

- Historical geology.*
 - Borings : Lowe, 3, 9.
 - Byram calcareous marl : Cooke, C. W., 7.
 - Cretaceous : Berry, 4.
 - Eocene formations, correlation : Cooke, C. W., 12.
 - General : Easton, 1 ; Lowe, 3, 4, 12, 13 ; Stephenson, 10.
 - Paleozoic : Morse, W. C., 4 ; in borings, Tishomingo County : Bramlette, 4.
 - Ripley greensands : Needham, 1.
 - Stratigraphy : Lowe, 9.
 - Subsurface formations : Grim, 1.
- Mineralogy.*
 - Meteorite, Baldwin : Glenn, 7 ; Merrill, 41.
 - Palahatchie, Rankin County : Merrill, 40.
- Palaeontology.*
 - Byram calcareous marl : Cooke, C. W., 7.
 - Cretaceous floras : Berry, 4.
 - Eocene mollusks, Jackson : Cooke, C. W., 15.
 - Foraminifera, Byram marl : Cushman, 11, 13.
 - Vicksburg group : Cushman, 16.
 - Globidens, Selma chalk, Lee County : Gilmore, 34.
 - Mint Spring marl : Cushman, 14.
 - Pleistocene plants : Berry, 6.
 - Red Bluff clay, Hiwannee : Howe, H. V., 11.
- Physiographic geology.*
 - General : Lowe, 12.
- Underground water.*
 - General : Lowe, 12 ; Stephenson, 10.
- Mississippi River, temporary course in Iowa : Schoewe, 4.
- Mississippian. See Carboniferous.
- Mississippian faunal zones : Weller, 12.
- Mississippian orogenic movements : Van Tuyl, 2.
- Missouri.
 - Bureau of Geology and Mines, activities : Buehler, 7, 9.
 - Reports of State geologist : Buehler, 1, 2, 4, 6, 8.
 - Water resources : Beckman, 1.
- Areas described.*
 - Ste. Genevieve County : Weller, 19.
 - Vernon County : Greene, 8.
- Economic geology.*
 - Barite : Tarr, W. A., 1.
 - Clay : Thornberry, 1.
 - Coal : Brodie, 2.
 - analyses : Fieldner, 7.
 - Coal areas : Thom, 14.
 - Cobalt-nickel-copper-lead deposits, Fredericktown : Tarr, 9.
 - Diaspore and flint fire clays : McQueen, 1.
 - Diaspore clay : Wysor, 1.

Missouri—Continued.

Economic geology—Continued.

High-temperature vein, Madison County: Tarr, 12.

Iron ores, Iron Mountain and Pilot Knob: Spurr, 33.

Lead and zinc deposits: Keyes, 114.

Mineral resources: Buehler, 1, 2, 4, 5, 8.

Oil and gas: Wilson, Malcolm E., 1.

Sand and gravel resources: Dake, 1.

Southeast Missouri ore magmatic district: Spurr, 31.

Zinc-lead field: Naething, 2.

Historical geology.

Atchison shales: Keyes, 287.

Balley limestone, Little Saline Creek area: Tansey, 1.

Barite areas: Tarr, W. A., 1.

Carboniferous: Williams, H. S., 1.

Chester series: Ulrich, 5.

Cooper limestone, central Missouri: Greger, 2.

Dakota sandstone: Keyes, 53.

Devonian: Branson, 2; Savage, 14.
along the Missouri River: Branson, 5.

central Missouri: Greger, 1.

Ozark region: Keyes, 87.

Ozark uplift, outlier: Bridge, 1.

General: Dake, 1; Folger, 1.

Geological map: Buehler, 3.

Geology and stratigraphy: Wilson, Malcolm E., 1.

Kimmswick limestone: Bradley, J. H., Jr., 4.

Kimmswick and Plattin limestones: Foerste, 9.

Kinderhook group: Moore, R. C., 1.

Lexington limestone: Keyes, 287.

Little Saline limestone, Ste. Genevieve County: Stewart, G. A., 1.

Louisiana limestone, northeastern Missouri: Williams, J. S., 1.

Mineola dome, northeastern Missouri: Whorton, 1.

Mississippi Valley: Krey, 2.

Mississippian series: Branson, 10; Moore, 41.

Ordovician nomenclature: Keyes, 106.

Ozark region: Dake, 13.

Ozark uplift, age: Keyes, 86.

Paleozoic formation margins: Branson, 6.

Pennsylvanian unconformities: Hinds, H., 2.

Perry and Girardeau counties: Flint, 4.

Plattin formation, Ste. Genevieve County: Fenton, C. L., 8.

St. Louis formation: Grawe, 2.

St. Peter sandstone: Dake, 6; Sardsen, 21.

Section, Meramec Highlands, St. Louis County: Shipton, 1.

Warren County to Jackson County: Branson, 1.

Mollusca—Continued.

Historical geology—Continued.

Silurian, northeastern Missouri: Keyes, 42.

southeastern Missouri: Flint, 2.

Mineralogy.

Einstein silver mine, Madison County: Ross, C. S., 15.

Madison County: Tarr, 8.

Meteorite, Kansas City: Merrill, 3.

Paleontology.

Bailey limestone fauna: Tansey, 1.

Black River Brachiopoda: Fenton, C. L., 5.

Coal floras, Henry County: Round, 5.

Devonian: Branson, 5.

central Missouri: Greger, 1.

Kimmswick and Plattin limestones: Foerste, 9.

Little Saline limestone fauna, Ste. Genevieve County: Stewart, G. A., 1.

Mississippian: Moore, 41.

Pennsylvanian ostracodes, Henrietta formation: Knight, J. B., 1.

Plattin formation, Ste. Genevieve County: Fenton, C. L., 8.

Stropheodonta demissa, evolution in Snyder Creek shales: Branson, 4.

Strophomena, Black River: Fenton, C. L., 9.

Upper Devonian and lower Mississippian faunas, relationship: Branson, 8.

Physical geology.

Aqueous loess: Todd, J. E., 2.

Breccias of St. Louis formation: Grawe, 2.

Concretions, Boone County, origin: Tarr, 5.

Crystalline rocks of the plains: Gould, 3.

Mississippi Valley, structure: Krey, 2.

Septaria, Pennsylvanian shale, St. Louis: Grawe, 2.

Syngenetic origin of pyrite concretions in Pennsylvanian shales: Mathias, 1.

Thrust faults, southeastern Missouri: Flint, 3.

Physiographic geology.

Drainage changes, Missouri Valley: Todd, J. E., 4.

General: Keyes, 183.

Glacial boulders, Columbia, source: Wilkerson, 1.

Glacial deposits: Leverett, 13.

Glaciation, southeastern Missouri: Leverett, 15.

Nebraskan drift, northern Missouri: Shipton, 2.

Ozark Highland: Sauer, 1.

Relief map: Keyes, 181.

Streams on northern slope of Ozark Plateau: Tarr, 13.

Missouri—Continued.

Physiographic geology—Continued.

Subterranean stream piracy in the Ozarks: Dake, 10.

Underground water.

Ebb and flow springs, Ozarks: Bridge, 2.

General: Beckman, 1.

Moab region, Utah: Baker, A. A., 1.

Models for determining structure of bedded rocks: Mehl, 3.

Moffat Tunnel, Colorado: Lovering, 7.

Mogollon mining district, New Mexico: Ferguson, H. G., 3, 8.

Moingona River, preglacial: Keyes, 15.

Molding sand: Hole, 1.

Geology: Trainer, 1.

Illinois: Littlefield, 2, 3.

Iowa, eastern: Smith, J. E., 15.

Kentucky: Richardson, C. H., 12.

Maryland: Trainer, 2.

New York, Hudson Valley: Nevin, 1.

Ohio: Bownocker, 5, 6.

Pennsylvania: Stone, 20.

Wisconsin: Trainer, 3.

Mollusca. See also Cephalopoda; Gastropoda; Invertebrates (general); Pelecypoda.

Alabama, Eocene: Aldrich, T. H., 1.

Alaska, Peard Bay region, Pleistocene: Meek, 1.

Pliocene and Pleistocene: Dall, 2.

Alberta, Coloradoan: McLearn, 10.

Paskapoo formation: Russell, L. S., 1.

Alum Bluff group: Gardner, J. A., 7.

Arctic coast, Pleistocene: Dall, 9.

Atlantic Coastal Plain, Tertiary: Palmer, K. V. W., 1.

Barbados, Scotland beds: Trechmann, 6.

Briones fauna, California: Trask, 2.

British Columbia, Hazleton group: McLearn, 11.

Vancouver Island, Sooke formation: Clark, B. L., 8.

California, Channel Islands: Hertlein, 6.

Coyote Mountain: Hanna, 25.

Martinez Eocene: Nelson, R. N., 2.

Meganos fauna: Clark, B. L., 18.

San Lorenzo group: Wagner, C. M., 1.

Sonoma County, Miocene lacustrine mollusks: Hanna, G. D., 7.

Teton fauna: Anderson, F. M., 1.

Vaqueros and Tumbler formations: Wiedey, 1.

Canada, Brock River, Tertiary: Dall, 9.

Carolinas, Cretaceous: Stephenson, 9.

Chitons, Pleistocene, San Quintin Bay, Lower California: Berry, S. S., 2.

Colorado, Cretaceous: Reeside, 17.

Costa Rica, Miocene: Palmer, K. V. W., 4.

Cretaceous, Santa Ana Mountains: Packard, 4.

Mollusca—Continued.

Cuba, Jurassic: Sánchez Roig, 2.

Dominican Republic, Tertiary: Pillsbury, 1.

Eocene, southwestern Texas: Gardner, J. A., 2.

Virginia: Palmer, K. V. W., 1, 2.

Eocene and Oligocene: Cooke, C. W., 10.

Evolution: Grabau, 11.

Florida, St. Lucie Canal: Johnson, C. W., 1.

Tertiary and Quaternary: Mansfield, W. C., 1.

Gulf States, Pleistocene and Pliocene: Maury, 5.

Haiti, Tertiary: Woodring, 7.

Hawaiian Islands, Oahu: Ostergaard, 1.

Idaho formation, Snake River valley: Dall, 10.

Illinois, Joliet, Pleistocene: Baker, F. C., 9.

loess deposits: Baker, F. C., 13; Alton: Baker, F. C., 4.

Pleistocene: Baker, F. C., 8, 11, 12.

Indiana, Pleistocene Mollusca: Baker, F. C., 3.

Jamaica, Bowden, Miocene: Woodring, 10, 22.

Cretaceous: Trechmann, 5, 8.

Richmond formation, Tertiary: Trechmann, 4.

Yellow limestone: Trechmann, 3.

Kansas, Wallace County, Pleistocene: Hanna, G. D., 5.

Louisiana, Pliocene: Smith, E. R., 3.

Maryland, Wailes Bluff, Pleistocene: Smith, E. R., 1.

Massachusetts, Boston Basin boulder clay: Morse, E. S., 1.

Mexico, Cretaceous: Böse, 6.

Lower California, Cedros Island and Turtle Bay, Pliocene: Jordan, E. K., 4; San Quintin Bay: Jordan, E. K., 3; Dall, 4; Miocene: Hertlein, 4; Quaternary: Jordan, E. K., 1.

Maria Madre Island, Pliocene: Jordan, E. K., 2.

Miocene and Pliocene, Coastal Plain: Gardner, J. A., 4.

Mississippi, Jackson, Eocene: Cooke, C. W., 15.

New York, Utica and Lorraine formations: Ruedemann, 18.

Nomenclature: Dall, 8; rectifications: Hanna, G. D., 13; Henderson, 3.

North Carolina, Castle Hayne and Trent marls: Kellum, 2.

Miocene: Mansfield, W. C., 7.

Ohio, Logan County, Pleistocene: Baker, F. C., 2.

marl deposits: Sterki, 1.

Pleistocene Mollusca: Baker, F. C., 3.

Mollusca—Continued.

- Ontario, Ottawa district, marl deposits: Whittaker, 1.
 Oregon, Coos Bay, Empire formation: Howe, H. V. W., 2.
 fresh-water Mollusca: Hanna, G. D., 6.
 John Day Basin: Hanna, G. D., 2.
 Orygoceras, Tertiary, Idaho: Dall, 7.
 Pacific region, Cretaceous: Reagan, 7.
 Pleistocene: Goldring, 3.
 Porto Rico, Tertiary: Maury, 3.
 San Pedro fauna, Nob Hill cut, California: Oldroyd, T. S., 3.
 South Carolina, Miocene: Gardner, J. A., 1.
 Tennessee, Ripley fauna: Wade, B., 3.
 Tertiary, Porto Rico: Hubbard, B., 1.
 Tertiary and Quaternary, California region: Smith, J. P., 1.
 Texas, Bastrop County, Cook Mountain Eocene: Price, W. A., 12.
 Denton County, Cretaceous: Winton, 3.
 Eocene: Gardner, J., 11.
 San Saba County, Mississippian: Girty, 7.
 Weno and Pawpaw formations: Adkins, 2.
 Trinidad: Palmer, K. V. W., 1.
 Miocene faunas: Maury, 8.
 Northern Range: Trechmann, 7.
 Trinitasia: Maury, 9.
 Utah, Cretaceous: Reeside, 17.
 Vicksburg Mollusca, Vera Cruz, Mexico: Cooke, C. W., 18.
 Virginia, Miocene: Mansfield, W. C., 7.
 Washington, Big Hope Island, Pleistocene: Henderson, J., 9.
 Eocene: Weaver, 3.
 San Juan Islands, Cretaceous: McLellan, 2.
 Western North America: Hertlein, 2.
 West Indies Tertiary: Cooke, C. W., 1.
 West Indian, Central American, and European Miocene and Pliocene: Woodring, 9.
- Molluscoidea. See Brachiopoda; Bryozoa.
- Molybdenum.
- Alaska, Healy River: Chapin, 5.
 British Columbia, Clinton district: Reinecke, 2.
 Lillooet-Prince George region: Reinecke, 3.
 Canada: Eardley-Wilmot, 1, 2, 4.
 Colorado, Climax: Haley, D. F., 1.
 Twin Lakes district: Howell, J. V., 1.
 General: Eardley-Wilmot, 1; Hess, 2, 7, 8, 12, 13, 16, 18, 19, 21; Shannon, 17.
 Idaho: Livingston, 2.
 Rocky Bar district: Schrader, 7.
 New Mexico, Questa: Sundberg, 1.
 Taos County: Larsen, 5.
 Nova Scotia, New Ross: Cook, C. W., 5.

Molybdenum—Continued.

- Ontario, Ottawa Valley: Wilson, M. E., 3, 4.
 Renfrew-Calabogie district: Wilson, M. E., 3.
 Quebec, Abitibi: Mailhiot, 6.
 Annaprior-Quyon area: Wilson, M. E., 11.
 Lacorne and Malartic townships: Gerrie, 1.
 Utah, Ouray: Hess, 17.
- Moncton area, New Brunswick: Wright, W. J., 2.
- Montana.
- Areas described.*
- Beartooth Mountains: Bevan, 1, 2.
 Butte district, Silver Bow County: Daly, W. B., 1.
 Ekalaka lignite field: Bauer, 4.
 Fergus County: DeKalb, 1; Freeman, O. W., 1.
 Ingomar anticline, Treasure and Rosebud counties: Heald, 18.
 Jefferson River basin: Deeds, 2.
 McCarthy Mountain area: Richards, R. W., 2.
 Madison River basin: Deeds, 1.
 Melrose phosphate field: Richards, R. W., 2.
 Musselshell and Golden Valley counties: Ellis, A. J., 5.
 Scobey lignite field, Valley, Daniels, and Sheridan counties: Collier, 9.
 Sweet Grass Hills: Kemp, 8.
 Townsend Valley: Pardee, 10.
- Economic geology.*
- Baker gas field: Moulton, 24.
 Butte district, Silver Bow County: Daly, W. B., 1; Harter, 1.
 Butte veins, minerals: Agar, 3.
 Butte mines: Rickard, 5.
 Cat Creek oil field, Fergus and Garfield counties: Lupton, 1.
 Cat Creek and Devils Basin oil fields: Reeves, F., 10.
 Central Montana, examination for oil: Reeves, F., 4.
 Chromite deposits: Diller, 1.
 Stillwater and Sweet Grass counties: Westgate, 4.
 Coal: Rowe, J. P., 3.
 Cone domes of oil fields: Sardeson, 4.
 Copper near Cooke: Lovering, 5.
 Crow Indian Reservation: Thom, 4.
 Gold, Bannack: Shenon, 1.
 Helena district: Anon, 72.
 Gold, silver, copper, lead, and zinc: Gerry, 2, 4, 7, 12, 15.
 Gypsum: Stone, 11.
 Kevin-Sunburst oil field: Clark, F. R., 3; Heald, 16; Hendrickson, 1; U. S. G. S., 11.
 Lake Basin oil field: Bauer, 5.
 Magmatic chalcopryrite, Park County: Lovering, 2.

Montana—Continued.

Economic geology—Continued.

- Manganese: Pardee, 8.
- Butte and Phillipsburg: Pardee, 3.
- Oil and gas, central and eastern Montana: Clapp, C. H., 2.
- Oil and gas possibilities: Rowe, J. P., 1, 2.
- faulted area south of Bearpaw Mountains: Reeves, F., 8.
- Crow Indian Reservation: Thom, 4.
- Garfield County: Thom, 3.
- Oil developments: Clarke, F. B., 1.
- Oil fields, Sweet Grass arch: Perry, 2.
- Oil possibilities: Ropes, 1.
- laccolithic domes south of Little Rocky Mountains: Collier, 8.
- Oil shale: Condit, 2.
- Paragenesis of minerals in Butte veins: Lindgren, 22.
- Petroleum, central Montana: Reeves, F., 3, 5.
- Quadrant formation: Freeman, O. W., 2.
- Sweet Grass arch: Clapp, C. H., 2.
- Petroleum and natural gas: Rowe, J. P., 3.
- Phosphate, Maxville, Granite County: Pardee, 6.
- Three Forks-Yellowstone Park region: Condit, 5.
- Secondary enrichment in genesis of Butte chalcocite: Locke, 4.
- Soap Creek oil field, Crow Indian Reservation: Thom, 1.
- Sunburst oil and gas field: Hager, D., 5; Sardeson, 4.
- Supergene processes at Neihart: Bastin, 7; Hurst, 1.
- Stanford hematite deposits: Westgate, 1.
- Tullock Creek coal field, Rosebud and Big Horn counties: Rogers, G. S., 8.

Historical geology.

- Area south of Bearpaw Mountains: Reeves, F., 8.
- Bearpaw Mountains: Reeves, F., 7, 9.
- Belt formation, Helena: Rothpletz, 1.
- Belt series: Sampson, 15; Wilson, R. A., 5.
- Belt terrane, Big Snowy Mountains: Freeman, O. W., 3.
- Belton district, northwestern Montana: Seashore, 1.
- Cat Creek oil field, Fergus and Garfield counties: Lupton, 1.
- Central Montana: Bowen, C. F., 2; Reeves, F., 10.
- and eastern Montana: Clapp, C. H., 2.
- Cat Creek anticline: Reeves, F., 3.
- Devils Basin anticline: Reeves, F., 5.
- examination for oil: Reeves, F., 4.
- Cherry Creek section Madison Valley: Runner, 9.
- Colorado group, southern Montana: Reeside, 6.

Montana—Continued.

Historical geology—Continued.

- Cretaceous-Eocene transition beds: Thom, 8.
- Cretaceous sedimentation and diastrophism: Hammer, 1.
- Ellis formation: Howe, M. A., 4.
- Fergus County: Reeves, F., 6.
- Crow Indian Reservation: Thom, 4.
- Front ranges, Cenozoic history: Bevan, 9.
- Garfield County: Thom, 3.
- General: Keyes, 234.
- Geologic formations, correlation: Lee, W. T., 19.
- Glacier National Park: Fuller, M. B., 9.
- Helena region: Rothpletz, 1.
- Huntley field: Hancock, 2.
- Jordan, Garfield County, section: Bauer, 6.
- Kevin-Sunburst oil field: Clark, F. R., 3; Heald, 16; U. S. G. S., 11.
- Lance-Fox Hills contact, eastern Montana: Dobbin, 2.
- Little Rocky Mountain region: Collier, 8.
- Pre-Cambrian: Keyes, 209.
- Quadrant formation: Freeman, D. W., 2; Hammer, 2.
- Quartzite pebbles at base of Lance formation: Bauer, 6.
- Rosebud County: Renick, 3, 5.
- Soap Creek oil field, Crow Indian Reservation: Thom, 1.
- Stanford district: Westgate, 1.
- Stratigraphy, comparative: Bauer, C. M., 3.
- Sweet Grass arch: Perry, 2.
- Tullock Creek coal field, Rosebud and Big Horn counties: Rogers, G. S., 8.
- Upper Cretaceous paleogeography: Robinson, E. G., 1.
- Western Montana: Condit, 2.

Mineralogy.

- Aegirite, Libby: Goranson, 4.
- Bismutoplagonite, Wickes, Jefferson County: Shannon, 10, 19.
- Boulangerite, Superior: Shannon, 19.
- Butte, intermediate zone: Agar, 3.
- Laumontite: Shannon, 26.
- Leuchtenbergite, Phillipsburg: Shannon, 42.
- Leverrierite: Ross, C. S., 5.
- Sapphires: Harstad, 1.
- Witherite, Altyn limestone, Many Glacier: Fuller, M. B., 3.

Palaeontology.

- Belt formation, Helena: Rothpletz, 1.
- Brachyceratops: Gilmore, 14.
- Clanodonts, Eocene: Gidley, 2.
- Colorado group, southern Montana: Reeside, 6.
- Cretaceous Mollusca: Reagan, 7.
- Edentate, Oligocene: Simpson, G. G., 15.
- Epoecodonts, White River beds: Thorpe, 23.

Montana—Continued.

Paleontology—Continued.

- Footprints, Fort Union: Gilmore, 41.
- Lithothamnium, Ellis formation: Howe, M. A., 4.
- Mammalla, Fort Union formation, southern Montana: Simpson, G. G., 21.
- Hell Creek formation: Simpson, G. G., 13.
- Oreodonts, Oligocene, Three Forks: Loomis, 10.
- Plants, Missoula: Jennings, 1.
- Primates, Sweet Grass County: Gidley, 6.
- Tempskya knowltoni: Seward, 2.

Petrology.

- Nephelite-haunite alnoite: Ross, C. S., 9.
- Sweet Grass Hills: Kemp, 8.

Physical geology.

- Bearpaw Mountains, structure: Reeves, F., 7.
- Belt of oblique faulting: Chamberlin, R. T., 2.
- Central Montana: Reeves, F., 10.
- Earthquake, June 27, 1925: Byerly, 9; Pardee, 14; Willson, 1.
- Ellis-Madison unconformity: Collier, 10.
- Faulting south of Bearpaw Mountains: Reeves, F., 8.
- south of Billings: Moulton, 2.
- Folding and faulting, Bearpaw Mountains: Reeves, F., 9.
- Glacier National Park, movement of glaciers: Alden, 1.
- Landslide origin of thrust faults around Bearpaw Mountains: Reeves, F., 11.
- Red bed bleaching: Moulton, 7.
- Rocky Mountains, structure: Maasfield, 15.
- South Mountain laccolith, Fergus County: Palmer, H. S., 6.
- Structural features, central Montana: Thom, 6.
- eastern Montana: Thom, 16.
- Thrust faulting adjacent to Highwood Mountains: Reeves, F., 12.

Physiographic geology.

- Bitterroot Mountains, glaciation: Russell, J., 1.
- Features of glacial origin: Davis, W. M., 3.
- Glaciation, Beartooth Mountains: Bevan, 7.
- Glacier National Park, scenic features, origin: Campbell, M. R., 2.
- Multiple level cirques: Fuller, M. B., 10.
- Penplains, Beartooth Mountains, southern Montana: Bevan, 5.
- Swimming Woman Canyon, Big Snowy Mountains, origin: Freeman, O. W., 4.

Montana—Continued.

Underground water.

- Base exchange by silicates in ground water: Renick, 3.
- Ground water and natural gas, relations: Renick, 5.
- Musselshell and Golden Valley counties: Ellis, A. J., 5.
- Townsend Valley: Pardee, 10.
- Monroe gas field, Louisiana: Stroud, 1.
- Moon: Millis, 2.
- craters, formation: Wright, F. E., 11
- impact origin: Beard, 1.
- formation: Emmet, 2.
- surface: Barrell, 11; Barringer, 2.
- Terrestrial and lunar faults compared: Schwarz, 1.
- Moose River basin, Ontario: Kindle, 26.
- Moraines.
 - Colorado, Estes Park region: Wooster, 1.
 - Illinois, Morris quadrangle: Culver, 2, 7.
 - Michigan, Roscommon County: Ver Wiebe, 8.
 - Minnesota: Leverett, 4.
 - New York, Finger Lakes region: Taylor, 6.
 - New York moraine, age: De Geer, 5.
 - Rochester, Pinnacle Hills: Fairchild, 13.
 - St. Lawrence Valley: Taylor, 4.
 - western: Chadwick, 11.
 - Ohio, Wayne County: Conrey, 1.
 - Recessional moraines: Keyes, 232.
 - between Indiana and New England: Taylor, 7.
- Morrison formation, age: Simpson, G. G., 7; type section: Lee, W. T., 1.
- Morrison oil field, Pawnee County, Oklahoma: Carpenter, E., 1.
- Mosses as rock builders: Emig, 1.
- Mounds.
 - Illinois, Cahokia mounds, origin: Crook, 3.
 - St. Clair County, Monk's Mound: Crook, 1.
 - Scabland mounds, eastern Washington: Freeman, O. W., 5.
- Mount Albert area, Quebec: Alcock, 20.
- Mount Multnomah, Oregon: Hodge, E. T., 5.
- Mount St. Helens, Washington: Jillson, 33.
- Mountain pediments, Arizona, Papago country: Bryan, 15.
- Mountains. See Orogeny.
- Mud cracks: Kindle, 20, 37; Ward, 11;
 - forming over water: Willard, B., 1.
 - desert: Longwell, 14.
 - on steeply inclined surfaces: MacCarthy, 1.
- Mud Lake basin, Idaho: Stearns, 6.
- Muddy Mountains, Nevada: Longwell, 15.
- Mud flow in semiarid mountains: Blackwelder, 18.

- Mule Creek oil field, Wyoming: Hancock, 4.
- Museums.
- New geological groups, Milwaukee, Public Museum: Edwards, I., 3.
 - New York State Museum, paleontological work: Ruedemann, 21.
 - U. S. National museum, reports: Merrill, 7, 14.
- Myriapod, Parajulus, Florissant, Colorado: Minor, R. W., 2.
- National Research Council, functions: Fenneman, 1.
- Natural bridges.
- Indiana, Shades: Barrett, E., 3.
 - Owen County: Addington, 4.
 - Kentucky, Creelsboro: Scott, I. D., 4.
 - Missouri, Ozarks: Dake, 10.
 - Utah: Pack, 4.
 - Rainbow Natural Bridge: Edwards, I., 5; Miser, 13.
- Natural gas.
- Alberta: Allan, 21; Dowling, 4; Elworthy, 1; Hume, 28; Ross, C. C., 1.
 - northern: Elworthy, 4; McLearn, 2.
 - Sheep River area: Slipper, 2.
 - Wainwright area: Emmens, 1; Hume, 10.
 - Wainwright-Irma area: Hume, 13, 16.
 - Alberta and British Columbia, foothills belt: Hopkins, O. B., 4.
 - Anticlinal theory: White, I. C., 10.
 - Appalachian oil and gas fields, geology: Mills, R. V. A., 2.
 - Arkansas, El Dorado: Pratt, W. E., 3.
 - Smackover oil and gas field: Bell, H. W., 2.
 - Beds of continental accumulation: Binney, 2.
 - Canada: Elworthy, 5, 8; Hume, 29; McLennan, 1.
 - Great Plains: Hume, 25.
 - Colorado, Fort Collins: Ball, M. W., 2, 3.
 - northeastern: Mather, 12.
 - Decreasing supply: Bownocker, 4.
 - Depletion, Appalachian field: Bownocker, 2.
 - Eastern United States: Moyer, 1.
 - Estimation of gas reserves: Versluys, 1.
 - Gasoline content: Dowling, 4.
 - General: Johnson, R. H., 7; Lilley, 4; McBride, R. S., 1; Moore, R. C., 3; Panyity, 1; Redwood, 1; Richardson, G. E., 6, 8; Westcott, 1.
 - Helium content: Rogers, G. S., 7.
 - History, epochs in: White, I. C., 4.
 - Hydrocarbons, inorganic origin: Young, J. W., 6.
 - Illinois, Ava-Campbell Hill area: Root, 1.
 - east central: Mylius, 7.
 - eastern: Mylius, 6.
 - oil and gas fields, map: Richardson, G. B., 1.
- Natural gas—Continued.
- Illinois—Continued.
- Pike and Adams counties: Coryell, 1.
 - Staunton gas pool: Mylius, 2.
 - Indiana: Barrett, E., 5; Logan, 5, 10; Wright, Floyd E., 1, 2.
 - Iowa: Howell, J. V., 4.
 - Kansas: Kesler, 1; Snider, 1.
 - Allen and Neosho counties: Moore, R. C., 5.
 - Anderson County: Charles, 1.
 - chemical survey: Allen, H. C., 1.
 - Eldorado field: Fath, 2.
 - Elk City field: Boughton, 1.
 - map of oil and gas fields: U. S. G. S., 2.
 - Russell County: Rubey, 3.
 - Wilson and Montgomery counties: Moore, R. C., 6.
 - Kentucky: Jillson, 2, 4, 21, 23, 25, 38, 73.
 - Allen County: Jillson, 12.
 - Barren County: Butts, 2.
 - Boyd County: Jillson, 81, 91, 94.
 - Breathitt and Knox counties: Jillson, 13.
 - eastern: Fiske, 1; Jillson, 5.
 - Island Creek oil pool, Owsley County: Jillson, 84.
 - isocarbs and oil and gas production: Russell, W. L., 5.
 - Warren County: Jillson, 18.
 - Louisiana: Snider, 1.
 - Carroll Parish: Spooner, 5.
 - Cotton Valley field: McDonald, W. W., 1; Powers, 14.
 - Map of oil and gas fields: U. S. G. S., 5.
 - Monroe field: Bell, H. W., 1; Spooner, 1; Stroud, 1.
 - northern: Hull, 5.
 - Pine Island field: Crider, 4.
 - Spring Hill-Sarepta field: Ponton, 1.
 - Webster Parish: Hull, 7.
 - Louisiana-Texas, Wascom field: Grimm, 1.
 - Michigan: Newcombé, 1.
 - Mid-Continent fields: Snider, 1.
 - Migration and accumulation by moving underground water: Rich, 3.
 - Migration of oil and gas: Mather, 5.
 - Mississippi, Amory field: Jillson, 99.
 - Missouri: Wilson, Malcolm E., 1.
 - Montana: Rowe, J. P., 1-3.
 - Baker field: Moulton, 24.
 - central and eastern: Clapp, C. H., 2.
 - Kevin-Sunburst field: Hager, D., 5; Perry, 2.
 - New Brunswick: Elworthy, 7.
 - New Mexico: Ellis, R. W., 3.
 - New York: Newland, 2.
 - North Dakota: Leonard, A. G., 3.
 - Ohio, Clinton sand: Russell, W. L., 9.
 - Columbiana County: Stout, 5.
 - Vinton County: Stout, 6.
 - Wayne County: Conrey, 1.

Natural gas—Continued.

- Oklahoma: Powers, 20; Shannon, C. W., 1; Shaw, 6; Snider, 1.
 Bristow quadrangle: Fath, 6.
 Caddo and Grady counties: Becker, 1.
 Carter County, Fox and Graham fields: George, H. C., 2.
 chemical survey: Allen, H. C., 1.
 Coal and Pittsburg counties: Clawson, 1.
 Crinerville oil field, Carter County: Powers, 22.
 digest of oil and gas fields: Mills-Bullard, 2.
 Fox field, Carter County, Storm, 3.
 Kay, Grant, Garfield, and Noble counties: Clark, G. C., 3.
 map of oil and gas fields: U. S. G. S., 6.
 Marshall County: Bullard, 3.
 Okmulgee County: Clark, R. W., 2.
 Osage County: Beckwith, H. T., 1.
 Osage Reservation: Goldman, 2, 3;
 Heald, 1, 3; Hopkins, O. B., 1;
 Robinson, H. M., 1; Roundy, 1.
 Pershing oil and gas field: Rubey, 2.
 Pontotoc County: Conkling, 1.
 Robberson field: Roth, 1.
 Sayre field, Beckham County: Birk, 1.
 southern (part): Hopkins, O. B., 2.
 Tonkawa field: Hosterman, 1.
 Wagoner County: Boyle, 1.
 Ontario: Estlin, 1; Harkness, 1-7.
 future prospects: Williams, M. Y., 9.
 southwestern: Williams, M. Y., 3, 4.
 Oregon, eastern: Buwalda, 4.
 Origin: Lewis, 9; Moore, R. C., 3;
 Wegemann, 1.
 Pennsylvania: Ashley, 11, 16; Pennsylvania G. S., 1.
 Greensburg quadrangle: Johnson, M. E., 1.
 oil and gas fields, map: Richardson, G. B., 3.
 Pore space of oil and gas sands: Melcher, 1.
 Prospecting: Panylty, 1.
 Production, reserves, etc.: Arnold, 5.
 Reserves, estimation: Ruedemann, P., 1.
 Structure favorable for gas accumulation: Dyer, 6.
 Symbols for drilling operations: Mehl, 4.
 Tennessee: Nelson, 8.
 Texas: Snider, 1.
 Amarillo district: Harrison, T. S., 1.
 Currie field, Navarro County: Lahee, 9.
 eastern: Dumble, 1.
 Petrolia field: Shaw, 6.
 Edna, Jackson County: Price, 11.
 Jim Hogg County: Jones, R. A., 2.
 Panhandle: Bauer, C. M., 8; Pratt, W. E., 8.
 Potter County: Patton, L. T., 2.

Natural gas—Continued.

- Texas—Continued.
 San Patricio County, White Point field: Wolf, 3.
 Washington County, Clay Creek dome: Lahee, 20.
 Webb and Zapata counties: Sellards, 13.
 Underground water in migration and accumulation of oil and gas: Bonine, 1.
 Unusual natural gases: Lang, W. B., 3.
 Utah, Farnham: Calvert, 1.
 Waters associated with petroleum and natural gas: Mills, R. V. A., 2.
 West Virginia: Reger, 2, 4.
 Fayette County: Hennen, 1.
 Mercer, Monroe, and Summers counties: Reger, 9.
 Nicholas County: Reger, 3.
 Webster County: Reger, 1.
 Wyoming: Estabrook, 2.
 Baxter Basin field: Sears, 7.
 Bell Springs district, Carbon County: Dobbins, 5.
 Fremont County, Big Sand Draw: Collier, 5; Rae, 3.
 Golden Eagle field: Binney, 2.
 Lance Creek field: Hancock, 5.
 Laramie and Medicine Bow districts: Bartlett, A. B., 2.
 Lost Soldier-Ferris district: Fath, 5.
 Oregon Basin, Meeteetse, and Grass Creek Basin quadrangles: Hewett, 16.
 oil and gas fields, map: Richardson, G. B., 4.
 Natural gas in oil migration: Mills, R. V. A., 5.
 Nebraska.
Economic geology.
 Alkali deposits: Barbour, 1.
 Potash: Hicks, 3.
 Sand: Condra, 1.
Historical geology.
 Conglomerate of Black Hills: Cook, H. J., 4.
 Geological section: Keyes, 118.
 Granite ridge: Ruby, 1.
 Pennsylvanian system: Condra, 2.
 Plattsmouth limestones: Keyes, 287.
 Sioux County, Agate anticline: Schramm, 2.
Paleontology.
 Agate fossil quarry, Sioux County: Matthew, 25; Peterson, 3.
 Agriochœrus: Thorpe, 7.
 Alligator, Snake Creek beds, Agate: Mook, 5.
 Amebelodon fricki, Frontier County: Barbour, 9.
 Archidiskodon maibeni, Lincoln County: Barbour, 7, 8.
 Avian fossils, Miocene and Pliocene: Wetmore, 4.
 Birds, Sioux County: Wetmore, 13.

Nebraska—Continued.

Paleontology—Continued.

- Blastomeryx marshi: Lull, 10.
 Caenopus: Troxell, 9.
 Diatoms: Elmore, 1.
 Diceratheres: Peterson, 2.
 Diplolophus, Oreadon beds: Troxell, 19.
 Elephas scotti, Seward County: Barbour, 2.
 Entelodonts: Troxell, 3.
 Eporeodon, Scott's Bluff: Thorpe, 8.
 White River beds: Thorpe, 23.
 Felidae, White River beds: Thorpe, 2.
 Fossil implements in Pliocene deposits: Sci. Serv., 4.
 Fusulinidae, Pennsylvanian: Dunbar, 11.
 Giraffa nebrascensis, York County: Matthew, 33.
 Hawk, Miocene, Agate Springs: Wetmore, 9, 11.
 Hesperopithecus, Snake Creek beds: Gregory, W. K., 7; Osborn, 18, 21, 22; Pyecraft, 1; Woodward, A. S., 1; Anon., 19.
 Hickory logs and nuts, Harrison: Troxell, 29.
 Hyracodon, Oligocene, Sioux County: Wood, H. E., 4.
 Juglans seeds, Titanotherium beds: Berry, 80.
 Longirostrine elephant, Trilophodon, Brown County: Cook, H. J., 16.
 Merycoidodon, hyoid apparatus: Thorpe, 19.
 Sioux County: Thorpe, 20.
 Oligobunis, Sioux County: Thorpe, 5.
 Oreadontidae: Thorpe, 4.
 Miocene birds: Wetmore, 7.
 Miocene mammals: Matthew, 35.
 Miocene oreodonts: Loomis, 11.
 Peccary, Crawford: Cook, H. J., 3.
 Peltosaurus, Oligocene: Gilmore, 29.
 Pleistocene, western Nebraska: Matthew, W. D., 2.
 Prosthennops xiphodonticus, peccary, Cherry County: Barbour, 3.
 Pseudo-artifacts, Pliocene: Nelson, N. C., 1.
 Radial exostosis in Daphoenus: Romer, 3.
 Rhinoceros bone bed, Agate: Cook, L. M., 1.
 Snake Creek fauna: Matthew, W. D., 2.
 Stegomastodon: Osborn, 33.
 Stenonyx, hyoid arch, Sioux County: Peterson, 4.
 Tertiary artiodactyls: Lull, 4.
 Tetrabelodon abeli, Brown County: Barbour, 6.

Petrology.

Hackberry conglomerate: Barbour, 5.

Physical geology.

- Fulgurites: Anderson, A. E., 1; Barbour, 4.
 manganese: Cook, H. J., 5.
 Granite in wells: Gould, 3.

Nebraska—Continued.

Physiographic geology.

Badlands: Darton, 9.

Nenana coal field, Alaska: Martin, G. C., 1.
 Nevada.

Areas described.

- Candelaria silver district: Knopf, A., 5.
 Charleston district: Schrader, 5.
 Gilbert district: Ferguson, H. G., 10.
 Ivanpah quadrangle: Hewett, 17.
 Jarbidge district: Schrader, 5.
 Manhattan district: Ferguson, H. G., 5.
 Muddy Mountains: Longwell, 15.
 Pioche district: Westgate, 6.
 Santa Fe district, Mineral County: Clark, C. W., 2.

Economic geology.

- Borax: Foshag, 20; Keyes, 61.
 Carnotite, southern Nevada: Hewett, 9.
 Cedar Mountain, Mineral County: Knopf, A., 4.
 Colemanite, Clark County: Gale, 3; Noble, 2.
 Comstock lode, bonanza ores, Virginia City: Bastin, 4.
 Divide silver district: Carpenter, J. A., 1; Knopf, A., 3; Sizer, 1; Young, G. J., 1.
 Dumortierite deposit: Jones, J. C., 3.
 Gilbert district: Ferguson, H. G., 10.
 Gold placers, Johnnie district: Labbe, 1.
 Gypsum: Stone, 11.
 Halogen salts of silver, Wonder: Young, J. W., 1.
 Jarbidge district: Park, J. F., 1.
 Limestone ores, Manhattan district: Ferguson, H. G., 2.
 Magnesia alum near Fallon: Hewett, 13.
 Magnesite, southern Nevada: Anon., 20.
 Manganese: Pardee, 4.
 Colorado River desert region: Jones, Edw. L., 9.
 Mineral resources: Lincoln, 1.
 Nickel ores, Key West mine: Lindgren, 11.
 Oil shale: Winchester, 5.
 Oil seep, north central Nevada: Livingston, 1.
 Pioche district: Anderson, J. C., 1; Westgate, 6.
 Quicksilver deposits, Pilot Mountains, Mineral County: Foshag, 32.
 Red Bed ores: Bains, 1.
 Regional relations of ore deposits: Ferguson, H. G., 9.
 Rochester district: Knopf, A., 7.
 Round Mountain district: Ferguson, H. G., 4.
 Salt deposits: Phalen, 1.
 Silver, Candelaria district: Knopf, A., 5.
 Silver Horn district, near Pioche: Crampton, 2.
 Tonopah district: Budelman, 1.
 Tungsten ores: Hess, 11.

Nevada—Continued.

Economic geology—Continued.

Virgin Valley opal deposits: Gordon, C. C., 1.

Washoe district, Storey County: Grant, W. H., 1.

Yerington district: Gaby, 1.

Historical geology.

Candelaria silver district: Knopf, A., 5.

Cedar Mountain, Mineral County: Knopf, A., 4.

Davis Creek beds: Chaney, 10.

Divide silver district: Knopf, A., 3.

Formation names: Keyes, 153.

General: Keyes, 128.

Geological traverse, Mohave to San

Juan River: Gregory, H. E., 9.

Humboldt Range: Jones, J. C., 3.

Late Paleozoic positive area: Nolan, 4.

Manhattan district: Ferguson, H. G., 2.

Muddy Mountains region: Longwell, 1, 3; Noble, 2.

Pre-Triassic unconformity, southern Nevada: Longwell, 11.

Rochester district: Knopf, A., 7.

Round Mountain district: Ferguson, H. G., 4.

Spring Mountain Range, southern Nevada: Hewett, 10.

Southern Nevada: Longwell, 11, 12.

Tertiary, southeastern Nevada: Stock, 7.

Type localities of formations: Keyes, 130.

Mineralogy.

Andorite in silver ore: Shannon, 32.

Barrandite, Manhattan: Shannon, 44.

Benjaminite, Round Mountain, Nye County: Shannon, 45.

Conichalcite, Lincoln County: Gillson, 37.

Delafossite, Kimberly: Rogers, A. F., 11.

Dumortierite, Limerick Canyon, Rochester district: Peck, A. B., 4.

Lincoln Hill, Rochester district: Fairbanks, 7.

Rochester mining district: Bowen, 21.

Identification of minerals: Grawe, 4.

Pitticite, Manhattan: Foshag, 30.

Quartz, Iowa Canyon: Fisher, L. W., 3.

Rare minerals: Clinton, I.

Szaibelyite, Lincoln County: Gillson, 35.

Wood tin in Tertiary rhyolites: Boydell, 6.

Paleontology.

Carson footprints, origin: Stock, 4.

Ceratopyge fauna: Raymond, 16.

Cestracront spine, Triassic: Davidson, P., 1.

Davis Creek beds flora: Chaney, 10.

Hypohippus, Fish Lake valley: Stock, 17.

Flora, Esmeralda formation: Berry, 92.

Nevada—Continued.

Paleontology—Continued.

Lehman Cave, White Pine County: Hastings, 1.

Mammalla, southeastern Nevada: Stock, 7.

Thousand Creek Pliocene: Merriam, 28.

Ordovician sponge fauna, McMonnigal Canyon: Bassler, 22.

Sculpin, Lake Lahontan: Jordan, 13.

Triassic faunas: Stanton, 12.

Trilobites, Cambrian, Silver Peak district: Walcott, 5.

Upper Triassic: Smith, J. P., 3.

Walnut, Miocene: Berry, 98.

Petrology.

Rochester district: Hirschi, 3.

Physical geology.

Basin Range structure in the Great Basin: Louderback, 5.

Dolomitization in southern Nevada: Hewett, 11, 12.

Faulting, southern Nevada, Keyes: 148; Longwell, 8.

western Nevada: Ferguson, H. G. 7.

Lake Lahontan sediments: Jones, J. C., 1.

Muddy Mountain overthrust: Longwell, 3.

Pedestal rock, Pershing County: Reid, J. T., 1.

Southern Nevada, structure: Longwell, 12.

Spring Mountains, structure: Longwell, 10.

Western ranges, structural features: Ferguson, H. G., 6.

Physiographic geology.

Great Basin, morphologic features of Basin Range displacements: Louderback, 8.

Lake Lahontan: Antevs, 12; Jones, J. C., 2.

Northwestern Nevada: Reeds, 14.

Scarp production in Great Basin: Louderback, 7.

Steptoe Valley: Clark, W. O., 1.

Underground water.

Comstock lode, Virginia City: Bastin, 4.

Pahrump, Mesquite, and Ivanpah valleys: Waring, 3.

Steptoe Valley: Clark, W. O., 1.

Thermal springs: Meinzer, 10.

Nevis, geology: Earle, 6.

Newark group: Raymond, 34.

New Brunswick.

Areas described.

Burnthill Brook area: Young, G. A., 1.

Minto coal basin: Dyer, 8.

Moncton area: Wright, W. J., 2.

Sussex area: Hayes, A. O., 7.

Economic geology.

Bathurst iron district: Parsons, C. S., 1.

New Brunswick—Continued.

Economic geology—Continued.

Coal seams, Gloucester County: Young, G. A., 2.

General: Hayes, A. O., 1; Wright, W. J., 1.

L'Etang limestone deposit, Charlotte County: Uglow, 17.

Mineral deposits: Wilson, M. E., 17.

Minto coal basin: Dyer, 2, 8.

Natural gas: Elsworth, 7.

Oil and gas possibilities, Edmunston: McCann, 2.

Oil shales: Simpson, L., 1.

Albert Mines: Wright, W. J., 2.

Peat: Anrep, 1, 7, 9.

Road materials: Picher, 3.

Tungsten, Burnthill Brook area: Young, G. A., 1.

Historical geology.

Carboniferous: Bell, W. A., 13.

subdivision: Bell, W. A., 8.

Delta of Little River group: Matthew, G. F., 1.

Devonian glacial deposits, St. John: Matthew, 9.

volcanic rocks, Dalhousie area: Howard, W. V., 2.

General: Bailey, L. W., 1; Wright, W. J., 1.

Minto coal basin: Bell, W. H., 11; Dyer, 2, 8.

Mispec group: Matthew, G. F., 3.

Paleogeography of Acadia: Bailey, L. W., 3.

Mineralogy.

Albertite in gypsum, Hillsboro: Parsons, 11.

Inyoite, Hillsborough, Albert County: Poitevin, 5.

Ulexite: Walker, 10.

Wolframite deposits, Burnthill Brook, York County: Swanson, W. L., 2.

Paleontology.

Cambrian faunas: Howell, B. F., 8.

Flora, Carboniferous: Round, 4; Wilson, W. J., 1.

Minto coal basin: Bell, W. H., 11.

Thelodus: Stetson, 4.

Petrology.

Devonian volcanic rocks, Dalhousie area: Howard, W. V., 2.

Physical geology.

Tidal phenomena of Bay of Fundy rivers: Kindle, 42.

Newburgh quadrangle, New York: Holz-wasser, 1.

Newell folio, South Dakota (no. 209): Darton, 1.

New England, monadnock divide: Brown, R. H., 1.

Newfoundland.

Geologist's report, 1926-27: Baker, H. A., 1.

Areas described.

Avalon Peninsula: Baker, H. A., 1.

Newfoundland—Continued.

Areas described—Continued.

Central mineral belt: Snelgrove, 2.

West coast: Brunton, 3.

Economic geology.

Central mineral belt: Snelgrove, 2.

Coal: Haliburton, 1.

General: Baker, H. A., 1; Davies, D. J., 1.

Iron, Wabana: Hasebrink, 1; Hayes, A. O., 9.

Mineral resources: Snelgrove, 1.

St. George's coal field: Baker, H. A., 2.

Historical geology.

Cambrian: Howell, B. F., 1.

Cambrian-Ordovician, southeastern Newfoundland: Howell, B. F., 5.

Carboniferous, Deer Lake district: Landell-Mills, 1.

Fortune Bay: Dale, N. C., 5.

Geological map: Howley, 1.

Manuels Brook section: Howell, B. F., 4.

Pre-Cambrian, southeastern Newfoundland: Buddington, 3.

Western Newfoundland: Schuchert, 16.

Paleontology.

Paradoxides faunas, Manuels Brook: Howell, B. F., 4.

Stromatocystites: Schuchert, 3.

Trilobites, Ordovician: Raymond, 28.

Petrology.

Chert formations, Notre Dame Bay: Sampson, 8.

Pre-Cambrian, southeastern Newfoundland: Buddington, 3.

Physical geology.

Changes of level, postglacial: Daly, 10.

Thrust faulting, western Newfoundland: Mook, 9.

Wabana ore deposits, folding and faulting: Gilliat, 1.

Physiographic geology.

Pleistocene: Coleman, 28.

terraces: Kindle, 17; Lake Melville district, Labrador: Kindle, 31.

Warping, postglacial: Daly, 11.

New Hampshire.

Soils, Coos County: Crosby, W. O., 3.

Areas described.

Hanover district: Merritt, J. W., 3.

Portsmouth Basin: Wandke, 2.

Economic geology.

Ammonoosuc mining district: Ross, C. P., 2.

Granite: Dale, T. N., 4.

Road materials: Goldthwait, 3.

Historical geology.

Ammonoosuc mining district: Ross, C. P., 2.

Glacial geology: Goldthwait, 6.

North Conway quadrangle, White Mountains: Billings, 5.

Portsmouth basin: Wandke, 1.

Stones, dispersion in the drift: Goldthwait, 2.

New Hampshire—Continued.

Mineralogy.

- Beryl Hill, Grafton: Flint, G. M., 1.
Sarcopside, Deering: Holden, E. F., 2.
Druse minerals in granite, Conway: Gillson, 8.
Sarcopside, Deering: Holden, 10.
Spodumene and autunite, Alstead: Megathlin, 1.
Topaz and phenacite, Baldface Mountain, Chatham: Billings, 2.

Petrology.

- Granite, Conway: Gillson, 8.
Hanover district: Merritt, J. W., 3.
Pawtuckaway Mountains, Rockingham County: Smith, E. S. C., 1.
Portsmouth Basin, intrusive rocks: Wandke, 2.
North Conway quadrangle, White Mountains: Billings, 5.

Physical geology.

- Glacial varves, Connecticut Valley, summer deposition: Sayles, 11.
Submergence and postglacial uplift: Goldthwait, 1.

Physiographic geology.

- Eastern New Hampshire: Crosby, I. B., 1.
Glaciation: Goldthwait, 2, 6.
Pinkham Notch, physiographic history: Crosby, I. B., 3.
Potholes, Mount Jefferson: Crosby, I. B., 6.
White Mountains: Lage, 6, 7.

New Holland quadrangle, Pennsylvania: Jonas, 4.

New Jersey.

State geologist's report: Kimmel, 1-5.

Economic geology.

- Belleville copper mine: Black, G. F., 2.
Mineral industries: Twitchell, M. W., 2-6.
Mineral resources: Twitchell, M. W., 1.
Ore deposition, Franklin Furnace: Spurr, 17.
Potash exploration in greensands: Mansfield, G. R., 1, 7, 9, 12.
Zinc, Franklin Furnace district: Salton, 1.
Zinc deposits, Franklin Furnace, origin: Fitch, A. A., 1; Ries, 8.

Historical geology.

- General: Johnson, D. W., 13.
Glauconite beds: Mansfield, G. R., 2, 12.
Greensand marls, Eocene age: Cooke, C. W., 17.
Middlesex County: Hawkins, A. C., 12.
Postglacial laminated clays, Little Ferry: Reeds, 5.
Shawangunk formation, age and origin: Willard, B., 3.
Sussex County: Ries, 8.
Wilmington quadrangle: Bascom, 2.

New Jersey—Continued.

Mineralogy.

- Albite, Paterson: Fenner, 9.
Barite, Great Notch: Wilson, E. H., 1.
Bergen Hill region: Manchester, 1.
Chalcopyrite, Bergen Hill: Wherry, 2.
Franklin Furnace: Gordon, S. G., 14; Lewis, 8; Palache, 28, 30.
Barysilite: Shannon, 65.
Bustamite: Larson, 9.
Epidesmine, Mercer County: Gordon, S. G., 1.
Cahnite: Palache, 23.
Chlorophoenicite: Foshag, 21, 28.
Cyprine: Shannon, 38.
Friedelite and schallerite: Bauer, L. H., 3.
Ganophyllite: Larsen, 12.
Glaucochroite, willemite, celestite, and calcite: Gordon, S. G., 9.
Hedyphane: Foshag, 22.
Hematite, willemite, and hedyphane: Palache, 25.
Holdenite: Palache, 22.
Hyalophane: Bauer, L. H., 1.
Larsenite and calcium-larsenite: Palache, 27.
Löllingite: Bauer, L. H., 2.
Magnetite and franklinite crystals: Van Horn, 14.
Manganiferous serpentine: Shannon, 63.
Norbergite: Larsen, 23.
Phosphorescence and fluorescence: Palache, 29.
Radiated chrysotile: Foshag, 26.
Rhodonite: Larsen, 10.
Schallerite: Gage, 1.
Sussexite: Poltevin, 6.
Tephroite: Gordon, S. G., 11.
Zincite: Berman, 3.

- Greensand: Mansfield, G. R., 7.
Halite pseudomorphs, Triassic: Hawkins, A. C., 10.
Meteorite, Deal, Monmouth County: Keeley, 1.
Middlesex County: Hawkins, A. C., 9.
Montville, serpentine: Shannon, 67.
Sterling Hill: Palache, 28.
McGovernite: Palache, 26.
Stilpnomelane, Lambertville: Shannon, 17.

Paleontology.

- Human remains, Trenton gravels: Wright, G. F., 1.
Hyposaurus: Troxell, 27.
Reptile, Triassic: Gilmore, 39.
Thoracosaurus, Cretaceous: Troxell, 28.

Petrology.

- Alkali gneiss, Warren County: Hinds, N. E. A., 1.
Nephelite rocks, Beemerville: Aurore-seau, 1.
Zinc ores, Sussex County, origin: Ries, 8.

New Jersey—Continued.

Physical geology.

- Fulgurite, South Amboy: Myers, 3.
- Halite and glauberite cavities in Triassic rocks: Hawkins, A. C., 11.
- Postglacial laminated clays, Little Ferry: Reeds, 5.
- Structure, Middlesex County: Hawkins, A. C., 12.

Physiographic geology.

- Banded postglacial clay near New York City: Reeds, 3.
- General: Johnson, D. W., 9.
- Glacial investigations: Leverett, 20.
- Glacial varves, Hackensack meadows: Sci. Serv., 8.
- Varved clays, Little Ferry: Reeds, 7.

Underground water.

- Atlantic City region: Thompson, D. G., 6.
- Barrier beaches, ground water: Thompson, D. G., 5.
- General: Kummel, 5.
- Ground water: Thompson, D. G., 4; Twitchell, 5.

New Mexico.

- Canadian River area: Yeo, 1.

Areas described.

- Brilliant quadrangle: Lee, W. T., 6.
- Carlsbad irrigation project: Meinzer, 16.
- Gallup-Zuni Basin: Sears, 6.
- Koehler quadrangle: Lee, W. T., 6.
- Mogollon mining district: Ferguson, H. G., 8.
- Raton coal field, Colfax County: Lee, W. T., 10.
- Raton quadrangle: Lee, W. T., 6.
- Sandia Mountains: Ellis, R. W., 2.
- Tyrone district: Paige, 2.
- Tularosa Basin: Powell, 1.

Economic geology.

- Artesia oil field: Rich, A., 1.
- Aztec mine, Baldy, Colfax County: Chase, C. A., 1.
- Black Range tin district: Naething, 1.
- Brass ore in nature: Keyes, 107.
- Carbon ratios, Cretaceous coals: Storm, 5.
- Chupadera Mesa iron deposits, age: Keyes, 72.
- Coal, Raton field, Colfax County: Lee, W. T., 10.
- San Juan County: Bauer, C. M., 1.
- Copper: Tovote, 1.
- San Pedro, Santa Fe County: Berryman, 1.
- Tyrone district: Paige, 2.
- Fierro ores: Schwartz, 2.
- Fluorspar: Johnston, W. D., 4.
- Gold, Sierra del Oro: Keyes, 59.
- Gypsum: Stone, 11.
- Hematite, Socorro County: Foshag, 7.
- Iron-ore deposit near Fairview: Smythe, 2.
- Lepidolite, Embudo: Roos, 1.

New Mexico—Continued.

Economic geology—Continued.

- Manganese: Jones, Edw. L., 5; Wells, E. H., 1.
- Metalliferous deposits in red beds: Finch, J. W., 2.
- Mining properties: Finlay, 3.
- Mogollon district: Ferguson, H. G., 3, 8; Kidder, 1; Scott, D. B., 1.
- Molybdenite, Questa: Sundberg, 1.
- Molybdenum, Taos County: Larsen, 5.
- Oil and gas in 1923: Ellis, R. W., 3.
- Oil and gas possibilities, Alamosa Creek valley: Winchester, 3.
- Oil resources: Knox, J. K., 2.
- Oil situation: Ellis, R. W., 1.
- O'Mara coal fields: Keyes, 111.
- Ore deposits: Keyes, 161; Tovote, 2.
- Pipe vein, Silver Hill: Keyes, 64.
- Potash: U. S. G. S., 15.
- southeastern New Mexico: Hoots, 1.
- Red Bed ores: Bains, 1.
- Salt deposits: Darton, 8; Phalen, 1.
- San Juan County: Bauer, C. M., 1.
- San Pedro, Santa Fe County: Berryman, 1.
- Santa Rita district: Rickard, 8.
- Taylor Creek tin deposits, Sierra and Socorro counties: Hill, J. M., 3.
- Vanadinite deposits, Elephant Butte: Keyes, 204.

Historical geology.

- Abo sandstone: Böse, 4.
- Alamosa Creek valley, Socorro County: Winchester, 3.
- Boring, Santa Rosa: Prout, 1.
- Buried mountain range of Permian age: Rich, J. L., 2.
- Chaco Canyon deposits: Bryan, 21.
- Chaves County: Merritt, J. W., 2.
- Chupadera Mesa: Keyes, 72.
- Eastern New Mexico: Baker, C. L., 1; Lee, W. T., 3; Rich, 5.
- El Vado dam site, Rio Arriba County: Wells, E. H., 3.
- Folsom, Union County: Cook, H. J., 12.
- General: Keyes, 11, 14; Knox, J. K., 2.
- Geologic map: Darton, 25; Ellis, R. W., 5.
- southeastern New Mexico: Anon., 58.
- Geologic structure of parts of New Mexico: Darton, 11.
- Guadalupe group: Darton, 19.
- Laramie hiatus, southern Rocky Mountains: Keyes, 147.
- Manzano group: Lee, W. T., 2.
- Mogollon district: Ferguson, H. G., 3.
- Northeastern New Mexico: Baldwin, 1; Garrett, 1.
- Paleozoic: Keyes, 76.
- Pecos Valley: Semmes, 4.
- Permian: Darton, 20.
- Pre-Moenkopi unconformity, Colorado Plateau: Dake, 4.
- Puertecito district: Wells, E. H., 2.
- "Red Beds": Darton, 26.

New Mexico—Continued.

Historical geology—Continued.

- Rio Grande region, Carboniferous: Keyes, 68.
 Rio Grande Valley: Keyes, 81.
 Rio Penasco Basin: Renick, 10.
 Roswell artesian basin: Fiedler, 2.
 San Juan Basin: Reeside, 3, 8; Bauer, C. M., 1.
 San Jose-Rio Puerco valley, Sandoval County: Renick, 9.
 San Pedro, Santa Fe County: Berryman, 1.
 Santa Fe region: Simpson, G. G., 6.
 Santa Rita district: Rickard, 8.
 Southeastern New Mexico: Hoots, 1; Rich, A., 1.
 State line dam site: Bryan, 32.
 Taos Range: Gruner, 1.
 Tertiary intrusives, Pecos Valley: Semmes, 4.

Mineralogy.

- Arsenopyrite, Tres Hermanas Mountains: Smythe, 1.
 Chalmersite, Fierro: Schwartz, 2.
 Iron-ore deposit near Fairview: Smythe, 2.
 Meteorite, Four Corners, San Juan County: Merrill, 39.
 Muscovite, purple, Taos County: Schaller, 9.
 Tetradymite, Hachita: Short, 3.
 Uranium minerals: Keyes, 107.

Paleontology.

- Alamosaurus, Ojo Alamo formation: Gilmore, 17.
 Ammonoids, Abo sandstone: Böse, 4.
 Artifacts, Folsom: Science Service, 10.
 Bison, Folsom: Hay, 41.
 Paleocene mammals, new genera: Matthews, 16.
 Pentaceratops: Osborn, 28.
 Phytosaur, Triassic, Guadalupe County: Mehl, 9.
 Reptilia, San Juan County: Gilmore, 4.
 Sauropoid dinosaur, San Juan Basin: Gilmore, 12.

Petrology.

- Raton-Brilliant-Koehler area: Mertie, 9.

Physical geology.

- Buttress structure, volcanic plugs: Branson, 20.
 Carlsbad Cavern: Lee, W. T., 12-16.
 Changes in channel of Rio Puerco: Bryan, 30.
 Channel erosion, Rio Salado, Socorro: Bryan, 25.
 Chaves County: Merritt, J. W., 2.
 Colorado Plateau, structural features: Moore, R. C., 21.
 Erosion and sedimentation, Zuni watershed: Bryan, 29.
 Erosion by solution and fill, Pecos Valley: Lee, W. T., 14.
 General: Keyes, 11.

New Mexico—Continued.

Physical geology—Continued.

- Granite in wells: Gould, 3.
 Ice cave: Lee, W. T., 18.
 Laccolithic structures: Keyes, 41.
 Mountain structure: Darton, 7.
 Niches in sandstone, Chaco Canyon: Bryan, 33.
 Northeastern New Mexico, structure: Garrett, 1.
 Pedestal rocks: Bryan; 13, 24.
 Puertecito district: Wells, E. H., 2.
 Structure features: Knox, J. K., 2.

Physiographic geology.

- Ancestral Rocky Mountains: Melton, 1.
 Caverns in Guadalupe Mountains: Baker, C. L., 4.
 Raton mesas: Lee, W. T., 4.
 San Luis Valley, physiographic history: Atwood, 4.

Underground water.

- Cactus Flat reservoir site: Nye, 1.
 Carlsbad irrigation project: Meinzer, 16.
 De Baca County: Bryan, 20.
 Ground water, Mimbres Valley, Luna County: Fiedler, 3.
 Sandoval County: Renick, 6.
 Rio Penasco Basin: Renick, 10.
 Roswell artesian basin: Fiedler, 1, 2.
 San Jose-Rio Puerco valley, Sandoval County: Renick, 9.
 Socorro County: Bryan, 19.
 Socorro and Torrance counties: Black, 1.
 Tularosa Basin: Powell, 1.

- Newtonite, identity with alunite: Foshag, 25.

New York.

- General: Palmer, E. L., 1.
 State geologist, report: Clarke, J. M., 1, 17.
 State Museum, report: Clarke, J. M., 18, 23, 28, 30; Van Deloo, 1.

Areas described.

- Allegany State Park: Lobeck, 8.
 Ausable quadrangle: Kemp, 23.
 Canton quadrangle: Chadwick, 5.
 Cold Spring Harbor area, Long Island: Grier, 3.
 Genesee country, geologic history: Fairchild, 15, 24.
 Gouverneur quadrangle: Cushing, 1.
 Lake Bonaparte quadrangle: Smyth, 2.
 Lake Clear region: Ailing, H. L., 1.
 Lake Placid quadrangle: Miller, W. J., 1.
 Lyon Mountain quadrangle: Miller, W. J., 26.
 Luzerne quadrangle: Miller, W. J., 19.
 Mount Marcy quadrangle, Essex County: Kemp, 7.
 Newburgh quadrangle: Holzwasser, 1.
 Newcomb quadrangle, Essex County: Balk, 3.
 New York City: Reeds, 2.

New York—Continued.

Areas described—Continued.

Schroon Lake quadrangle: Miller, W. J., 2.

Schunemunk region: Colony, 6, 7.

Starks Knob, Saratoga County: Hartnagel, 7.

West Point quadrangle: Berkey, 3.

Economic geology.

Adirondack magnetic iron ores: Miller, W. J., 13, 18; Newland, 1.
genesis: Alling, 10.

sedimentary phases: Nason, 1, 2.

Albany molding sands: Nevin, 1.

Catskill Portland-cement region: Jones, R. W., 1.

General: Hartnagel, 5.

Gypsum: Stone, 11.

Iron ores, Clinton County: Miller, W. J., 5, 7; Newland, 1, 6; Smyth, 1.

Lime belt, eastern New York: Dale, T. N., 5.

Limestone, Greene County: Jones, R. W., 2.

Magnetic iron ores, Essex County: Henry, 1.

southeastern New York: Colony, 3.

Manganese, postglacial, Columbia County: Dale, N. C., 2.

Mineral resources: Hartnagel, 2; Newland, 2.

Mining and quarry industries: Hartnagel, 6; Newland, 8.

Oil fields: Hartnagel, 3.

Ore injection at Edwards: Spurr, 13.

Petroleum: Johnson, R. H., 3.

Pyrite deposits, St. Lawrence County, origin: Miller, W. J., 27.

Pyrite and pyrrhotite veins, Jefferson and St. Lawrence counties: Buddington, 1.

Salt deposits: Phalen, 1.

Silica materials: Colony, 1.

Silurian salt deposits: Alling, 14.

Titaniferous iron ores: Osborne, F., 3.

Zinc, St. Lawrence County: Wade, W. R., 2.

Historical geology.

Adirondack gabbros, age: Gillson, 10.

Adirondack region: Clarke, 15.

geologic history: Miller, W. J., 8.

pre-Cambrian: Alling, 3; Wilson, M. E., 15.

Anorthosite outlier near Wells: Chadwick, 17.

Canton quadrangle: Chadwick, 5.

Capitol district: Ruedemann, 27.

Catskill Portland-cement region: Jones, R. W., 1.

Catskill quadrangle: Chadwick, 15.

Catskill region: Berkey, 6.

Chemung stratigraphy, western New York: Chadwick, 8, 10.

Clinton formations: Ulrich, 9.

Clinton and Little Falls: Eaton, H. N., 7.

New York—Continued.

Historical geology—Continued.

Devonian, western New York: Husakof, 1.

Dunkirk shale, Erie County: Chadwick, 7.
General: Keyes, 281.

Genesee River region: Fairchild, 6.

Geological history: Miller, W. J., 23.

Graptolite zones: Ruedemann, R., 3.

Grenville stratigraphy, eastern Adirondacks: Alling, 13.

Hanover shale: Chadwick, 4.

Highlands, southeastern New York: Colony, 3.

Lake Bonaparte-Lowville quadrangles: Buddington, 2.

Marine Pleistocene fossils, New York City: Palmer, K. V. W., 3.

Oriskany sandstone: Eaton, H. N., 3.

Pinnacle Hills, Rochester: Fairchild, 13.

Pleistocene history: Fairchild, 9.

Portage stratigraphy, western New York: Chadwick, 3.

Pre-Cambrian, Adirondacks: Alling, 8; Miller, W. J., 30.

Salina formation: Newland, 9.

Saratoga region: Rothpletz, 2.

Shawangunk formation, age and origin: Willard, B., 3.

Sherburne sandstone: Grabau, 6.

Silurian faunal facies in juxtaposition: Ruedemann, 20.

Silurian salt deposits: Alling, 14.

Taconic area, southern: Knopf, E. B., 6.

Trenton section, Martinsburgh: Clark, T. H., 1.

Utica and Lorraine formations: Ruedemann, 16.

Western New York: Alexander, W. P., 1.
Winters in Upper Devonian: Schuchert, 34.

Mineralogy.

Adirondacks, western: Agar, 1.

Barite and associated minerals in concretions in Genesee shale: Martens, 5.

Bedford, Westchester County: Brown, S. C., 1.

Calcite cave in State Museum: Gardner, H. F., 1.

Contact minerals, Edenville: Buerger, 2.

Fluorite, Rochester: Hawkins, 5.

Mahopac iron mine, Brewster: Gillson, 4.

Minerals, Lockport group, Oncida County: Monahan, 1.

Morgan memorial hall of American Museum of Natural History: Whitlock, 13.

Niagara limestone minerals: Giles, 2.

Orange County: Hoadley, 1.

Pyrite, New York City: Whitlock, 3.

Pyrite and celestite, Rochester: Hawkins, 7.

New York—Continued.

Mineralogy—Continued.

St. Lawrence, Jefferson, and Lewis counties: Agar, 1.

St. Lawrence County, crystal localities: Miller, W. J., 11.

Scorodite, Putnam County: Martens, 2.
Sterlingbush calcite cave: Clarke, N. T., 1.

Sulphate minerals from weathering of shale near Ithaca: Martens, 6.
Thomsonite, Peekskill: Phillips, 1.

Paleontology.

Armstrongia, Devonian glass sponge: Clarke, J. M., 8.

Barnacles, Ordovician: Ruedemann, 13.
Bunaia woodwardi, Silurian: Clarke, J. M., 4, 7.

Callixylon, Eighteenmile Creek: Highlander, 1.

Carnyella valcourensis, Chazy limestone: Clark, T. H., 2.

Cephalopods: Foerste, 28.

Cohoes mastodon: Clarke, J. M., 22.
Cold Spring Harbor flora: Grier, 2.

Collecting fossils: Ruedemann, 25.

Colossal Devonian glass sponge: Clarke, J. M., 25.

Conodonts, Devonian: Ulrich, 13.

Genesee: Bryant, 2.

Portage group: Hibbard, R. R., 1.
western New York: Hibbard, 2.

Cretaceous, Staten Island: Davis, W. T., 1.

Cryptozoon: Rothpletz, 2.

Devonaster eucharis (Hall), six-rayed: Willard, 2.

Devonian crinoids: Goldring, 4.

Devonian forest, Gilboa: Bancroft, J. A., 2; Clarke, J. M., 14, 17, 18; Goldring, 6, 7, 9.

Devonian plant localities: Arnold, C. A., 1.

Devonian plants: Petry, 1.

Devonian seed fern forests: Berry, 55; Goldring, 5.

Dictyosponge, Chautauqua County: Clarke, J. M., 22.

Dolgeville fauna: Ruedemann, R., 3.

Eurypterid horizon: Chadwick, 2.

Fishes in museum of Buffalo Society of Natural Sciences: Hussakof, 1.

Glass sponges: Clarke, J. M., 18.

Graptolite zones: Ruedemann, R., 3.
Hamilton crinoids: Goldring, 8.

Hemiaspidan crustacean, Bertie waterlime: Clarke, J. M., 24.

Marine Pleistocene fossils, New York City: Palmer, K. V. W., 3.

Mastodon, Cohoes, restoration: Clarke, N. T., 2.

Hudson Highlands: Osborn, 27.

Temple Hill, Orange County: Bishop, 1; Clarke, J. M., 22.

Mastodons, mammoths, and other Pleistocene mammals: Hartnagel, 1.

New York—Continued.

Paleontology—Continued.

New York State Museum, paleontological work: Ruedemann, 21.

Ordovician: Ruedemann, R., 3.

Oriskany fauna, Oriskany Falls: Eaton, H. N., 3.

Palaeaspis: Bryant, 4.

Pleistocene mammals: Hartnagel, 4.
Monroe, Orange County: Clarke, J. M., 11.

Proboscidea: Hay, 3.

Protobalanus, Hamilton group: Van Name, 1, 2.

Psaronius, Schoharie County: Hovey, 5.

Silurian: Ruedemann, 7, 19.

Snake Hill fauna: Ruedemann, 7.

Tree trunk, Manhattan Island: Hollick, 7.

Trenton fauna, Martinsburg: Clarke, T. H., 1.

Utica and Lorraine formations: Ruedemann, 17, 18, 21.

Vernon shale fauna: Eaton, H. N., 5; Ruedemann, R., 2.

Petrology.

Adirondack gabbros, age: Gillson, 10.

Adirondacks, Lyon Mountain region: Miller, W. J., 3.

western: Agar, 1.

Anorthosite gabbro, Saint Lawrence County: Miller, W. J., 9, 11.

Cortlandt norite, structure, Peekskill: Balk, 2, 5.

Dolomites, composition: Reed, B. B., 1.
Igneous rocks, Ithaca: Martens, 1, 3.

Lake Bonaparte-Lowville quadrangles: Buddington, 2.

Origin of foliation and naming of syntectic rocks: Alling, 9.

Oriskany sandstone with celestine cement: Stow, 1.

Sediments, characters: Alling, 7.

Sillimanite-schist inclusions in granite: Miller, W. J., 16.

Physical geology.

Adirondacks, western: Agar, 1.

Box vein, Lyonsdale, Lewis County: Dale, N. C., 4.

Brecciation, Niagara limestone, Rochester: Giles, 1.

Concretions, western New York: Alexander, A. E., 1.

Glacial erosion, Ithaca: Sheldon, 2.

Dike near Ithaca: Sheldon, 1.

Faulting, Cayuga Lake region: Long, 1.

Orleans County: Chadwick, 6.

Foliation, Lewis County: Buddington, 2.

Grenville sediments: Alling, 13.

Highlands, southeastern New York: Colony, 3.

Niagara Falls, rate of recession: Boyd, W. H., 1.

New York—Continued.

Physical geology—Continued.

Niagara River gorge, age: Johnston, W. A., 26.

Sedimentation conditions, middle Portage rocks: Sheldon, 5.

Sulphates in the Salina beds: Newland, 5.

Taconic folding: Miller, B. L., 9.

Physiographic geology.

Adirondack eskers: Chadwick, 16, 21.

Allegany State Park: Lobeck, 8.

Banded postglacial clay near New York City: Reeds, 3.

Catskill Mountains: Merwin, 3.

Cohoes quadrangle: Stoller, 2.

Dansville Valley: Fairchild, 21.

Drainage changes, east central New York: Stoller, 1.

Drumlins, Lake Placid: Upham, 2.
southern shore of Lake Ontario: Slater, 3.

Finger Lakes: Fairchild, 20; Monnett, 3; origin: Fairchild, 20.

General: Miller, W. J., 23.

Genesee glacial lakes: Chadwick, 11.

Genesee River region: Fairchild, 6.

Glacial boulders, eastern, central, and northern New York: Martens, 4.

Glacial ice sheet, eastern New York, disappearance: Cook, J. H., 1.

Glacial lake, Warrensburg: Miller, W. J., 25.

Glacial lakes: Chadwick, 9; and clays near New York City: Reeds, 12.

Glacial striae topping Catskill Mountains: Chadwick, 19.

Glaciation in New York Botanical Garden: Hollick, 9.

northern New York: Fairchild, 10.

Hudson-Champlain Valley: Stoller, 3.

Ice evacuation stages at Glens Falls: Chadwick, 18, 20.

Ithaca region: Von Engeln, 2.

Lake Placid quadrangle, Pleistocene geology: Alling, 2.

Little Falls gorge: Miller, W. J., 6.

Mechanicsville terraces: Stoller, 1.

Mendon kame area: Fairchild, 19.

Mohawk-Hudson region, Pleistocene history: Stoller, 3.

Moraines, St. Lawrence Valley: Taylor, 4.

Mount Marcy quadrangle, glacial geology: Alling, 4.

Mouth of preglacial Salmon Creek: Long, 2.

New York moraine, age: De Geer, 5.

Niagara Canyon, age: De Geer, 4.

Niagara cuesta: Grabau, 12.

Niagara Falls: Dow, 1; Forrester, G. C., 2.

age: Taylor, 8.

rate of recession: Boyd, W. H., 1.

New York—Continued.

Physiographic geology—Continued.

Niagara River gorge, age: Johnston, W. A., 26.

Buried Whirlpool-St. Davids gorge, origin: Forrester, G. C., 1.

Pleistocene marine submergence of the Hudson, Champlain, and St. Lawrence valleys: Fairchild, H. L., 1.

Postglacial waters: Stoller, 1.

Recessional moraines, Finger Lakes region: Taylor, 6.

Rochester Canyon: Fairchild, 6.

Skaneateles Lake: Monnett, 3.

Susquehanna River: Fairchild, 16.

Tully glacial series: Von Engeln, 1.

Varved clays at Haverstraw: Reeds, 9, 15.

Western New York, drainage evolution: Fairchild, 16.

Wilmington Notch, Adirondacks: Miller, W. J., 14.

Wisconsin ice sheet, ablation of eastern lobe: Cook, J. H., 2.

Nicaragua.

Economic geology.

Eastern Nicaragua: Garbrecht, 1.

Piz Piz gold district: Hawxhurst, 1.

Physical geology.

Masaya volcano: Heim, 4; Sapper, 4; Schöenberg, 1.

Masaya and Momotombo: Sapper, 1.

Physiographic geology.

General: Bengtson, 1.

Nickel.

Alaska: Buddington, 7.

Chichagof Island: Kerr, P. F., 2; western part: Overbeck, 1.

and Baranof islands: Buddington, 8.

Copper River valley: Overbeck, 2.

British Columbia, Emory Creek, Yale districts: Cairnes, 7, 9.

Dominican Republic, Sierra Prieta: Vaughan, 16.

General: Hess, 2, 8, 9, 12, 13, 16, 19, 21; Rickard, 2.

In igneous rocks: Vogt, 2.

Magnetic nickel deposits: Lindgren, 4.

Manitoba, Maskwa River: McCann, 1.

Oiseau and Maskwa areas: Wright, J. F., 7.

Oiseau River area: Wright, J. F., 9.

Nevada, Key West mine: Lindgren, 11.

Norite occurrences: Coleman, 5.

North Carolina, Webster: Ross, C. S., 25.

Ontario: Simmersbach, 1.

Cobalt: Whitehead, 1.

Shebandowan deposit: Cross, J. G., 2.

Sudbury ore deposits: Bell, J. M., 1; Coleman, 29; Primmer, 1.

Thunder Bay district, Shebandowan Lake: Tanton, 9.

Windy Lake region: Knight, C. W., 4.

Nickel—Continued.

Oregon, Riddle quadrangle: Diller, 12.
 Pennsylvania, Lancaster Gap mine:
 Flemister, 2.

Night Hawk Lake gold area, Ontario: Hop-
 kins, 9.

Nipigon-Schreiber district, Ontario: Tanton,
 6.

Nitrate deposits, Amargosa region, south-
 eastern California: Noble, 4.

Nitrate.

Guatemala: Gale, 2.

Nitrates: Mansfield, 16.

Nixon Fork country, Alaska: Brown, J. S.,
 7.

Nomenclature.

Appalachian coal measures: Ashley, 12.
 Arizona formations: Keyes, 90.

Atchison shales: Keyes, 287.

Aulacera: Schuchert, 2.

Beatrice: Schuchert, 2.

Biostratigraphic terms: Fenton, C. L.,
 6.

Carboniferous: Keyes, 275.

Chester series: Keyes, 78.

Clastic sediments: MacKenzie, 6;
 Wentworth, 9.

Denudation, erosion, corrosion, corra-
 sion, use of terms: Bissell, 1;
 Foye, 3; Lahee, 5.

Diabase and dolerite: Johannsen, 12.

Drift and till: Gregory, J. W., 7.

Erosional terms: Allison, I. S., 5;
 Glock, 6.

Flint and chert: Glock, 1.

Fossil, use of term: Field, 4; Miller,
 A. M., 7.

Geographic terminology: Campbell, M.
 R., 13.

Geologic classification: Keyes, 115.

Geologic column, terms, origin and sig-
 nificance: Lang, W. B., 1.

Geologic periods: Keyes, 133.

Geologic terminology: Blackwelder, 7.

Geological classification: Keyes, 115.

Geosyncline, significance of term: Swin-
 nerton, 4.

Glacial: Keyes, 222.

Glacial formations: Sardeson, 29.

Glossary of mining and mineral in-
 dustry: Fay, 1.

Igneous rocks, field terms: Johannsen,
 9.

Iowa chalk: Keyes, 208.

Lexington limestone: Keyes, 287.

Limestones: Kindle, 23.

Louisian vs. Mississippian: Keyes, 8.

Madison limestone: Keyes, 130.

Marais des Cygnes series: Keyes, 287.

Mineral deposits: Lindgren, 6.

Mineral names: Eakle, 10.

Minnesota, Minnesota River valley
 formations: Sardeson, 12.

Mississippian: Keyes, 20, 123, 262.

Missouri, Ordovician: Keyes, 106.

Mollusca: Dall, 8.

Nomenclature—Continued.

Muscogee shales, western interior coal
 field: Keyes, 51.

Oklahoma, obsolete formation names:
 Gould, C. N., 24.

Orbiculoidea: Girty, 13.

Pennsylvanian: Keyes, 80, 199, 217.

Iowa: Keyes, 184.

taxonomic rank: Keyes, 149.

Permian: Keyes, 251.

Plattsmouth limestones: Keyes, 287.

Post-Mesozoic: Grabau, 5.

Pre-Cambrian: Gregory, J. W., 5;
 Keyes, 109.

Pre-Paleozoic: Keyes, 278.

Proposed stratigraphic section and
 code: Ashley, 10.

Psychozoic: Berry, 81.

Rocks: Bowen, 15.

St. Louis limestone: Keyes, 123.

Seismological terms: Davison, 2.

Shapes of valleys, representation:
 Lane, 13.

Silica: Hart, 2.

Silurian: Keyes, 163, 291.

Sinian, use of term: Grabau, 14.

Spergen limestone, Missouri: Keyes,
 208.

Standardization of geological terminol-
 ogy: Keyes, 265.

Stellate Orthophragmina: Hodson, H.
 K., 1.

Structure, usage of term: McLaughlin,
 R. P., 2.

Symbols for dip and strike: Dreher, 2.

Syntectic rocks: Alling, 9.

Taconic question: Keyes, 260.

Tathiodon to replace Tanaodon: Simp-
 son, G. G., 13.

Time subdivisions: Keyes, 164.

Valleys and intermont plains: Davis,
 W. M., 34.

Yorkie: Keyes, 49.

North Atlantic Ocean, Tertiary history:
 Woodring, 8.

North Carolina.

Cretaceous sandstone, Kinston:
 Stuckey, 4.

Gravels on the Blue Ridge: Wright,
 F. J., 3.

Solls, age: Cobb, W. B., 1.

State geologist, reports: Pratt, J. H.,
 1, 3, 7; Drane, 2.

Work of State Geological Survey:
 Pratt, 4.

Areas described.

Fort Caswell: Stearns, N. D., 1.

Economic geology.

Brown hematite ores, western North
 Carolina: Bayley, 5, 11.

Chromite deposits: Diller, 1; Lewis,
 J. V., 3, 6.

Clay: Ries, 5.

Copper deposits: Watson, 15.

Corundum, origin: Cobb, M. C., 1.

Garnet: Katz, 1.

North Carolina—Continued.

Economic geology—Continued.

- Hydromica: Bayley, 1.
 Kaolin: Bayley, 1, 10.
 Limestones and marls: Loughlin, 9.
 Magnetite ores, western North Carolina: Bayley, 2, 6, 7; Pratt, J. H., 6.
 Magnetite-marble ore, Lansing: Bayley, 4.
 Magnetites, origin: Bayley, 3.
 Mineral industry: Bryson, 1, 2; Drane, 3; Pratt, J. H., 2.
 Mineral resources: Drane, 1.
 Nickel silicates, Webster, origin: Ross, C. S., 25.
 Oil shales, Deep River valley: Vilbrandt, 2.
 Oil-bearing shale: Vilbrandt, 1.
 Pyrophyllite deposits, Deep River region: Stuckey, 1, 3, 5.
 Rutile in titaniferous magnetites: Bayley, 9.
 Talc, Hewitts: Diller, 5.
 Tin deposits: Haney, 4.
 Triassic coal field: Pratt, J. H., 5.

Historical geology.

- Boring near Havelock: Mansfield, W. C., 5.
 Castle Hayne and Trent marls: Kellum, 2.
 Cretaceous: Stephenson, 4.
 General: Bryson, 3.
 Great Smoky Mountains: Glenn, 9.
 Lower Cambrian, southern Appalachians: Barrell, 8.
 Permian at base of Newark: Cobb, 2.
 Pleistocene: Berry, 75.
 Pliocene and Pleistocene: Mansfield, W. C., 6.
 Trent marl, age: Kellum, 1.
 Triassic, Durham Basin: Prouty, 15, 16.

Mineralogy.

- Chloritoid, Deep River region: Stuckey, 1.
 Corundum: Cobb, M. C., 1.
 Corundum Hill (Franklin), Macon County: Gordon, S. G., 8.
 Cyanite: Seagle, 1.
 Genthite, so-called, Webster: Ross, C. S., 14.
 Hiddenite, Alexander County: Davidson, S. C., 1.
 Hydromica: Bayley, 1.
 Meteorite, McDowell County: Merrill, 34.
 Nickeliferous vermiculite and serpentine, Webster: Ross, C. S., 16.

Paleontology.

- Castle Hayne and Trent marls: Kellum, 2.
 Cretaceous: Stephenson, 4, 9.
 Decapod Crustacea, Upper Cretaceous: Rathbun, 3.
 Dromatherium and Micronodon: Simpson, G. G., 10.

North Carolina—Continued.

Paleontology—Continued.

- Horse remains: Cobb, C., 3.
 Mesozoic flora: Berry, 20.
 Miocene Mollusca: Mansfield, W. C., 7.
 Pleistocene plants: Berry, 75.
 Pliocene and Pleistocene: Mansfield, W. C., 6.

Petrology.

- Dunite, Jackson County: Adams, L. H., 8.

Physical geology.

- Appalachian structure: Prouty, 17.
 Ocean inlets, storm effect: Hite, 1.
 Shore changes, Cape Hatteras: Rude, 1.
 Triassic (Deep River) basin: Prouty, 12.

Physiographic geology.

- Blue Ridge: Wright, F. J., 2, 5.
 Dismal Swamp: Osbon, 1.
 General: Cobb, C., 4.

Underground water.

- Thermal springs: Watson, 16.

North Dakota.

- State Geological Survey, history: Leonard, A. G., 10.

Areas described.

- Edgeley quadrangle: Meinzer, 14.
 Fort Berthold Indian Reservation, western part: Bauer, C. M., 2.
 Marmarth field: Hares, 5.

Economic geology.

- Clays: Budge, 1.
 Coal, occurrence: Dove, 2.
 Dakalite: Dove, 6.
 Gravel: Leonard, 5.
 Lignite deposits: Babcock, 1; Dove, 5; Hoffmann, 1; Leonard, A. G., 7-9.
 Fort Berthold Indian Reservation: Bauer, C. M., 2.
 New Salem field, Morton County: Hancock, 6.
 Oil and gas possibilities: Leonard, A. G., 3.

Historical geology.

- Cretaceous-Eocene transition beds: Thom, 8.
 General: Leonard, A. G., 1, 3, 8.
 Lance-Fox Hills contact: Dobbin, 2.
 Nesson anticline: Dove, 3.
 New Salem lignite field, Morton County: Hancock, 6.
 Western North Dakota: Stanton, 3.
 White River formation: Leonard, A. G., 4.

Mineralogy.

- Leonardite: Dove, 6.
 Meteorite, Richardton: Quirke, 1, 3.

Paleontology.

- Cannonball fauna: Stanton, 3.
 Eporeodons, White River beds: Thorpe, 23.
 Fruits, Fort Union beds: Stainbrook, 1.
 White River formation: Leonard, A. G., 4.

Petrology.

- Clinkertill: Dove, 4.

North Dakota—Continued.

Physiographic geology.

- Badlands of Little Missouri: Simpson, H. E., 3.
- General: Leonard, A. G., 8; Willard, D. E., 2.
- Missouri River channel, age: Todd, J. E., 5.
- Pleistocene deposits, interpretations: Todd, J. E., 1.
- Southwestern North Dakota: King, 3.
- Surface features: Leonard, A. G., 2.

Underground water.

- Artesian water conditions: Simpson, H. E., 1, 2, 4.
- Edgeley quadrangle: Meinzer, 14.
- Harvey: Simpson, H. E., 5.
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- Northwest Territories.

Paleontology.

- Cephalopoda, Great Slave Lake: Foerste, 20.
- Ordovician and Silurian, Great Slave Lake: Hume, 18.

Notostraca.

- Ozarkian: Walcott, 8.

Nova Scotia.

Areas described.

- Great Bras d'Or coal district, Victoria County, Cape Breton: Bell, W. A., 5.
- Lake Ainslie district, Cape Breton Island: Bell, W. A., 12.
- North Mountain, Cape Breton: Guernsey, 2.
- Stirling area, Richmond County: Weeks, L. J., 1.
- Sydney coal field, southern part: Hayes, A. O., 6.

Economic geology.

- Barytes: Spence, 4.
- Berwick and Lakeview areas, Kings and Annapolis counties: Faribault, 4.
- Carboniferous salt and potash deposits, Cumberland County: Hayes, 5.
- Coal: Gray, 3; Hayes, 3.
- Sydney field: Hayes, 6.
- Diatomaceous earth: Burroughs, R. W., 1.
- General: Hayes, A. O., 1; Wright, W. J., 1.
- Gold deposits: Brunton, 5, 9, 10, 11, 13; McKenzie, N., 1; Reid, J. A., 2.
- Gypsum and anhydrite: Wilder, 4.
- Iron deposits of sedimentary origin: Hayes, 4.
- Malagash salt deposit, potash-bearing horizon: Ellsworth, 9.
- Manganese: Jennison, 1.
- Lunenburg County: Fearing, 2; Reid, J. A., 1.

Nova Scotia—Continued.

Economic geology—Continued.

- Mineral deposits: Wilson, M. E., 17.
- Mineral resources: Drummond, 1; Anon., 34.
- Molybdenite deposit, New Ross; Cook, C. W., 5.
- Oil and gas possibilities, northern Nova Scotia: Boyd, H. E., 1.
- Peat bogs: Anrep, 8.
- Quartz sand and clay deposits, Melford, Cape Breton: Guernsey, 1.
- Report on mines, 1926: McKenzie, N., 1, 2.
- Road materials: Picher, 3.
- Salt, Cumberland County: Cole, L. H., 1, 3; Hayes, 2.
- Malagash deposits: Chambers, 1; Moffatt, 1.
- Southwestern Nova Scotia: Faribault, 3.
- Tangier gold veins: Burton, 12.
- Tungsten, Halifax County: Piers, 2.
- Western Nova Scotia: Faribault, 1, 2.
- Zinc, Stirling, Richmond County: Weeks, L. J., 1.

Historical geology.

- Berwick and Lakeview areas, Kings and Annapolis counties; Faribault, 4.
 - Carboniferous: Bell, W. A., 13.
 - Northumberland Strait: Bell, W. A., 10.
 - subdivision: Bell, W. A., 8.
 - Sydney district, Cape Breton: Bell, W. A., 1.
 - Coal-bearing formations: Bell, W. A., 7.
 - General: Brunton, 6; Wright, W. J., 1.
 - Lake Ainslie region, Cape Breton Island: Trask, 6.
 - Malagash Peninsula, Cumberland County: Hayes, 2.
 - Minto, coal horizon, correlation: Bell, W. A., 6.
 - Mississippian, Horton-Windsor district: Bell, W. A., 2.
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 - Paleogeography of Acadia: Bailey, L. W., 2.
 - Silurian, Arisaig: Jones, O. T., 2; McLearn, 8.
 - Southwestern Nova Scotia: Faribault, 3.
 - Western Nova Scotia: Faribault, 1.
- Mineralogy.*
- Ferrie minerals: Spencer, L. J., 1.
 - Louisite: Walker, T. L., 57.
 - Magnesite crystals, Orangedale: Dobbel, 1.
 - Mordenite and louisite: Walker, 24.
 - Pegmatite minerals, New Ross: Walker, 36.
 - Salt deposit minerals, Malagash: Rickaby, 2.
 - Ulexite: Walker, 10.
 - Zeoilites: Biernbaum, 1; Walker, 17.

Nova Scotia—Continued.

Paleontology.

Devonian, Cephalopoda: Foerste, 27.
 Merostomata, coal measures: Bell, W. A., 4.

Palaeochara, coal measures: Bell, W. A., 4.

Silurian, Arisaig: McLearn, 8.

Petrology.

Amygdaloid, tubular: Walker, 16, 24.
 General: Brunton, 6.

Triassic traps: Walker, 17.

Physical geology.

Coast erosion, Capt. Breton: Gray, F. W., 1.

Coast line changes, Kings County: Churchill, 5.

Drainage change, Black and Gaspereau rivers, Kings County: Churchill, 3.

Elevation of seacoast near Wolfville: Churchill, 2.

Tidal phenomena of Bay of Fundy rivers: Kindle, 42.

Physiographic geology.

Esker excavation, Middlefield, Queens County: Prest, 2.

Eskers, nature and origin: Prest, 1.

Digby County: McIntosh, 1.

General: Goldthwait, 5.

Glaciation: Walker, 24.

Cape Breton Island: Mather, 10.

Wolfville: Churchill, 4.

Marine sand bar, Cornwallis Valley: Churchill, 1.

Warping, postglacial: Daly, 11.

Oahu, pyroclastic geology: Wentworth, 22.

Oatman district, Arizona, geology: Ransome, 12.

Ocean basins, origin: Willis, 6.

Ocean currents, climatic effects: Chamberlin, T. C., 20.

Ocean currents and geological change: Washington, 8.

Ocean currents and isostasy: Bowie, 1.

Oceanographic research: White, D., 16.

Oceanic islands, classification: Davis, 23.

Oceanographic investigations, projected: White, D., 25.

Oceanography: Vaughan, 33.

Deep off coast of Mexico and Central America: Heck, 1.

Ocher.

Georgia, Cartersville: Weigel, 1.

Ogilvie Range, Yukon: Cockfield, 3.

Ohio.

Geography: Peattie, 1.

Geological Survey: Mendenhall, T. C., 1.

Relief map: U. S. G. S., 9.

Areas described.

Camp Sherman quadrangle: Hyde, 1.

Columbiana County: Stout, 5.

Delaware County: Westgate, 5.

Muskingum County: Stout, 1.

Summerfield and Woodsfield quadrangles: Condit, 3.

Ohio—Continued.

Areas described—Continued.

Vinton County: Stout, 6.

Wayne County: Conrey, 1.

Wellsville quadrangle: Hance, 3.

Economic geology.

Berea sand: Panyity, 2.

Clinton sand oil and gas accumulation: Russell, W. L., 9.

Clinton sandstone: Lockett, 1.

Coal: Stout, 2.

Muskingum County: Stout, 1.

Pittsburgh coal bed: Bownocker, 8;

White, I. C., 9.

Coal beds of Allegheny formation, correlation: Thiessen, 9.

✓ Coal fields: Campbell, M. R., 6.

Coal formation clays: Stout, 3.

Coals, analyses: Fieldner, 1.

Glass sands: Bownocker, 7.

Gypsum: Stone, 11.

Helium-bearing natural gas: Rogers, G. S., 7.

Mineral resources: Bownocker, 9; Peattie, 1.

Molding sand: Bownocker, 5, 6.

—Oil and gas, Ordovician horizons: Panyity, 3.

Oil-producing sands, eastern Ohio, structure: Lockett, 2.

Petroleum: Bownocker, 3.

Pyrite in coal: Tucker, W. M., 1.

Salt deposits: Phalen, 1.

Structural conditions, eastern Ohio: Cottingham, 4.

Summerfield and Woodsfield quadrangles: Condit, 3.

Historical geology.

Berea sand, Panyity, 2.

Borings: Panyity, 3.

Brines of eastern Ohio: Lord, 1.

Chagrin formation: Chadwick, 12, 14.

Cincinnati anticline, dimensions: Hubbard, G. D., 5.

Devonian Spirifer horizons: Ireland, 1.

Dunkard series: Stauffer, 1.

Geologic map: Bownocker, 1.

Huntington-Pittsburgh Basin: Richardson, G. B., 13.

Lucas County: Carman, 5.

Monongahela series: Stout, 7.

Monroe division: Carman, 2.

Northeastern Ohio: Decker, C. E., 1.

Olentangy shale: Lamborn, 1.

O'Shaughnessy dam, Delaware County: Carman, 4.

Pottsville formation: Morningstar, 1.

Richmond faunal zones, Warren and Clinton counties: Austin, G. M., 1.

Sedimentary rocks, thickness: Hills, T. M., 1.

Silica shale, Lucas County: Stewart, G. A., 2.

Silurian: Foerste, 2, 14.

Vinton County, Mississippian: Hyde, 3.

Ohio—Continued.

Paleontology.

Collecting fossil fishes in Cleveland shale: Hyde, 2.

Cystids and blastoids, Cedarville: Foerste, 10.

Dunkard series: Stauffer, 1.

Echinodermata, Brassfield formation: Foerste, 1.

Elephas roosevelti, Darke County: Hay, 26.

Fishes, Cleveland shale: Hyde, 4.

Footprints, Pennsylvanian: Carman, 3.

Gastropod, Guelph formation: Foerste, 14.

Marl deposits, Mollusca: Sterki, 1.

Medinan fauna: Foerste, 14.

Pleistocene Mollusca: Baker, F. C., 3;

Logan County: Baker, F. C., 2.

Pottsville fauna: Morningstar, 1.

Richmond faunal zones, Warren and Clinton counties: Austin, G. M., 1.

Silica shale fauna: Stewart, G. A., 2.

Silurian: Foerste, 2, 14.

*Type fossils in museum of Ohio State University: Morningstar, 2.

Physical geology.

Caves: White, G. W., 1.

Put-in-Bay, origin: Cottingham, 1.

Cavities filled with glacial material, Silica, Lucas County: Carman, 1.

Concretions in lake deposits, Elyria: Hubbard, G. D., 1.

Cincinnati landslides: Rogers, J. K., 1.

Cryptovolcanic area, Serpent Mound: Bucher, 16.

Cryptovolcanic phenomena: Bucher, 11.

Huntington-Pittsburgh Basin: Richardson, G. B., 13.

Isothrustic structure, Adams County: Jillson, 48.

Underground structure: Cottingham, 3.

Wisconsin drift, depth of leaching: Conrey, 2.

Physiographic geology.

Adams County, cryptovolcanic structure: Bucher, 3.

Boulders outside of drift border: Patton, 4.

Islands, western end of Lake Erie, control by joints: Cook, C. W., 7.

Lake Abram, Berea: Speckman, 2.

Ohio River, genesis: Fowke, 1.

River valleys, northern Ohio, history: Hubbard, G. D., 7.

Underground water.

Ground waters, composition: Foulk, 1.

Sink holes and springs, Bellevue area: Hubbard, G. D., 8.

Ohio River, genesis: Fowke, 1.

Oil. See Petroleum.

Oil geology, practical: Hager, D., 8.

Oil pools, relation to ancient shore lines: Jones, W. F., 1.

Oil-field waters: Rogers, G. S., 1.

Oil shales.

Bibliography: Winchester, 5.

California, Santa Barbara: Gore, 1, 2.

Canada: Ellis, 3, 7.

Colorado: Alderson, 4; Chase, R. L., 1; George, R. D., 2.

DeBeque: DeBeque, 1.

northwestern: Lunt, 1.

Distribution in United States: Winchester, 4.

Eastern United States: Jillson, 83, 95, 96.

General: Alderson, 1, 2, 6; Dawson, J. C., 1; Fettke, 3; Gavin, 1; Hoskin, 1; Reeves, J. R., 5; Roeschlaub, 1; Trager, 2; Vilbrandt, 2; White, D., 4; Winchester, 2.

Genesis: Manning, 1.

Green River formation, Colorado: Sears, 5.

Green River oil shales: White, D., 4; origin: Bradley, W. H., 5.

Indiana: Esarey, 3; Reeves, J. R., 2-6.

Kentucky: Alderson, 3; Crouse, 5; Jillson, 25.

Devonian black shales: Crouse, 3.

Devonian oil shale, microscopic composition: Thiessen, 10.

Estill County: Crouse, 1.

Kerogen: Craig, 2; Van Tuyl, 9.

Manitoba, Cretaceous shale: Ellis, 2.

Microthermal observations on oil shales: Stadnichenko, 2.

Montana, Idaho, Wyoming, and Utah: Condit, 2.

Mother plants of petroleum in Devonian black shales: White, D., 19.

New Brunswick: Simpson, L., 1.

Albert Mines: Wright, W. J., 2.

North Carolina: Vilbrandt, 1, 2.

Ontario, Abitibi River: Williams, M. Y., 7.

Organic constituents: Livingstone, 1.

Organic content: Goodwin, R. T., 1.

Organic matter: Franks, 1.

Origin: Collins, G. E., 1; Hixon, 6; Jones, J. C., 1; Linker, 1; Stadnichenko, 2; and composition: Thiessen, 7; and distribution: George, R. D., 5.

Pennsylvania: Fettke, 4.

Petroleum, relation to: Van Tuyl, 13.

Rocky Mountain region: Winchester, 5.

Saskatchewan, Cretaceous shale: Ellis, 2.

Soluble material in oil shale: McCoy, 6.

Uinta Basin: Jensen, 1.

Wyoming: Morgan, G. B., 3.

Rock Springs area, Sweetwater County: Schultz, 1.

southwestern: Schramm, 1.

Oil supply of United States: U. S. G. S., 8.

Oiseau River area, Manitoba: Wright, J. F., 10.

Oklahoma.

- Drillite: Shead, 4.
- Deep-well temperature investigation: Gould, C. N., 32.
- General: Gould, C. N., 31.
- Geologic problems unsolved: Gould, C. N., 20.
- Oklahoma Geological Survey, seventh field conference: Gould, 17.
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- Red River boundary: Glenn, 8.
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Areas described.

- Arbuckle Mountains: Taff, 7.
- Beaver County: Gould, 15.
- Beckham County: Gouin, 2.
- Bristow quadrangle, Creek County: Fath, 6.
- Caddo and Grady counties: Becker, 1.
- Cimarron County: Rothrock, 4.
- Cleveland and McClain counties: Anderson, G. E., 4.
- Gage, Ellis County: Thompson, D. G., 2.
- Garvin County: Dott, 2.
- Jefferson County (part): Robinson, H. M., 3.
- Kay, Grant, Garfield, and Noble counties: Clark, G. C., 3.
- Kingfisher and Canadian counties: Kite, 1.
- Love County: Bullard, 2.
- Madill-Denison area: Hopkins, O. B., 2.
- Marshall County: Bullard, 3.
- Murray County, northern part: Monnett, 5.
- Southern Ouachita Mountains: Honess, C. W., 4.
- Stonewall quadrangle: Morgan, G. D., 5.
- Texas County: Gould, 11.
- Wichita Mountains: Taff, 7.

Economic geology.

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- Burbank oil field, Osage County: Miller, W. Z., 1; Sands, 1, 2.
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- Carter County: Tomlinson, 4.
- Cement oil field, Caddo County: Clapp, F. G., 1; Reeves, F., 1.
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- Coal fields: Cooper, 3.
- Coals, analyses: Fieldner, 9.
- Comanche County: Gouin, 3.
- Copper, Garfield County: Reiter, 1.
- Crinerville oil field, Carter County: Powers, 22.
- Cromwell oil field, criteria of structure: Somers, 3.
- Digest of oil and gas fields: Mills-Bullard, 2.
- Fox and Graham oil and gas fields, Carter County: George, H. C., 2.

Oklahoma—Continued.

Economic geology—Continued.

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- Garber oil field: Vanderpool, 1.
- Garber oil sands, age and correlation: Wheeler, H. C., 1.
- Glenn formation: Goldston, 3.
- Glenn oil pool: Rich, J. L., 13; Wilson, W. B., 1.
- Graham field, Carter County: Tomlinson, 1.
- Gypsum: Stone, 11.
- Gypsum and salt: Gould, C. N., 29.
- Harmon, Greer, Jackson, and Tillman counties: Clifton, 5.
- Healdton oil field, Carter County: Bartram, 1.
- Helium-bearing natural gas: Rogers, G. S., 7.
- Hewitt oil field, Carter County: Roark, 1; Swigart, 1.
- Hogshooter gas sand: Berger, 1.
- Joplin region, lead and zinc ores: Spurr, 32.
- Kay County, pre-Pennsylvanian oil horizons: Aurin, 1.
- Kirk gas sand, Graham district: Ley, 3.
- Lead ore, rapid formation: Wheeler, H. A., 3.
- Logan County: Bale, 1.
- McIntosh County: Clark, R. W., 4.
- Manganese, Bromide: Hewett, 8.
- Custer County: Reiter, 2.
- Miami district: Netzeband, 1.
- Mid-Continent oil fields: Bosworth, 1.
- reflected buried hills: Powers, 11.
- structures: Monnett, 2.
- Mineral production in 1925: Redfield, J. S., 2.
- Mineral raw materials, chemical analyses: Shead, 8.
- Mineral resources: Gould, 6; Redfield, J. S., 1; map showing distribution: Okla. G. S., 1.
- Morrison oil field, Pawnee County: Carpenter, E., 1.
- Muskogee County: Soyster, 1.
- Natural gas: Shaw, 6; Snider, 1.
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- Nowata and Craig counties: Bloesch, 4.
- Oil and gas: Powers, 20.
- Creek County, Merritt, J. W., 4.
- Kay, Grant, Garfield, and Noble counties: Clark, G. C., 3.
- Okmulgee County: Clark, R. W., 2.
- Stephens County: Gouin, 1.
- Wagoner County: Boyle, 1.
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- Oil and gas fields, map: U. S. G. S., 6.
- southern Oklahoma: Moore, R. C., 10.
- Oil and gas geology, Coal and Pittsburg counties: Clawson, 1.

Oklahoma—Continued.

Economic geology—Continued.

- Oil and gas prospects, Jefferson County: Robinson, H. M., 3.
- Oil and gas resources, Osage Reservation: Bowen, C. F., 3; Goldman, 2, 4; Heald, 1-4; Hopkins, O. B., 1; Robinson, H. M., 1, 2; Ross, C. S., 2.
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- Oil possibilities, southeastern Oklahoma: Lockwood, 1.
- Oil production: Mills-Bullard, 1, 2.
- Oil sands, northeastern Oklahoma: Williams, D. W., 1.
- texture: Melcher, 3.
- Oil sands and production relations: George, H. C., 5.
- Oil structures, southwestern Oklahoma: Howell, J. V., 2.
- Oil-field waters: Rogers, G. S., 2.
- Okmulgee district: Clark, R. W., 1.
- Osage Reservation: Roundy, 1.
- Osage County: Beckwith, H. T., 1.
- Papoose oil field: Roark, 2.
- Pawnee County: Greene, 10.
- Payne County: Koschmann, 1.
- Pershing oil and gas field, Osage County: Rubey, 2.
- Petroleum: Snider, 1.
- Osage Nation: Mason, S. L., 1.
- Osage County: Hartley, 3.
- Stephens County, "2-4" field: Storm, 1.
- Velma field: Storm, 2.
- Petroleum and natural gas, Bristow quadrangle: Fath, 6.
- Phosphate rock, Hastings: Shead, 2.
- Picher district, sub-Cherokee contour map: Siebenthal, 28.
- Pontotoc County: Conkling, 1.
- Robberson oil and gas field, Garvin County: Denison, A. R., 1; English, L., 1; Oklahoma G. S., 2.
- Robberson oil field, Garvin County: Roth, 1.
- Road materials, western Oklahoma: Evans, O. F., 7.
- Rock distortion on local structures in oil fields: Gardner, J. H., 1.
- Rogers County: Woodruff, 4.
- Salt deposits: Phalen, 1; Darton, 8.
- Sayre oil and gas field, Beckham County: Birk, 1.
- Seminole County: Levorsen, 2.
- Seminole uplift: Powers, 23.
- Siluro-Devonian oil horizon, southern Oklahoma: Morgan, G. D., 1, 4.
- Southeastern Oklahoma: Honess, C. W., 6.
- Stroud oil field: McFarland, 1; Powers, 15.
- Thomas oil field, Kay County: Clark, S. K., 1, 3.

Oklahoma—Continued.

Economic geology—Continued.

- Tonkawa oil and gas field: Clark, G. C., 1; Hosterman, 1; Wilcox sand production: Clark, G. C., 2.
- Turkey Mountain lime oil pools: Ruedemann, P., 2.
- Unconformities, bearing on occurrence of petroleum: Bloesch, 1.
- Washington County: Carpenter, E., 2.
- Zinc-lead field: Naething, 2.

Historical geology.

- Arbuckle limestone: Decker, 8.
- Arbuckle Mountains: Decker, C. E., 2; Reeds, 11; geologic history: Weldman, 3.
- mapping: Decker, 2.
- Ardmore Basin, Pennsylvanian: Tomlinson, 3.
- Blaine gypsum: Gould, C. N., 23.
- Black Mesa basalt, Cimarron County: Shead, 5.
- Boggy unconformity and overlap, southern Oklahoma: Morgan, G. D., 6.
- Borings, Carter County: Roth, 2.
- central Oklahoma: Hughes, 1.
- into granite, list: Greene, 5.
- Bromide area: Hewett, 8.
- Buried hills near Mannsville: Tomlinson, 2.
- Buried mountain ranges: Gould, 4.
- Caddo County, Cement oil field: Reeves, F., 1.
- Caney shale and its boulders: Ulrich, 18.
- Carboniferous: Gould, 12.
- Ouachita Mountains, age relations: Miser, 29.
- southern Oklahoma: Burton, G. E., 2.
- Carter County: Tomlinson, 4.
- Cement oil field, Caddo County: Clapp, F. G., 1, 2.
- Cimarron County: De Ford, 1.
- Coal and Pittsburg counties: Clawson, 1.
- Coals of Oklahoma and Kansas, correlation: Cooper, 4.
- Comanche County: Gouin, 3.
- Comanchean, Love County: Bullard, 1.
- northwestern Oklahoma: Clifton, 3.
- Conglomerates near eastern limits of red beds: Evans, O. F., 2.
- Correlation of "Wilcox" sand, Okmulgee district, and Osage: White, L. H., 1.
- Creek County: Merritt, J. W., 4.
- Devonian: Schuchert, 21.
- Eastern Oklahoma: Shannon, C. W., 4.
- underground stratigraphy: Trager, 3.
- Enid formation: Aurin, 3.
- Field conference: Gould, C. N., 18.
- Foraker limestone, Lincoln County: Lillibridge, 1.

Oklahoma—Continued.

Historical geology—Continued.

- Formation names, obsolete: Gould, C. N., 24.
- Fort Scott-Wetumka correlation: Bloesch, 3.
- Franks and Seminole formations, stratigraphic position: Morgan, G. D., 7.
- Frederick, Tillman County: Cook, H. J., 12.
- Garvin County, limestone occurrence: Loomis, H., 1.
- General: Gould, C. N., 33; Redfield, J. S., 1; Snider, 1.
- Geologic map: Miser, 16, 24; Powers, 13.
- Glaciation, Pennsylvanian, Arbuckle and Wichita mountain regions: Weidman, 1, 2.
- Glenn formation: Girty, 5.
- Ardmore quadrangle: Goldston, 1.
- southern Oklahoma: Goldston, 2, 3.
- Harmon, Greer, Jackson, and Tillman counties: Clifton, 5.
- Hewitt oil field, Carter County: Roark, 1; Swigart, 1.
- Hogshooter gas sand: Berger, 1.
- Human artifacts, Frederick: Cook, H. J., 15.
- Huronian-Grenville relations: Quike, 18.
- Index to stratigraphy: Gould, 9.
- Jefferson County (part): Robinson, H. M., 3.
- Kay County, pre-Pennsylvanian oil horizons: Aurin, 1.
- Leflore and McCurtain counties: Honess, C. W., 5.
- Logan County: Bale, 1.
- Lower Cretaceous: Bullard, 4.
- southeastern Oklahoma: Miser, 27.
- McIntosh County: Clark, R. W., 4.
- Mid-Continent oil fields: Aurin, 2.
- Mississippian, distribution and correlation: Buchanan, 2.
- tuff, Ouachita Mountains: Miser, 3.
- Muskogee County: Soyster, 1.
- Northeastern Oklahoma: White, L. H., 3.
- Nowata and Craig counties: Bloesch, 4.
- Oil sands, northeastern Oklahoma: Williams, D. W., 1.
- Oklahoma Mountains, age of folding: Powers, 26.
- Okmulgee County: Clark, R. W., 2.
- Okmulgee district: Clark, R. W., 1.
- Ordovician correlations: Edson, 3.
- Osage County: Beckwith, H. T., 1.
- Osage Reservation: Bowen, C. F., 3; Goldman, 2-4; Heald, 1-4; Hopkins, O. B., 1; Robinson, H. M., 1, 2; Ross, C. S., 2; Roundy, 1.
- Ouachita Mountains, southern: Honess, C. W., 1.
- Paleogeography: Wilson, R. A., 8.

Oklahoma—Continued.

Historical geology—Continued.

- Paleozoic: Miser, 7.
- Papoose oil field: Roark, 2.
- Pawnee County: Greene, 10.
- Payne County: Koschmann, 1.
- Pennsylvanian: Wilson, R. A., 9.
- eastern Oklahoma: Levorsen, 1.
- paleogeography: Dott, 1; Henryetta district: Reed, R. D., 2.
- sedimentation around Healdton Island: Merritt, J. W., 1.
- Pennsylvanian-Permian glaciation, Arbuckle and Wichita mountains: Dunbar, 7; Weidman, 4.
- Permian: Gould, 8, 14, 27.
- correlation: Gould, 10.
- red beds, southwestern Oklahoma: Gould, 55.
- western Oklahoma: Gould, 16.
- Pontotoc County: Conkling, 1.
- Pontotoc series, Arbuckle area: Morgan, G. D., 2, 3.
- western end of Arbuckle Mountains: Birk, 2.
- Pre-Cambrian, southeastern Ontario: Quirke, 13.
- Pre-Chattanooga formations: White, L. H., 2.
- Pre-Permian, Wichita Mountains: Howell, J. V., 3.
- Problems of stratigraphy: Wilson, R. A., 10.
- Red beds area: Greene, 1.
- Red beds near base of Cherokee shales: Tarr, Russ. S., 1.
- Rogers County: Woodruff, 4.
- St. Clair limestone, Arkansas and Oklahoma: Ulrich, 14.
- St. Peter sandstone: Dake, 6.
- Seminole area: Dwyer, 1.
- Seminole County: Levorsen, 2.
- Siluro-Devonian oil horizon, southern Oklahoma: Morgan, G. D., 1, 4.
- Simpson formation: Edson, 1.
- Southeastern Oklahoma: Honess, C. W., 6.
- Southern Oklahoma: Moore, R. C., 10, 11.
- Southwestern Oklahoma: Sawyer, 1.
- Stanley shale: Honess, C. W., 2.
- Stanley-Jackfork series: Honess, C. W., 5.
- Stephens County: Gouin, 1.
- Stonewall quadrangle: Greene, 6.
- Sycamore limestone: Cooper, 2.
- Thomas oil field, Kay County: Clark, S. K., 1.
- Tonkawa field: Clark, G. C., 2.
- Trinity group: Vanderpool, 3.
- Trinity sandstone, depth of base: Melton, 8.
- Upper Paleozoic rocks: Gould, C. N., 19.
- Verden sandstone: Reed, 3; Stephenson, C. D., 1.

Oklahoma—Continued.

Historical geology—Continued.

- Volcanic ash, North Canadian Valley : Gardner, J. H., 2.
- Volcanic rocks, Cretaceous : Miser, 19.
- Volcanic tuffs, central Oklahoma : Hoffman, M. S., 1.
- Wagoner County : Boyle, 1.
- Washington County : Carpenter, E., 2.
- Weatherford area : Evans, N., 1 ; Moore, H., 1.
- Western Oklahoma : Fennemann, 2 ; Patton, 7.
- subsurface stratigraphy : Greene, 9.
- Whitehorse sandstone : Clifton, 2.
- correlation : Clifton, 4.
- Wichita, Arbuckle, and Ouachita mountains, age of folding : Powers, 21.
- Wildhorse area : Brockway, 1.
- Woods, Alfalfa, Harper, Major, Woodward, and Ellis counties : Clifton, 1.
- Wreford and Foraker limestones : Twenhofel, W. H., 1.

Mineralogy.

- Barite : Shead, 3.
- Celestite : Gould, C. N., 22.
- Heavy minerals, recognition : Edson, 2.
- Leucoxene in Permian Mid-Continent sediments : Brown, L. S., 1.
- Meteorites : Shannon, C. W., 2.
- Smithville : Shead, 1.
- Sand barite crystals : Gould, C. N., 25.

Paleontology.

- Apus, Permian : Ruedemann, 8.
- Artifacts, Frederick : Cook, H. J., 13, 15 ; Hay, 43 ; Sci. Serv., 9 ; Spier, 1, 2.
- Beaver County, leaves : Berry, 82.
- Bison occidentalis, occurrence : Crabb, 2.
- Comanchean, Love County : Bullard, 1.
- Cordaites showing growth rings, Bartlesville : Goldring, 2.
- Cryptozoon, Arbuckle Mountains : Decker, 6.
- Dakota sandstone plants, Cimarron County : Noé, 9.
- Elephant : Crabb, 1.
- Elephas, Frederick : Hay, 41.
- Elephas cf. jeffersoni, juvenile lower jaw, Frederick : Cook, H. J., 17.
- Foraminifera, Dornick Hills formation, Carter County : Waters, J. A., 1.
- Glenn formation : Harlton, 2.
- Pennsylvanian : Galloway, J. J., 13 ; Harlton, 3.
- Glenn formation : Girty, 5.
- Glyptodon : Gould, C. N., 30.
- Leaf fossils, Permian : Gould : C. N., 26.
- Monoceratina, Pennsylvanian : Roth, 3.
- Ostracoda, Glenn and Hoxbar formations ; Harlton, 1.

Oklahoma—Continued.

Paleontology—Continued.

Ostracoda—Continued.

- Pennsylvanian : Coryell, 3 ; Harlton, 4 ; Seminole County : Coryell, 4.
- Pleistocene Vertebrata : Hay, 6.
- Proboscidea, distribution : Decker, 3.
- Stanley shale : Honess, C. W., 2.
- Sycamore limestone : Cooper, 1.
- Trematops thomasi, Permian : Mehl, 15.

Trinity fauna : Vanderpool, 2.

Petrology.

Volcanic rocks, Cretaceous : Miser, 19.

Physical geology.

- Anticlinal folds, Custer County : Reiter, 3.
- Arbuckle Mountains, structural features : Decker, 4.
- "Buried hills," structural influence : Monnett, 6.
- Calcite, Nussbaum formation, Cimarron County, crystallization force : Rothrock, 2.
- Caliche : Lonsdale, 5, 6.
- Crystalline rocks of the plains : Gould, 3.
- Faulting, Creek and Osage counties, origin : Foley, 1 ; Ickes, 3.
- Faulting and folding : Fath, 1.
- Folding, Okmulgee County : Clark, R. W., 3.
- origin : Foley, 3.
- Folds of Osage County, origin : Brown, R. W., 1 ; Kitson, 2.
- Lichens as weathering agents of limestone : Weidman, 6.
- Ouachita Mountains, structure : Miser, 30, 31.
- Osage County, folds : Millikan, 1.
- Pershing oil and gas field, Osage County : Rubey, 2.
- Rock distortion on local structures in oil fields : Gardner, J. H., 1.
- Slumping previous to consolidation in Pennsylvanian : Ross, C. S., 8.
- South Canadian River near Norman : Evans, O. F., 3.
- Strand markings in Pennsylvanian sandstones, Osage County : Powers, 6.
- Structural trends, southern Oklahoma : Decker, L., 1.
- Structure map, northeastern Oklahoma : Thom, 11.
- Temperature, deepest well : Miser, 15.
- Thomas field, Kay County, faulting : Clark, S. K., 3.
- Transverse structure in Arbuckle Mountains : Decker, 5.
- Veining along faults, Pennsylvanian sandstone : Hoffman, M. S., 2.
- White spots in Permian red beds : Shead, 7.
- Wichita Mountain area, erosion and transportation : Evans, O. F., 1.

Oklahoma—Continued.

Physiographic geology.

Arbuckle Mountains, physiographic history: Weidman, 3.

General: Redfield, J. S., 1; Shannon, C. W., 3.

North and South Canadian River basins: Bollinger, 1.

Parallel courses of streams: Evans, O. F., 9.

Pre-Paleozoic topography: Monnett, 4.

Red River: Tex., Atty. Gen., 1.

Stream valley type: Evans, O. F., 5.

Valleys of interior plains, origin: Evans, O. F., 6.

Western Oklahoma: Fenneman, 2.

Underground water.

Enid area: Renick, 4.

Oil-field waters: Rogers, G. S., 2.

Oldhamia, Lower Cambrian, Massachusetts: Howell, B. F., 2.

Oligocene, use of term: Berry, 86.

Ontario.

Anthraxolite, microstructure: Kelly, S. F., 2.

Borings: Ingall, 6.

Bureau of Mines reports, index: Nicolas, 1.

Department of Mines, index to reports: Ont. Dept. Mines, 2.

English River valley: Bruce, 11.

General: Raasch, 1.

Kenogamissi Lake area: Todd, E. W., 3.

Lake St. Joseph area: Johnson, J. P., 1.

Museum of Mineralogy, Ontario: Parsons, 10.

Preglacial oxidation in northern Ontario: Tyrrell, 5.

Red Lake area, Patricia: Bruce, 18.

Red Lake basin, District of Patricia: Bruce, 12.

Red Lake to Favourable Lake, District of Patricia: Douglas, G. V., 4.

Report of Bureau of Mines: Ont. Bur. Mines, 1.

Report of Department of Mines: Ont. Dept. Mines, 1.

Thunder Bay district, base and meridian lines: Swanson, W. L., 1.

base line: Green, W. F., 1.

Watabeag area, Wright, D. G. H., 1.

Areas described.

Abitibi-Night Hawk gold area, Timiskaming district: Knight, C. W., 1.

Algoma district, Deroche, Hodgins, Gaudette, and Shields townships: Brunton, 1.

Anima-Nipissing area: Todd, E. W., 7.

Arnprior-Quyon area: Wilson, M. E., 10.

Batchawana area, District of Algoma: Moore, E. S., 19.

Black River area, Timiskaming: Wright, D. G. H., 1.

Blanche River area: Burrows, 9.

Ontario—Continued.

Areas described—Continued.

Boston-Skead area, Timiskaming district: Burrows, 8.

Brockville-Mallorytown area: Wright, J. F., 2, 8.

Cochrane district, Ogden, Bristol, and Carscallen townships: Hawley, J. E., 3.

Gammon River area, District of Kenora: Gilbert, G., 7.

Geneva map area, Sudbury district, Ontario: Quirke, 7.

Goudreau gold area, Michipicoten district: Thomson, E., 4.

Goudreau-Lochalsh gold area, District of Algoma: Gledhill, 8.

Gowganda silver area: Burrows, 3, 6.

Grassy River area, south part: Gledhill, 6.

Groundhog River area: Todd, E. W., 4.

Gunflint iron-bearing formation: Gill, J. E., 1.

Kamikotlia gold area, District of Cochrane: Finley, 1.

Kenogami Lake area, Timiskaming district: Cooke, H. C., 8.

Kirkland Lake gold area: Burrows, 4, 12; Todd, 8; Lebel and Gauthier townships: Hopkins, 7.

La Cloche area, District of Sudbury: Douglas, G. V., 3.

Lake St. Joseph area: Bruce, 8; area south of west end: Bruce, 10.

eastern part: Bruce, 9.

Lake Timiskaming area: Hume, 14.

Larder Lake area, Timiskaming district: Cooke, H. C., 8; Hopkins, P. E., 1, 8.

Leeds County: Baker, M. B., 1.

Lightning River gold area, District of Cochrane: Gledhill, 4; Knight, 12.

Lower Missinaibi, Opazatika, and Matagami rivers: McLearn, 12.

Madoc district: Wilson, Morley E., 5.

Matabitcheuan area, districts of Timiskaming and Nipissing: Todd, E. W., 5.

Matachewan district, northern Ontario: Burrows, 2; Cooke, H. C., 1.

Matawin iron range, Thunder Bay district, eastern part: Tanton, 15.

Michipicoten area: Collins, 15; Gledhill, 7.

Missinaibi area: Thomson, E., 11.

Mississagi Reserve and Goulais River iron ranges, District of Algoma: Moore, E. S., 15.

Moose River basin, northern part: Kindle, 26.

Night Hawk Lake gold area: Hopkins, 9.

Nipigon-Schreiber district: Tanton, 6.

North shore of Lake Huron: Collins, 11.

Ontario—Continued.

Areas described—Continued.

- Ontario-Manitoba boundary, Bloodvein River to Twelfth base line: Rickaby, 1.
 Winnipeg River to Bloodvein River: Burwash, 6.
 Pearl Lake area, Porcupine district: Robinson, H. S., 1.
 Porcupine gold area: Burrows, 13.
 Red Lake area, District of Patricia: Rogers, W. R., 6.
 Red Lake Basin, District of Kenora: Bruce, 22.
 Round Lake area, Timiskaming district: Cooke, H. C., 8.
 Sahkatawich (Rush) Lake section, Woman River iron range, District of Sudbury: Moore, E. S., 20.
 Sault Ste. Marie area, District of Algoma: McConnell, 1.
 Schreiber-Duck Lake area: Hopkins, P. E., 5.
 Shiningtree silver area, District of Timiskaming: Langford, 1.
 Sturgeon Lake area: Gledhill, 2.
 Sudbury district, Grassy River area: Gledhill, 5.
 West Shiningtree area: Finley, 2.
 Sutton Lake area, District of Patricia: Hawley, J. E., 1.
 Tashota-Onaman gold area, District of Thunder Bay: Gledhill, 3.
 Thunder Bay district: Tanton, 5, 8.
 Timiskaming district, Redstone River area: Bruce, 19.
 Wakomata Lake area, Algoma district: Emmons, R. C., 3.
 Wanapetel Lake area, Sudbury district: Quirke, 8.
 Wasapika section, West Shiningtree gold area, District of Sudbury: Langford, 2.
 Watabeag area, Timiskaming and Cochrane districts: Wright, D. G. H., 2.
 West Shiningtree gold area: Hopkins, P. E., 2.
 Whiskey Lake area, District of Algoma: Douglas, G. V., 2.
 Woman and Narrow lakes area, District of Kenora: Greig, 2.

Economic geology.

- Abitibi-Mattagami area: Cross, J. G., 2.
 Alteration in Keeley mine, South Lorrain: Bell, J. M., 6.
 Anthraxolite, Sudbury: Gibson, 2.
 Apatite deposits: Spence, 2.
 Argonaut gold mine, Gauthier township, Timiskaming district, Cooke, H. C., 13, 23; Knight, 6.
 Auld and Cane townships: Burrows, 6.
 Brockville-Mallory area: Wright, J. F., 1.

Ontario—Continued.

Economic geology—Continued.

- Carbonaceous matter at Porcupine: Bell, J. M., 8.
 Clay, Mesozoic, Mattagami and Missinaibi rivers, northern Ontario: Dyer, 11.
 northern Ontario: Keele, 1.
 Clay and shale deposits: Keele, 8.
 Abitibi and Mattagami rivers; Keele, 2.
 Clays, Missinaibi River: Keele, 6, 7.
 Cobalt: Drury, 1; Knight, C. W., 7.
 diffusion in vein genesis: Whitman, 1.
 Cobalt and South Lorrain silver areas: Knight, 11.
 Cobalt district, genesis of ores: Whitman, 3.
 Cobalt ore horizons: Shaw, J. W., 1.
 Cobalt silver district: Bateman, G. C., 1; Cole, A. A., 1; Miller, W. G., 9.
 Cobalt veins: Whitehead, 1.
 Copper deposits, Perry Sound: Schwartz, 8.
 Cretaceous sands and clays, northern Ontario: Keele, 4.
 Deep-seated oxidation and secondary enrichment at Keeley silver mine near Cobalt: Bell, J. M., 4.
 Favourable Lake area, Patricia: Hurst, 5.
 Feldspar, Lanark County: Campbell, A. M., 1.
 Feldspar, Ottawa district: Davis, N. B., 1.
 Fluorspar, Madoc district: Wilson, Morley E., 6, 9.
 Fort Hope gold area: Burwash, 8.
 Gold: Hopkins, P. E., 3, 4.
 Beardmore: Burrows, 16.
 Ben Nevis area: Knight, C. W., 5.
 Boston-Skead area: Burrows, 8.
 in quartzite, Goudreau district: Moore, E. S., 10.
 Kenora and Rainy River districts: Bruce, 17.
 Larder Lake, Timiskaming district: Cooke, H. C., 14.
 McNeill township: Hopkins, 10.
 Makwa, Sudbury district: Tanton, 10.
 Matachewan area: Burrows, 2; Cooke, H. C., 1, 3.
 Michipicoten district: Thomson, E., 4.
 northwestern Ontario: Timm, 1.
 Pancake Lake: Hopkins, 11.
 Porcupine district: Dougherty, 1; Spurr, 8.
 West Shiningtree area: Hopkins, P. E., 2.
 wide dissemination of gold in northern Ontario: Boydell, 13.

Ontario—Continued.

Economic geology—Continued.

- Gold and silver: McGill, 1.
 Goudreau gold area: Burrows, 5, 7; Macleod, 1, 2.
 Gowganda silver district: Brunton, 4.
 Graphite, Renfrew district: Willson, M. E., 4.
 Gravel deposits, St. Clair River: Bartlett, J., 1.
 Gunflint iron formation: Gill, J. E., 2.
 Gypsum, Moore River: Lanning, 1.
 southwestern Ontario: Cole, G. E., 1, 2; Dyer, 5.
 Hematite, Leeds County: Wright, J. F., 1.
 Iron deposits: Bruce, 16; Collins, 7; Knight, C. W., 8; O'Connor, 1; Ontario Iron Ore Committee, 1.
 Gravel Lake, Thunder Bay district: Tanton, 12.
 Lake St. Joseph: Bruce, 8.
 Iron oxide pigments: Fréchette, 1.
 Iron ranges, northwestern Ontario: Marks, 1.
 Keewatin iron formations: Collins, 23.
 Kirkland Lake gold area: Burrows, 4; Cooke, H. C., 6; Hopkins, P. E., 6; Johnson, H. H., 1; Orser, 1; Spearman, 4; Spurr, 9; Tyrrell, 9.
 Lebel and Gauthier townships: Hopkins, 7.
 Larder Lake: Cooke, H. C., 24; Hopkins, P. E., 1; Pearce, 2.
 Lake Superior region, Port Arthur-Nipigon: Tanton, 3.
 Lead, Galetta: Wilson, M. E., 12.
 and zinc: Alcock, 23.
 Leeds County: Baker, M. B., 1.
 Lightning River gold area: Burrows, 1; Knight, C. W., 9.
 Limestones: Goudge, 3.
 Abitibi and Mattagami rivers: Malcolm, 6.
 Lost placers: Coleman, 3.
 Mattagami and Abitibi rivers: Williams, M. Y., 6, 7.
 Mesozoic clays and sands, northern Ontario: Keele, 3.
 Michipicoten district: Collins, W. H., 1, 2.
 Mine Centre district: Reagan, 2.
 Mineral industry: Gibson, 1; Rogers, W. R., 1-5, 7.
 Mineral resources: Corless, 2; Ontario Dept. Mines, 1.
 Mineralization, South Lorrain, Cobalt district: Bell, J. M., 6.
 Mining areas, geographical relations: Miller, W. G., 7.
 Molybdenite, Ottawa Valley: Wilson, Morley E., 4.
 Renfrew-Calabogie district: Wilson, Morley E., 4.
 Montreal River district: Anon., 4.

Ontario—Continued.

Economic geology—Continued.

- Murphy, Hoyle, and Matheson townships, Porcupine gold area: Rose, 4.
 Natural gas: Estlin, 1, 2.
 and oil possibilities: Coste, 2.
 and petroleum: Harkness, 2-6.
 Nickel: Simmersbach, 1.
 Shebandowan deposit: Cross, J. G., 1.
 Windy Lake and other areas: Knight, C. W., 4.
 Norite micropegmatite, composition, Sudbury: Knight, 10.
 Northern Ontario: Tanton, 2.
 Northpines pyrite mines: Hanson, 1.
 Oil and gas: Harkness, 1, 7.
 Oil and gas geology: Williams, M. Y., 3.
 Oil and gas horizons: Dyer, 7.
 Oil and gas possibilities: Rowe, E. P., 1.
 Oil and gas prospects: Williams, M. Y., 9.
 Oil fields: Estlin, 2.
 southwestern Ontario: Williams, M. Y., 2, 4.
 Oil possibilities, Manitoulin Island: Williams, M. Y., 11.
 Oil in Tanton syncline, Kent County: Williams, M. Y., 5.
 Onaman gold area: Glrvin, 1.
 Ore deposition at the Creighton mine, Sudbury: Spurr, 14.
 Ore deposits, Pearl Lake area: Bain, 13.
 Ottawa Valley: Wilson, M. E., 3, 4.
 Palladium-bearing nickel deposit, Shebandowan Lake, Thunder Bay district: Tanton, 9.
 Pearl Lake area, Porcupine district: Robinson, H. S., 1.
 Peat: Anrep, 2, 4, 6; Haanel, B. F., 2.
 Pegmatite dikes, southeastern Ontario: Sine, 3.
 Pitchblende, Butt township: Hore, 6; Knight, C. W., 3.
 Placers in Cobalt conglomerate: Johnston, W. A., 19.
 Porcupine area, porphyries: Wright, L. B., 2.
 Porcupine gold field: Bell, J. M., 2; Burrows, 10, 11; Fielding, 1; Hore, 8; Huntton, 1.
 extension: Goodwin, W. L., 2.
 Porcupine porphyry stocks: Burrows, 15.
 Porcupine quartz veins: Spurr, 25; mode of formation: Dougherty, 3, 4.
 Pyrite, Calabogie district: Wilson, M. E., 4.
 Goudreau: Collins, W. H., 1.

Ontario—Continued.

Economic geology—Continued.

- Recent mining developments: Burrows, 14.
- Red Lake gold area, Patricia: Wright, D. G. H., 4.
- Red Lake and Woman Lake gold areas: Bruce, 23.
- Road materials, eastern Ontario: Picher, 2, 4.
- Romney oil well: Davis, H. R., 1.
- Rutter map area, Sudbury district: Quirke, 19.
- Sand and gravel: Ledoux, A., 1.
- Schreiber-Duck Lake area: Hopkins, P. E., 5.
- Shebandowan nickel-copper deposits: Cross, J. G., 3.
- Siderite deposits, Mattagami River: Cross, J. G., 2.
- Silurian, southwestern Ontario: Williams, M. Y., 1.
- Silver ores, Cobalt, genesis: Bastin, 6, 12.
- Gowganda area: Burrows, 3, 6.
- South Lorrain: Bastin, 9, 12; Bell, J. M., 3, 5.
- Silver veins, Cobalt: Knox, H. H., 1.
- Silver Islet ores, Thunder Bay district: Tanton, 4; Thomson, E., 6.
- paragenesis: Chadbourne, 1.
- Steeple Lake area: Tanton, 16.
- Structural control of location of ore deposits: Bell, J. M., 9.
- Structural materials, St. Lawrence Valley: Keele, 5.
- Sudbury laccolite: Harker, 1.
- Sudbury nickel deposits: Coleman, 23, 29; Gregory, J. W., 3; Park, J., 1; Phemister, 4; Roberts, H. M., 2; Wandke, 4; Young, J. W., 4.
- assimilation and assimilation processes: Bain, 14; Phemister, 5.
- magmatic origin: Coleman, 488.
- Sudbury nickel-copper deposits: Bell, J. M., 1.
- Talc, Madoc, Hastings County: Wilson, M. E., 8.
- Thunder Bay district: Parsons, 5.
- Timiscaming ores, structure: Schlossmacher, 1.
- Wabigoon and Tráp Lake soapstone deposits: Wright, J. F., 5.
- Wasapika gold area, Sudbury district: Hore, 1-5.
- West Shiningtree gold district: Goodwin, L. H., 1; Weed, 1.
- Zinc and lead, Genoa township, Sudbury mining division: Moore, E. S., 16.

Historical geology.

- Abitibi-Mattagami area: Cross, J. G., 2.
- Alluvial fan deposits in Upper Huronian: Bain, 3.

Ontario—Continued.

Historical geology—Continued.

- Archean: Cooke, H. C., 17.
- Argonaut gold mine: Knight, 6.
- Ben Nevis gold area: Knight, 5.
- Borings: Estlin, 2; Ingall, 3.
- Cobalt district: Bastin, 12.
- Cobalt and South Lorrain silver areas: Knight, 11.
- Cobalt conglomerate, origin: Coleman, 4.
- Couchiching: Grout, 15.
- Bear's Pass section, Rainy Lake: Bruce, 15.
- near Steeple Lake: Tanton, 14.
- Couchiching delta: Bruce, 21.
- Cretaceous sands and clays, northern Ontario: Keele, 4.
- Credit River section: Dyer, 3.
- Dundas formation: Parks, 17.
- Geologic map, Algoma and Thunder Bay districts: Canada G. S., 1.
- showing mineral resources: Canada, Dept. Mines, 1.
- Thunder Bay district: Tanton, 7.
- Gowganda conglomerate, origin: Bain, 17.
- Grenville pre-Cambrian subprovince: Wilson, M. E., 15.
- Haileyburian intrusives: Miller, W. G., 2, 3.
- Hastings series: Wilson, M. E., 19.
- Hudson Bay area: Foerste, 22; Savage, 2.
- Huronian and Grenville rocks, correlation: Quirke, 12, 13.
- Huronian complex near Killarney: Quirke, 11.
- Huronian replacement deposits: Quirke, 20.
- James Bay region: Savage, 2.
- Keewatin iron formations: Collins, 23.
- Keweenaw system, eastern end of Lake Superior: Moore, E. S., 18.
- Killarney gneisses and migmatites: Quirke, 22.
- Kirkland Lake gold area: Todd, 8; Tyrrell, 7.
- Lake Superior region, Port Arthur-Nipigon: Tanton, 3.
- Lightning River gold area: Knight, C. W., 9.
- Manitoulin Island: Williams, M. Y., 11.
- Matachewan series, northeastern Ontario: Miller, W. G., 6.
- Mesozoic and Pleistocene deposits of lower Missinaibi, Opazatika, and Mattagami rivers: McLearn, 12.
- Michipicoten district: Collins, W. H., 1.
- Middle Eozoic sediments: Spearman, 3.
- Montreal River district: Anon., 4.
- Moose and Albany rivers, northern Ontario: Williams, M. Y., 12.
- North shore of Lake Huron: Collins, 11.
- Northeastern Ontario: Miller, W. G., 8.

Ontario—Continued.

Historical geology—Continued.

- Oil and gas geology: Williams, M. Y., 3.
- Ordovician, Ottawa region: Wilson, A. E., 1.
- Toronto: Parks, 15.
- western Ontario: Parks, 28.
- Ordovician black shales: Parks, 32.
- Ordovician and Silurian, Hudson Bay area: Foerste, 22.
- Pagwachuan, Kenogami, and Albany rivers: Williams, M. Y., 10.
- Paleozoic, Mattagami and Abitibi rivers: Williams, M. Y., 6, 7.
- outlier, Lake Timiskaming: Hume, 1, 14.
- south of James Bay: Williams, M. Y., 8.
- Paleozoic and pre-Cambrian relationships, southern border of Laurentian Highlands, Wilson, M. E., 7.
- Patricia: Burwash, 1.
- Pleistocene, Toronto region: Coleman, 19.
- Porcupine area: Bell, J. M., 8.
- Pre-Cambrian: Cooke, H. C., 7, 19; Miller, W. G., 1, 4, 10; Quirke, 6; correlation: Cooke, H. C., 7.
- northern Ontario: Bruce, 7; Cooke, H. C., 16.
- Lake Superior region: Tanton, 17.
- western Patricia: Burwash, 5.
- Pre-Cambrian glaciation: Coleman, 13.
- Red Lake district, Patricia: Dowling, 18.
- Red Lake and Woman Lake gold areas: Bruce, 23.
- Romney, boring: Davis, H. R., 1.
- Shebandowan nickel deposit: Cross, J. G., 1.
- Silurian, southwestern Ontario: Williams, M. Y., 1.
- Source of original Huronian sediments: Bain, 16.
- South Lorrain district: Bastin, 12.
- Steep Rock series: Rothpletz, 2.
- Sudbury district, Geneva map area: Quirke, 7.
- Timiskaming region: Hume, 1.
- Toronto area: Credit River section: Dyer, 4.
- Paleozoic: Parks, 15.
- Pleistocene: Coleman, 19.
- upper Ordovician: Foerste, 15; Parks, 14.
- Webbwood district: Bain, 15.
- West Shiningtree gold district: Goodwin, L. H., 1.
- Windy Lake region: Knight, C. W., 4.
- Workman's Creek section: Fritz, 2.

Mineralogy.

- Allanite, Sequin Falls: Walker, 28.
- Animikite and macfarlaneite, Silver Islet: Parsons, A. L., 2.

Ontario—Continued.

Mineralogy—Continued.

- Antozonite, Monteaige Township, Hastings County: Sine, 1.
- Arsenates of cobalt, nickel, and iron, Cobalt: Walker, 33.
- Arsenides, South Lorrain: Thomson, E., 10; Walker, 44.
- Axinite, Hastings County: Walker, 28.
- Barite, stalactitic, Madoc: Walker, T. L., 2.
- Barytocelestite, Kingden lead mines, Galetta: Bruce, 20.
- Beryl and associated minerals, Renfrew County: Walker, T. L., 52.
- Blithfield meteorite: Johnston, R. A. A., 2.
- Bytownite and huronite: Walker, T. L., 51.
- Calcosamarskite, Hybla: Ellsworth, 17.
- Parry Sound: Ellsworth, 18.
- Calcite, Shangoinah Island, Lake Superior: Parsons, 3.
- Chalmersite, Parry Sound: Schwartz, 2.
- Raglan township, Renfrew County: Thomson, E., 13.
- Chapmanite, South Lorrain, Cobalt district: Walker, 31.
- Chert, Keeley mine, Cobalt: Walker, 34.
- Columbite: Walker, 28.
- Corundum, blue, Bancroft area: Ellsworth, 4.
- Cosalite: Walker, 4.
- Diopside: Walker, 18.
- Dumortierite, Addington County: Walker, 19.
- Dyscrasite, Cobalt: Walker, 6.
- Echellite, Sextant Portage, Abitibi River: Bowen, 4.
- Elaterite, Madoc: Knight, C. W., 2.
- Ellsworthite, Haliburton County: Ellsworth, 15.
- Ellsworthite and associated minerals, Hybla: Walker, 25.
- Epidote, Porcupine: Bruce, 14.
- Euxenite, Maberly: Ellsworth, 15.
- Sabine township, Nipissing district: Ellsworth, 21.
- Euxenite-polycrase, Mattawan township, Nipissing district: Ellsworth, 11.
- Faraday Township, Hastings County: Walker, 49.
- Feldspar, Loughboro Township, Frontenac County: Sine, 2.
- Ferric and ferrous vein materials, Keeley mine, Cobalt: Walker, 34.
- Fluorite, optical, Madoc: Greenland, 1; Walker, T. L., 3.
- Gowganda vein minerals: Todd, E. W., 6.
- Hastingsite, Dungannon township, Hastings County: Walker, 38.
- Hatchettolite and associated minerals, Hybla: Walker, 26.

Ontario—Continued.

Mineralogy—Continued.

Hematite inclusions in Lake Superior amethyst: Holden, E. F., 14.

Hisingerite, Parry Sound: Schwartz, 9.

Huronite, Gowganda: Walker, 30.

Hyblite, Hybla: Ellsworth, 16.

Lyndochite, Renfrew County: Ellsworth, 14.

Mineralization, South Lorrain, Cobalt district: Bell, J. M., 6.

Museum of Mineralogy: Parsons, 10.

Nepheline syenite area, French river: Walker, 47.

New localities for minerals: Walker, 46.

Petzite, Hollinger mine, Timmins: Walker, 42.

Port Arthur, Cobalt, South Lorrain, and Gowganda vein minerals, tabulation: Walker, 45.

Proustite, Cobalt: Parsons, 4.

Pseudomorphs after spinel, Bathurst, Lanark County: Graham, R. P. D., 4.

corundum after spinel, Bathurst Township: Ferrier, 2.

Radioactive minerals: Ellsworth, 2, 3.

Rammelsbergite, Cobalt: Walker, 7.

Skutterudite, Cobalt: Walker, 14.

and loellingite, Cobalt: Walker, 32.

Sodalite and other minerals, Dungan Township: Walker, 39.

Sperryllite, Sudbury, crystal structure: Aminoff, 1.

Stephanite, Coleman township: Poitevin, 2.

Sundry minerals: Poitevin, 10.

Tellurides: Thompson, E., 2.

Thucholite, Parry Sound: Ellsworth, 19.

Titanite and polycrase, crystallography: Poitevin, 1.

Toddite, Sudbury district: Ellsworth, 12.

Tremolite, clinohumite, and stromeyerite: Walker, T. L., 53.

Uraninite, Cardiff township: Walker, 35.

Uranium minerals, Haliburton: Miller, W. G., 11.

Uranothorite, Hybla: Ellsworth, 16.

Xanthoconite, Cobalt: Parsons, 8.

Zeolites, Lake Nipigon: Walker, 48.

Zircon, North Burgess: Palache, 31.

Paleontology.

Cephalopoda, Timiskaming area: Foerste, 18.

Conularia rugosa, Lockport limestone, Hamilton: Dyer, 1.

Credit River section: Dyer, 3.

Crustacean, Pleistocene: Kindle, 48.

Hudson Bay area: Foerste, 22.

Huronian stromatopore-like masses, Webbwood: Bain, 23.

Ontario—Continued.

Paleontology—Continued.

Mastodon, recent extinction: Russell, J. W., 1.

Mollusca, marl deposits, Ottawa district: Whittaker, 1.

Molluscoidea, Toronto area: Parks, 8.

Muskox skull, Iroquois Beach, Toronto: Bensley, 1.

Ordovician black shales: Parks, 32.

Ordovician faunas, Ottawa region: Wilson, A. E., 1.

St. Lawrence Valley: Wilson, A. E., 2.

Ottawa Trenton echinoderm faunas, distribution: Foerste, 13.

Pelecypoda, Toronto: Stewart, B. H., 1.

Plants, Mattagami series: Bell, W. A., 16.

Pleistocene and recent fossils, St. Lawrence Valley: Whittaker, 3.

Silurian, southwestern Ontario: Williams, M. Y., 1.

Steep Rock series: Rothpletz, 2.

Toronto area: Fritz, 1; Parks, 18.

Gastropoda, Cephalopoda, and Vermetes: Parks, 9.

Trenton fauna: Raymond, 10.

Triarthrus canadensis, Triarthrus glaber, and Triarthrus spinosus: Parks, 4.

Upper Ordovician faunas: Foerste, 15.

Whirlpool sandstone: Foerste, 14.

Workman's Creek section: Fritz, 2.

Petrology.

Agate Point rocks: Bain, 9, 11; Greig, 3.

Anthraxolite, Sudbury: Coleman, 32.

Butt township, pitchblende deposits country rock: Hore, 7.

Diabase chert breccia: Emmons, R. C., 5.

Keweenaw sill rocks, Sudbury and Cobalt: Phemister, 6.

Killarney gneisses and migmatites: Quirke, 22.

Killarney magma, Sudbury: Bain, 19.

Nepheline syenite, Port Coldwell, contact phenomena: Walker, T. L., 54.

Norite micropegmatite, composition, Sudbury: Knight, 10.

Quartz keratophyre, Porcupine gold area: Richarz, 5.

Red Lake basin, District of Patricia: Bruce, 12.

Sill, Algoma District: Emmons, R. C., 4.

Sturgeon Lake area: Gledhill, 2.

Sudbury, igneous rocks: Bain, 18; Phemister, 4.

Syntectic porphyry at Porcupine: Whitman, 4.

Ontario—Continued.

Physical geology.

- Bottom deposits, Lake Ontario: Kindle, 35.
 Banded argillite, Cobalt: Wallace, 20.
 Changes in water level and flotation as forces of erosion: Walker, 50.
 Cobalt Lake, doming: Albertson, 1.
 Erosion by ice sheet: Tyrrell, 3.
 Evidence of liquid immiscibility in a silicate magma, Agate Point: Tanton, 13.
 Faulting, postglacial, French River district: Hobbs, 10.
 Huronian replacement deposits: Quirke, 20.
 Keweenawan boulder conglomerate, origin: Moore, E. S., 17.
 Kirkland Lake fault: Tyrrell, 7.
 Lake Huron winter beach forms: Littlefield, 1.
 McKay Lake, bottom deposits: Whitaker, 4.
 Niagara Falls, rate of recession: Boyd, W. H., 1.
 Niagara River gorge, age: Johnston, W. A., 26.
 Pegmatite dikes, southeastern Ontario: Sine, 3.
 Point Pelee, Lake Erie, shore-line changes: Kindle, 11.
 Potholes, Killarney area: Quirke, 15.
 Rhizocretions: Kindle, 36.
 Sudbury nickel district, fault: Hitchcock, 1.
 Sudbury norite sheet, assimilation: Bain, 5; Bowen, 19; Phemister, 3.
Physiographic geology.
 Buried Whirlpool-St. Davids gorge, origin: Forrester, G. C., 1.
 Glacial and postglacial lakes: Coleman, 11.
 Glacial periods: Coleman, 30.
 Glaciation: Whitman, 2.
 Ice ramparts: Jarvis, G., 1.
 Lake Erie, preglacial outlet: Wright, G. F., 3.
 Lake Timiskaming, a Roxen lake: Davis, 25.
 Niagara escarpment, preglacial slope and crest: Spencer, J. W., 1.
 Northeastern Ontario, physiographic history: Collins, W. H., 4.
 Pleistocene, Toronto region: Coleman, 19.
 Pre-Cobalt glaciation: Coleman, 18.
 St. Lawrence-Ottawa Valley, late glacial oscillations of level: Goldthwait, 7.
 Timiskaming region: Hume, 1.
 Toronto, glacial deposits: Slater, 1.
 Opatatika area, Timiskaming County, Quebec: Cook, H. C., 10.
 Oolite: Hess, 25.
 Iowa, Otis beds: Dille, 5.
 Of artificial origin: Twenhofel, 33.

Oolite—Continued.

- Origin: Lamar, 5.
 Virginia, Frederick County: Furcron, 1.
 Opal, Nevada, Virgin Valley: Gordon, C. C., 1.
 Opaque minerals, identification by microchemical tests: McKinsty, 5, 6.
 Opisthotonos: Dean, 3; Moodie, 6.
 Orbitoides, evolution in America: Douvillé, 2.
 Ordovician. See also Paleontology, Ordovician.
 Acadia: Bailey, L. W., 2.
 Alabama: Butts, 8; Jones, W. B., 13.
 Bessemer-Vandiver quadrangle: Butts, 13.
 northern: Semmes, 2.
 Alaska, interior: Mertie, 13.
 Alberta, Glacier Lake section: Walcott, 3.
 pre-Devonian Paleozoic: Walcott, 18.
 Arbuckle limestone, Oklahoma: Decker, 8.
 Arctic regions, Ellesmere Land: Holte-dahl, 1.
 Arizona: Darton, 17; Keyes, 83.
 Arkansas: Miser, 4, 7, 11.
 Batesville district: Miser, 5, 8.
 Hot Springs district: Purdue, 1.
 Beloit formation: Sardeson, 22.
 Bentonite layers: Giles, 9, 10.
 British Columbia, Beaverfoot Range: Burling, 4.
 Beaverfoot-Brisco-Stanford Range: Walcott, 9.
 Mount Robson area: Burling, 2, 5.
 pre-Devonian Paleozoic: Walcott, 18.
 Rocky Mountain trench: Shepard, 3, 11.
 Windermere area, Kootenay district: Walker, J. F., 1.
 Ceratopyge fauna: Raymond, 16.
 Collingwood formation: Ruedemann, 15.
 Colorado: Keyes, 162.
 Leadville mining district: Emmons, S. F., 1.
 Cordilleran formations, nomenclature: Walcott, 7.
 Decorah formation, Iowa: Kay, G. M., 1; divisions: Kay, G. M., 2.
 Foxe Land, Baffin Island: Gould, L. M., 8.
 Galena limestone: Keyes, 52.
 Georgia: McCallie, 1.
 Greenland, northwestern: Koch, 1; Hovey, 11; Poulsen, 1.
 Peary Land: Koch, 3.
 Hudson Bay area: Foerste, 22, 23.
 Idaho, Fort Hall Indian Reservation: Mansfield, G. R., 3.

Ordovician—Continued.

Idaho—Continued.

Richmond formation (?): Cook, C. W., 8.
southeastern: Mansfield, 29.

Illinois: Thwaites, 3.

Calhoun County: Lamar, 6.
Dixon quadrangle: Knappen, 1.
east-central: Mylius, 7.
Glenwood limestone: Bevan, 4, 6.
Herscher quadrangle: Athy, 1.
Kings quadrangle: Bretz, 4.
La Salle quadrangle: Cady, 3, 6.
Mississippi Valley: Krey, 2.
Morris quadrangle: Culver, 2.
New Richmond sandstone, northern Illinois: Cady, 2.
northern: Thurston, 1; Thwaites, 7.
Oregon quadrangle: Bevan, 3.
St. Peter sandstone: Lamar, 1, 9.
Thebes sandstone: Savage, 1.

Indiana: Cumings, 1; Logan, 15.

Cincinnati arch, structural features: Logan, W. N., 27.
Madison: McEwan, 2.
Saluda limestone: Sulzer, 1.
sub-Trenton formations: Logan, 23.

Iowa: Howell, J. V., 4.

Jackson County: Ladd, H. S., 3.
Maquoketa shale: Bradley, J. H., Jr., 1; Ladd, H. S., 1.
northeastern: Keyes, 252.
St. Peter sandstone: Osborn, W. G., 1.

Kansas, Salina Basin: Barwick, 1.

western: Udden, Jon A., 2; deep wells: Twenhofel, 27.

Kentucky: Jillson, 35; Miller, A. M., 1.

Berea region: Burroughs, W. G., 5.
Jeptha Knob: Bucher, 9.
Monticello quadrangle: Foyles, 1; MacLachlan, 1.

Woodford County: Miller, A. M., 22.

Kimmswick limestone, Missouri: Bradley, J. H., Jr., 4.

Manitoba: Wallace, 14.

Flinflon area: Alcock, 15.
Hudson Bay region: Savage, 2.
Reed and Wekusko lakes region: Alcock, 3.

Reed-File lakes area: Alcock, 1.

Reed Lake-Elbow Lake: Bruce, 2.

Maquoketa and Richmond rocks, Iowa and Illinois, correlation: Savage, 13.

Maryland: Bassler, R. S., 1.

Michigan Cataract formation: Ehlers, 7.

Chippewa County: Ver Wiebe, 11.
Richmond formation: Hussey, 1.

Minnesota: Grout, 2; Sardeson, 13.

Minnesota River valley: Sardeson, 12.

St. Croix Valley: Peterson, E., 1.

southeastern: Sardeson, 30.

Ordovician—Continued.

Mississippi, Tishomingo County: Bramlette, 4.

Missouri: Branson, 1, 6; Keyes, 106; Wilson, Malcolm E., 1.

Kimmswick and Plattin limestones: Foerste, 9.

Mississippi Valley: Krey, 2.

Plattin formation: Fenton, C. L., 8.

Ste. Genevieve County: Weller, 19.

Montana: Keyes, 234.

Beartooth Mountains, Bevan, 2.

Mud-crack horizons: Kindle, 5.

Nevada: Keyes, 128.

Candelaria district: Knopf, A., 5.

Manhattan district: Ferguson, H. G., 5.

Round Mountain district: Ferguson, H. G., 4.

New Brunswick: Bailey, L. W., 1.

Newfoundland, Notre Dame Bay: Sampson, 8.

southeastern: Howell, 5.

western: Schuchert, 16.

New Hampshire, Ammonoosuc district: Ross, C. P., 2.

New Mexico: Darton, 26; Keyes, 14.

eastern: Baker, C. L., 1.

New York: Ruedemann, R., 3.

Canton quadrangle: Chadwick, 5.

Genesee County: Fairchild, 15, 24.

graptolite zones: Ruedemann, R., 3.

Martinsburg, Trenton section: Clark, T. H., 1.

Newburgh quadrangle: Holzwasser, 1.

Utica and Lorraine formations: Ruedemann, 16.

West Point quadrangle: Berkey, 3.

Ohio, Warren and Clinton counties: Austin, G. M., 1.

Oklahoma: Gould, 9.

Arbuckle Mountains: Taff, 7.

Carter County: Tomlinson, 4.

Comanche County: Gouin, 3.

correlations: Edson, 3.

eastern: Trager, 3.

Mannsville area: Tomlinson, 2.

northeastern: White, L. H., 3.

Pontotoc County: Conkling, 1.

Seminole County: Levorsen, 2.

Simpson formation: Edson, 1.

southeastern: Honess, C. W., 6.

southern Ouachita Mountains: Honess, C. W., 4.

Stonewall quadrangle: Morgan, G. D., 5.

Thomas oil field, Kay County: Clark, S. R., 1.

Wichita Mountains: Taff, 7.

Ontario: Foerste, 15; Wilson, M. E., 7.
Annprior-Quyon area: Wilson, M. E., 10.

black shales: Parks, 32.

Brocktown-Mallorytown area: Wright, J. F., 2.

Credit River section: Dyer, 3, 4.

Ordovician—Continued.

Ontario—Continued.

- Dundas formation: Parks, 17.
 Brockville-Mallorytown area:
 Wright, J. F., 1.
 Lake Timiskaming area: Hume, 1, 14.
 Leeds County: Baker, M. B., 1.
 Mattagami and Abitibi rivers: Williams, M. Y., 6.
 Ottawa region: Wilson, A. E., 1.
 Toronto: Parks, 14, 15.
 western: Parks, 28.
 Workman's Creek section: Fritz, 2.
 Pennsylvania: Miller, B. L., 4.
 Allentown quadrangle: Miller, B. L., 5.
 central: Field, R. M., 1.
 eastern, Martinsburg formation:
 Behre, 10.
 Lebanon County: Gordon, S. G., 3.
 New Holland quadrangle: Jonas, 5.
 Northampton County, slate belt:
 Behre, 7.
 southeastern: Stose, 15, 21, 29.
 Pennsylvania and Maryland, Piedmont
 province: Stose, 18.
 Peter sandstone: Sardeson, 21.
 Quebec: Foerste, 15; Wilson, M. E., 7.
 Anticosti Island: Twenhofel, 30.
 Arnprior-Quyon area: Wilson, M. E.,
 10.
 Beauceville area: MacKay, B. R., 4.
 Coleraine area: Knox, J. K., 1.
 Levis: Clark, T. H., 8, 13.
 Magog conglomerate: Dresser, 3.
 Mingan Islands: Twenhofel, 26.
 Mount Albert area: Alcock, 6.
 Phillipsburg region: Bradley, J. H.,
 jr., 2.
 Pontiac County, Calumet Island:
 Goranson, 3.
 St. Urbain area, Charlevoix district:
 Mawdsley, 1.
 Quebec group: Dresser, 3.
 Revision: Ulrich, 6.
 Richmond beds: Savage, 12.
 basal, of Cincinnati province: Shideler,
 2.
 "Maquoketa" formations: Shideler,
 1.
 St. Peter sandstone: Dake, 6, 8; com-
 plexity: Keyes, 50; derivation:
 Dake, 7.
 Saskatchewan, Wapawekka and Des-
 chambault lakes area: DeLury, 6.
 Shakopee dolomite: Sardeson, 20.
 Shore line of Galena seas: Sardeson, 27.
 South Dakota, central Black Hills:
 Darton, 14.
 Stones River limestone: Coryell, 2.
 Taconic area, southern: Knopf, E. B., 6.
 Taconic revolution, evidence for exam-
 ined: Clark, T. H., 4.
 Tennessee: Nelson, 16; Raymond, 3.
 central: Bassler, 8, 10.
 east: Gordon, C. H., 3; Secrist, 1.

Ordovician—Continued.

Tennessee—Continued.

- Overton County: Butts, 1.
 Rutherford County: Galloway, J. J.,
 1.
 Stones River group: Coryell, 2.
 Sumner County: Mather, 3.
 Waynesboro quadrangle: Miser, 6.
 Texas: Udden, J. A., 3.
 Marathon basin: Baker, C. L., 10.
 Solitario uplift: Powers, 9.
 Trenton, Tennessee and Kentucky:
 Raymond, 18.
 Utah: Butler, 4; Keyes, 152.
 Tintic district: Lindgren, 2.
 Vermont: Foyles, 2.
 Addison, Panton, and Ferrisburg
 townships: Foyles, 4.
 Barnard, Pomfret, and Woodstock
 townships: Richardson, C. H., 11.
 Bethel Township: Richardson, C.
 H., 8.
 Braintree: Richardson, C. H., 5.
 central: Richardson, C. H., 1.
 Fort Cassin: Foyles, 3.
 Grand Isle, Trenton: Perkins, G.
 H., 5, 9.
 Green Mountains, western flank:
 Dale, N. C., 1.
 Northfield: Richardson, C. H., 2.
 northwestern: Keith, 1; Raymond,
 23.
 Orange County, Randolph Town-
 ship: Richardson, C. H., 7.
 Plymouth and Bridgewater town-
 ships: Perry, E. L., 1.
 Roxbury: Richardson, C. H., 3.
 Shoreham and Bridport: Foyles, 3.
 western: Gordon, C. E., 2, 4, 5.
 Virginia: Giles, 10, 11; Raymond, 3.
 Giles County: Hubbard, G. D., 6.
 Little North Mountain: Giles, 7.
 Piedmont: Jonas, 8.
 southwestern: Butts, 10.
 Valley coal fields: Campbell, M. R.,
 10.
 western: Stose, 16.
 Wise and northern Scott counties:
 Eby, J. B., 1.
 Volcanic ash bed of Tennessee, Ken-
 tucky, and Alabama: Nelson, 10.
 West Virginia, Hampshire and Hardy
 counties: Tilton, 13.
 Mercer, Monroe, and Summers coun-
 ties: Reger, 9.
 Mineral and Grant counties: Reger,
 7.
 Pendleton County: Tilton, 14.
 Wisconsin: Thwaites, 3; Ulrich, 12.
 Galena limestone: Ockerman, 1.
 Tomah-Sparta quadrangles: Twenhofel,
 6.
 Wyoming, Wind River Mountains:
 Condit, 4.

- Ordovician-Silurian boundary: Jones, O. T., 1; Miller, B. L., 9; Schuchert, 26; Ulrich, 15.
- Ore deposits, origin. For ore deposits in general see Economic geology (general).
- Adirondack magnetic iron ores: Miller, W. J., 18.
- Alaska, Chichagof Island, magmatic sulphide ore: Kerr, P. F., 2.
- Salmon River district: Westgate, 2.
- southeastern, Hyder district: Jewell, 1.
- Alkaline sulphides as collectors of metals: Spurr, 23.
- Alteration in Keeley mine, South Lorrain district, Ontario: Bell, J. M., 6.
- Angular inclusions and replacement deposits: Bateman, 13.
- and banded structure in ore veins: Schagen van Soelen, 1.
- and replacement deposits: Fairbanks, 3.
- in ore deposits: Merritt, C. A., 3; Spurr, 22; Weinig, 1; Young, J. W., 7.
- Apatite deposits, Canada: Spence, 2.
- Arizona, Aravaipa-Stanley region: Ross, C. P., 5.
- Jerome and Bradshaw Mountains quadrangles: Lindgren, 17.
- Jerome district: Fearing, J. L., 2; Reber, 1; Verde Central mine: Fearing, J. L., 1.
- Warren mining district: Trischka, 2.
- Asbestos, Sierra Ancha, Arizona: Bateman, 3.
- Association of ores and dikes: Crocker, 1.
- Bacterial influence in the genesis of certain sulphide ores: Bastin, 14.
- Banded structure: Boydell, 10.
- Banding around rock fragments in veins: Douglas, C. B. E., 1; Spurr, 28.
- Barite, magmatic origin: Lewis, J. V., 2.
- Missouri: Tarr, W. A., 1.
- Basic dike injections in magmatic vein sequences: Spurr, 20.
- Bauxite: Burchard, 17.
- Alabama: Jones, W. B., 6; Rettger, 1.
- Bindheimite as an ore mineral: Shannon, 9.
- Borate deposits, Kramer, California: Gale, 5.
- Bornite and pyrrhotite, antipathy: Gilbert, G., 3.
- in Jeune ores, Vancouver Island: Osborne, F. F., 1.
- Bornite-chalcocite intergrowths: Schwartz, 24.
- Ore deposits, origin—Continued.
- British Columbia: Schofield, 9.
- Atlin district: McKinsty, 7.
- Bridge River district: McCann, 4.
- Hazleton: O'Neill, 1.
- Kitsault River district: Hanson, 4.
- Portland Canal district, Premier mine: Burton, W. D., 1.
- Salmon River district: Schofield, 11, 14.
- Stewart, George gold-copper mine: Smitheringale, 2.
- California, Randsburg: Hulin, 1.
- Canada, metallogenesis and pre-Cambrian: Baker, M. B., 2.
- ore bodies in pre-Cambrian: Dougherty, 2.
- Cananea, Sonora, Mexico, ore injection: Mitchell, 11.
- Carnotite ores, Colorado: Coffin, 3.
- Chalcocite, primary, origin: Bateman, 9.
- Chalcopyrite deposits, northern Minnesota: Bruce, 5.
- Chalcopyrite and cubanite intergrowths: Schwartz, 17, 18.
- Chlorine as a magmatic solvent for metals: Hixon, 7.
- Chrome ore, Pennsylvania and Maryland: Knopf, E. B., 2.
- Chromite deposits: Diller, 1.
- Klamath Mountains: Diller, 9.
- Montana: Westgate, 4.
- North Carolina: Lewis, 6.
- Oregon, eastern: Westgate, 3.
- Climatic effect on superficial alteration: Knox, H. H., 1.
- Cobalt, Ontario: Whitehead, 1; Whitman, 1.
- Colloidal solutions, rôle in formation of mineral deposits: Boydell, 2.
- Colorado, Bonanza, Eagle mine, secondary enrichment: Wuensch, 2.
- central: Crawford, R. D., 2.
- Creede district: Emmons, W. H., 4.
- Cripple Creek district: Loughlin, 32.
- Hinsdale County: Brown, W. H., 3.
- Leadville district: Emmons, S. F., 1; Loughlin, 31.
- Pitkin County, Aspen district: Knopf, A., 10.
- Red Cliff district: Crawford, R. D., 3.
- Telluride area: Hurst, 2.
- Twin Lakes district: Howell, J. V., 1.
- Connecticut, Bristol copper ores: Bateman, A. M., 2.
- Contact effects of gabbro and granite on ore deposition: Schwartz, 10.
- Copper: Calkins, F. E., 1.
- Alaska, Beatson mine: Bateman, 12; Kennecott: Bateman, 3; Prince William Sound: Moffit, 6.
- Arctic Canada, central: O'Neill, 5.
- Arizona, Ray district: Ransome, 11.
- Ray-Miami region: Ransome, 1.
- Superior district: Short, 1.
- Warren district: Mitchell, 4.

Ore deposits, origin—Continued.

Copper—Continued.

- deposition from ascending solutions, chemistry: Wells, 11.
- Engels, California: Turner, H. W., 1.
- Evergreen ores, Gilpin County, Colorado: McLaughlin, D. H., 2.
- Flinflon ore deposit, Manitoba: Wallace, 5.
- Idaho, Salmon: Ross, C. P., 7.
- in a meteorite vein: Quirke, 3.
- Lake Superior region: Lane, 12; Lang, S. S., 2; Spurr, 3; Wells, 9.
- leached outcrops of copper ore: Locke, 6.
- Mexico, Cananea: Mitchell, 10; Sonora: Wandke, 5.
- Michigan: Singewald, 3.
- Montana, Park County: Lovering, 2.
- native: Butler, 7.
- Nonesuch formation, Michigan: Nishio, 1.
- ores disseminated in porphyry: Emons, W. H., 11.
- Oregon, southwestern: Kellogg, A. E., 9.
- organic precipitation: Lovering, 5.
- oxidation and enrichment at Ducktown: Gilbert, G., 1.
- Quebec, Rouyn district: Cooke, H. C., 29.
- Red Bed ores: Bains, 1.
- secondary enrichment in genesis of Butte chalcocite: Locke, 4.
- South Atlantic States: Watson, 15.
- sulphides, La Fleur Mountain, British Columbia: McLaughlin, D. H., 1.
- superficial: Weed, 2.
- supergene enrichment, Cananea, Mexico: White, C. H., 3.
- Texada Island, British Columbia: Dolmage, 7.
- Tyrone district, New Mexico: Paige, 2.
- Utah, Bingham district: Hunt, R. N., 1.
- Copper sulphate stalactites, rate of formation: Mitchell, 5.
- Cordierite-anthophyllite mineralization: Lindgren, 14.
- Corundum aplite, origin: Du Toit, 1.
- Cosmical derivation of metals: Keyes, 111.
- Cupriferous pyritic deposits: Kato, 1.
- Deep-seated ore chemistry: Hixon, 4.
- Deep-seated oxidation and secondary enrichment at Kelley silver mine near Cobalt: Bell, J. M., 4.
- Deformation in ores, Coeur d'Alene district: Waldschmidt, 8.
- Deposition of copper carbonate from mine water: Wilson, P. D., 3.
- Deposition of ores: Keyes, 62.
- Depths of metallic contact mineralization: Keyes, 120.

Ore deposits, origin—Continued.

- Dialytic rôle of selvages: Keyes, 107.
- Diffusion in ore genesis: Smith, L. H., 1; Whitman, 1, 5.
- Dolomitization and ore deposition: Hewett, 22.
- Duluth gabbro, basal phases: Nebel, 3.
- Dumortierite, Nevada: Jones, J. C., 3.
- Emery, Virginia: Watson, 13.
- Enrichment, Cobalt district, Ontario: Bell, J. M., 6.
- of tungsten ores: Gannett, 1.
- Exploration for ore deposits: Locke, 3.
- Feldspar-chalcopyrite rock-ore: Colony, 8; Reid, J. A., 3; Spurr, 34.
- Fibrous minerals, veins of: Taber, 9.
- Filling of veins: Perkins, T. A., 1; Spurr, 7; Young, J. W., 3.
- Fluorspar deposits: Aurand, 1.
- Hardin County, Illinois: Weller, S., 1.
- Ontario, Madoc district: Wilson, M. E., 6.
- western Kentucky: Currier, 2.
- Formation of ore bodies: Kendall, 1.
- Gel replacement: Lindgren, 15.
- General: Andrews, 5; Grimes, 1; Griswold, 1; Hazlett, 1; Hereza y Ortuno, 1; Hixon, 8; Keyes, 153; Lewis, 11, 13, 15; Lindgren, 23; Ransome, 16; Wagner, P. A., 1.
- Geology applied to mining: Spurr, 24.
- Gold, British Columbia, Atlin district: Weed, 3; Barkersville area, Uglow, 10.
- California, Carson Hill: Moss, 1; Grass Valley: Howe, E., 1; Wiltshire district: Turner, H. W., 3.
- Colorado, Camp Bird district: Spurr, 18.
- Idaho, north central: Thomson, F. A., 3.
- Manitoba, Elbow Lake area: Armstrong, 42.
- Ontario, Matachewan district: Cooke, H. C., 3; northern: Boydell, 13; Porcupine area: Fielding, 1; Huntoon, 1; Spurr, 8.
- Pearl Lake area: Robinson, H. S., 1; Timiskaming district: Cooke, H. C., 13.
- Quebec, Lake Demontigny: Mailhot, 4.
- South Dakota, Homestake mine: Paige, 3; Lead: Paige, 4.
- Virginia, northeastern Piedmont: Lonsdale, 7.
- Gold and silver, El Oro district, Mexico: Winchell, H. V., 1.
- Graphite: Winchell, 3.
- Alabama: Brown, J. S., 6.
- Guanajuato district, Mexico: Wandke, 8.
- Hematite in certain ore deposits: Gilbert, G., 5.

Ore deposits, origin—Continued.

- Hinge zone of Tertiary deformation:
 - Emmons, W. H., 7.
- Hot springs and magmatic emanations:
 - Lindgren, 21.
- Hypogene ore mineral deposition, time sequence: Newhouse, 8.
- Idaho, Buffalo Hump district: Beckwith, R. H., 3, 4.
- Owyhee County, South Mountain district: Sorenson, 1.
- St. Maries region: Anderson, A. L., 4.
- Silver City district: Piper, 7.
- Shoshone County: Umpleby, 3.
- Igneous ore deposits: Campbell, J. M., 3; Vogt, 4.
- Intergrowth of certain minerals: Newhouse, 2.
- Intimate intergrowths and mutual boundaries as proof of contemporaneous deposition: Newhouse, 5.
- Investigation of ores: Fairbanks, 12.
- Iron: Campbell, J. M., 2; Leith, 13; Young, G. A., 6.
- Adirondack magnetites: Alling, 10; Miller, W. J., 13, 18, 26; Nason, 1, 2.
- Alabama, brown ores: Adams, G. I., 4.
- Allentown quadrangle, Pennsylvania:
 - Miller, B. L., 5.
- Belcher Islands, Hudson Bay:
 - Moore, E. S., 1; Young, G. A., 3.
- Biwabik formation: Gruner, 3.
- British Columbia, Taseko Valley:
 - Brewer, W. M., 1.
- Clinton ores: Smyth, 1.
- Clinton hematite ores, origin: Holden, R. J., 2; Stose, 24.
- Cuba, Santiago: Kimball, 1.
- Georgia: Haseltine, 1.
- Gogebic range: Hotchkiss, 1.
- Gunflint formation, Ontario: Gill, J. E., 2.
- Iron Mountain and Pilot Knob, Missouri: Spurr, 33.
- limonite, Mayaguez, Porto Rico:
 - Fettke, 2; Taseko Valley, British Columbia: Mackenzie, J. D., 1.
- magnetic ores, Clinton County, New York:
 - Miller, W. J., 5, 7; Newland, 1.
- magnetite segregation in banded syenite, Minnesota: Grout, 19.
- magnetite-hematite relations: Gilbert, G., 4.
- magnetites, eastern Porto Rico:
 - Fettke, 6; Minnesota: Grout, 3, 9; New York, southeastern: Colony, 3; North Carolina and Tennessee: Bayley, 2, 3, 6; Texada Island, British Columbia: Swanson, C. O., 2; Vancouver Island: Uglow, 16.
- Mesabi ores, Minnesota: Grout, 5; Gruner, 2, 5; Schwartz, 4.

Ore deposits, origin—Continued.

- Iron—Continued.
 - Mexico, Cerro de Mercado: Salazar Salinas, 3, 4.
- Minnesota, St. Louis County, magnetite deposits: Grout, 20.
- New York, Ausable quadrangle:
 - Kemp, 23.
- North Carolina, western, hematite:
 - Bayley, 5, 11.
- Ontario, Lake St. Joseph: Bruce, 8; Michipicoten area: Collins, 15.
- paragenesis of martite and magnetite: Newland, 6.
- protocores, leaching of: Lovering, 1.
- sedimentary ores: Macgregor, A. M., 1; origin: Quirke, 17.
- Tennessee, Waynesboro quadrangle:
 - Miser, 6; western: Burchard, 25.
- titaniferous magnetites, North Carolina and Tennessee: Bayley, 9; origin: Bayley, 2.
- Vermillion ores, Minnesota: Gruner, 9.
- Washington: Jenkins, 5.
- Iron-depositing bacteria: Harder, 1.
- Joplin region lead and zinc ores:
 - Spurr, 32.
- Kaolin, Indiana: Logan, W. N., 4; Bucher, 5.
- Kentucky-Illinois ore magmatic district: Spurr, 30.
- Leached ore capping: Morse, H. W., 1.
- Leached outcrops: Blanchard, R., 3.
- Lead, Ontario: Wilson, M. E., 10.
- Tennessee, Ducktown district: Emmons, W. H., 8.
- Washington, northeastern: Jenkins, 12.
- Lead and zinc ore, formation: Wheeler, H. A., 3.
- Joplin region: Naething, 3.
- upper Mississippi Valley: Spurr, 12.
- Lead-zinc ores, Promontory Point mining district, Utah: Siegfus, 1.
- Lead-zinc chimneys in limestone:
 - Spurr, 27.
- Limestone contact zones, ferric oxide content: Butler, 8.
- Limestone replacement deposits, Mexican province: Prescott, 1.
- Localization of ore values in gouge materials: Keyes, 111.
- Location of ores: Bateman, A. M., 2.
- Magmas, dikes, and veins: Baillet, 3; Hills, V. G., 2; Hixon, 9; Jarvis, R. P., 1; Lindgren, 18; Spurr, 26.
- Magmatic differentiation and vein formation: Ross, C. S., 26.
- Magmatic ore deposits, classification: Zavaritsky, 1.
- Magmatic ores: Gregory, J. W., 1.
- Magmatic sulphide ores: Wagner, P. A., 6.
- Magnesite: Turner, H. W., 4.

Ore deposits, origin—Continued.

- Magnetite and hematite, relations: Broderick, 1.
- Manganese: Harder, 2.
- Colorado: Jones, Edw. L., 8.
- Cuba: Burchard, 7.
- Georgia: Hull, 1.
- Idaho: Hewett, 19.
- Minnesota, Cuyuna: Thiel, 4.
- Nova Scotia: Fearing, 2.
- Oregon, southwestern: Kellogg, A. E., 7.
- postglacial, Columbia County, New York: Dale, N. C., 2.
- precipitation by micro-organisms: Thiel, 8.
- Virginia: Stose, 1, 16.
- Washington: Pardee, 15.
- Manitoba, Flin Flon area: Alcock, 15.
- northwestern: Wallace, 15.
- Oiseau and Maskwa copper and copper nickel deposits: Wright, J. F., 7.
- Marcasite, paragenesis: Newhouse, 1.
- Mechanics of vein formation: Taber, 1.
- Mesabi iron ores, enrichment: Allison, I. S., 2; origin: Grout, 7.
- Metal content, lode filling, and country rock, relations: Weston-Dunn, 1.
- Metallic concentrations by magmatism, origin: Dunn, J. A., 1; Spurr, 10.
- Metallic content of ores, primary origin: Keyes, 134.
- of rocks: Keyes, 114.
- Metalliferous deposits in red beds: Finch, J. W., 2.
- Metalliferous lode systems, relations to igneous intrusives: Emmons, W. H., 9.
- Metallogenetic provinces: Emmons, W. H., 6.
- Metallogenetic zones: Petrascheck, 2; Rastall, 2.
- Metamorphism, new kind of: Winchell, 15.
- Metasomatism, physico-chemical theory: Goldschmidt, 3.
- Meteoritic metals, incorporation in terrestrial ores: Keyes, 120.
- Mexico: Lewis, S. J., 1.
- Asientos-Tepezala district: Anderson, G. E., 5.
- El Chico, Hidalgo: Wittich, 9.
- El Oro and Tlalpujahua districts: Flores, 1.
- Sierra Mojada district, Coahuila: Shaw, S. F., 1.
- Microscopic replacement versus injection in ores: Schwartz, 21.
- Microscopical interpretation of folded structures: Graton, 1.
- Mineral deposition and the circle of fire: Thompson, A. P., 1.

Ore deposits, origin—Continued.

- Mineral deposits: Lindgren, 1; present tendencies in the study of: Lindgren, 5.
- Mineral pipes, formation: Locke, 7.
- Mineralized volcanic explosion pipes: Walker, R. T., 3.
- Minor crustal movements and ore deposits: Porter, C. A., 2.
- Missouri, southeastern: Spurr, 31.
- Molybdenite, Quebec: Wilson, M. E., 10.
- Montana, Neihart, supergene processes: Bastin, 7.
- Nevada, Divide district: Knopf, A., 3.
- Manhattan, limestone ores: Ferguson, H. G., 2.
- Mineral County, Cedar Mountain: Knopf, A., 4.
- Rochester district: Knopf, A., 7.
- Santa Fe district, Mineral County: Clark, C. W., 2.
- New Jersey, Franklin Furnace: Spurr, 17.
- New Mexico, Mogollon district: Ferguson, H. G., 8.
- Santa Rita district: Rickard, 8.
- Nickel, Lancaster Gap mine, Pennsylvania: Phemister, 2.
- Ontario, Shebandowan Lake: Tanton, 9.
- Sudbury: Coleman, 23.
- Webster, North Carolina: Ross, C. S., 25.
- Nickel-pyrrhotite ore, Dracut stock, Massachusetts: Fairbanks, 10.
- Nickeliferous pyrrhotite, origin: Hudson, F. S., 1.
- Ontario, Cobalt district: Whitman, 3.
- Porcupine area: Wright, L. B., 2.
- Sudbury laccolite: Harker, 1.
- Sudbury nickel ores: Gregory, J. W., 3; Park, J., 1; Phemister, 4; Roberts, H. M., 2; Wandke, 4; Young, J. W., 4; magmatic origin: Coleman, 27.
- Opening as a region for ore: Dougherty, 7; Locke, 11.
- Operative causes in ore deposition: Boydell, 11.
- Ore deposit theories, development in Europe: Hummel, 2.
- Ore deposition at the Creighton mine, Sudbury, Ontario: Spurr, 14.
- by circulating water: Keyes, 48.
- in pre-existing limestone caves: Walker, R. T., 2.
- or ore injection: Eng. M. J., 8.
- processes: Lindgren, 26.
- Ore finding: Locke, 8.
- Ore geology, primary conceptions: Locke, 9.
- Ore magma theory: Eng. M. J., 4, 5, 9.
- Ore magmas: Spurr, 6; Vogt, 5.
- and magmatic waters: Spurr, 19.

Ore deposits, origin—Continued.

- Oxidation of iron in magnetite: Twenhofel, L. H., 1.
- of sulphides: Carmichael, 1.
- Oxidation products from chalcopyrite: Blanchard, R., 2; from sphalerite and galena: Boswell, 1.
- Oxygen minerals and sulphur minerals in ore deposits, relations: Butler, 9.
- Paragenesis of minerals in Butte veins: Lindgren, 22.
- Pegmatites, natural history: Eng. M. J., 6.
- Phosphates: Graham, W. A. P., 1. Tennessee: Smith, R. W., 2.
- Physico-chemical theory of metasomatism: Boydell, 12.
- Pipe form of ore deposit: Wagner, P. A., 4.
- Pipe vein, Silver Hill, New Mexico: Keyes, 64.
- Platinum deposits: Shaw, 9; Vogt, 6.
- Polished surfaces of ores: Thiel, 6.
- Porcupine quartz veins, mode of formation: Dougherty, 3.
- Pre-Cambrian veins, Kirkland Lake district, Ontario: Spurr, 9.
- Precipitation of manganese from meteoric solutions: Thiel, 3.
- Primary downward changes in ore deposits: Emmons, W. H., 6.
- Processes of ore deposition, research on: Lindgren, 24.
- Pyrite, New York, St. Lawrence County: Miller, W. J., 27.
- Virginia, northeastern Piedmont: Lonsdale, 7.
- Pyritic deposits in metamorphic rocks: Hanson, 1.
- Pyrophyllite, North Carolina, Deep River region: Stuckey, 1.
- Pyrrhotite and pentlandite, relations: Newhouse, 4.
- Quartz in veins, genesis: Bancroft, G. J., 1.
- Quebec, Horne and Aldermac mines: Cooke, H. C., 32.
- Rouyn district: James, 8.
- Quicksilver, Mazatzal Mountains, Arizona: Lausen, 2.
- Yellow Pine district, Valley County: Ross in Schrader, 10.
- Replacement: Platts, 1.
- and folding: Geijer, 1.
- Resorption in Grenville granite magma, Quebec: Bain, 10.
- Secondary enrichment by acid waters, rate: Grout, 14.
- Secondary processes in some pre-Cambrian ore bodies: Wallace, 8.
- Separation of ores from magmas: Stansfield, 7.
- Shattering by replacement: Wandke, 6.

Ore deposits, origin—Continued.

- Silver, Arizona, Chloride and Kingman: Bastin, 17; Wickenburg: Bastin, 6.
- British Columbia, Stewart district: Dolmage, 4; Beaverdell: McKinstrey, 8.
- Colorado, Aspen, Bastin, 10.
- Comstock lode, Nevada: Bastin, 4.
- Idaho, Pend Oreille district: Sampson, 16.
- Mexico, Pachuca district, Hidalgo: Winchell, H. V., 1.
- native, Nonesuch formation, Michigan: Nishio, 1.
- Ontario, Cobalt: Bastin, 6, 12; Knight, 11; Gowganda area: Burrows, 6, 17; Silver Islet: Tanton, 4; South Lorrain: Bell, J. M., 3; Bastin, 12; Thunder Bay district: Parsons, 5.
- Silver deposits, enrichment: Sill, 1; San Juan Mountains: Bastin, 5.
- Silver Islet ores, paragenesis: Chadburn, 1.
- Silver-lead, Mayo district, Yukon: Cockfield, 11.
- Slocan district, British Columbia: Bateman, 14.
- Smithsonite, formation: Watson, 7.
- Solutions depositing metalliferous veins: Emmons, W. H., 12.
- South Dakota, Homestake mine, mineralization: Wright, L. B., 3.
- Keystone pegmatites, sequence of mineralization: Landes, K. K., 6.
- northern Black Hills: Connolly, 4.
- Southwestern ore deposits, age and classification: Wilson, P. D., 1.
- Structural control of location of ore deposits: Bell, J. M., 9.
- Sulphate minerals in ore deposits: Butler, B. S., 3.
- Sulphide deposits, northern Quebec: Cooke, H. C., 31.
- Sulphide ores: Collins, G. E., 2; Draper, 1; Freeman, H., 1-3.
- Sulphides, relation to water level in Mexico: Lucke, 1.
- Supergene processes, Neihart, Montana: Hurst, 1.
- Terminology of mineral deposits: Lindgren, 6.
- Theoretical considerations: Rastall, 1.
- Tin, Silver Hill deposits, Washington: Anderson, A. L., 5.
- York region, Alaska: Steidtmann, 4.
- Titaniferous iron ores: Osborne, F. F., 3.
- Tungsten ores: Hess, 11.
- enrichment: Gannett, 1.
- Utah: Butler, 2, 4.
- Bingham district: Peterson, O. P., 1.
- Ophir district: Olmstead, 1.
- Tintic district: Crane, G. W., 1; Lindgren, 2.

Ore deposits, origin—Continued.

Vadose ore deposition: Keyes, 55, 66.

Vein formation: Taber, 1.

Vein quartz, microscopic study: Adams, S. F., 2.

Vein formation: Thompson, W., 1.

Veindikes, Engineer mine, Atlin, British Columbia: Boydell, 4.

Veins, origin: Taber, 14.

from intrusive magmas with contrasted contents: Kemp, 15.

of fibrous minerals: Taber, 9.

Washington: Patty, 1; Stevens County: Weaver, 2.

Zinc, Allentown quadrangle, Pennsylvania; Miller, B. L., 5.

east Tennessee: Secrist, 1.

Edwards, New York: Spurr, 13.

Franklin Furnace, New Jersey: Fitch, A. A., 1; Ries, 8.

Tintic district, Utah: Lindgren, 2.

Wisconsin district: Boericke, 1.

Zinc and lead ores, Tri-State district:

Ellis, E. E., 1; Eng. M. J., 10;

Netzeband, 1; Williams, C. F., 2.

Zonal deposition of ores: Emmons, W. H., 6, 10; Kemp, 9; Spurr, 5; Watanabe, 1; application of theory: Anderson, J. C., 2; Eng. and M. J.-Press, 2.

Zoning of mineral deposits, British Columbia: Hanson, 12.

Ore magmas: Spurr, 6.

Ore shoots. See Economic geology (general); Ore deposits, origin.

Ore hunting, profession of: Locke, 1.

Oregon.

Bibliography: Dixon, 1.

John Day region: Jillson, 39.

Eastern Oregon: Smith, W. D., 15.

Economic geography: Smith, W. D., 6.

Geology: Smith, W. D., 1.

Report of Bureau of Mines: Parks, H. M., 1, 2.

Areas described.

Coast Range province: Smith, W. D., 13.

Mount Jefferson: Hodge, E. T., 6.

Mount Multnomah: Hodge, E. T., 5.

Riddle quadrangle: Diller, 12.

Southeastern lake province: Smith, W. D., 12.

Willamette Valley: Smith, W. D., 11.

Economic geology.

Auriferous gravels, southwestern Oregon: Kellogg, A. E., 8.

Borax, Curry County: Gale, 4.

Chromite, eastern Oregon: Westgate, 3.

Klamath Mountains: Diller, 9.

Cobalt, Jackson County: Kellogg, A. E., 4.

Copper, southwestern Oregon: Kellogg, A. E., 9.

Diatomaceous deposits, eastern Oregon: Smith, W. D., 17.

Oregon—Continued.

Economic geology—Continued.

Gypsum: Stone, 10.

Llano de Oro placers, Waldo district:

Kellogg, A. E., 10.

Manganese: Pardee, 8.

southwestern Oregon, origin: Kellogg, A. E., 7.

Mineral resources: Swartley, 1.

Native asphalts: Hodge, E. T., 12.

Oil and gas possibilities: Buwalda, 4.

western Oregon: Harrison & Eaton, 1.

Petroleum possibilities: Smith, W. D., 8.

Platinum, southwestern Oregon: Kellogg, A. E., 5.

Potassium nitrate: Nattress, 1.

Quicksilver, Gold Hill district: Kellogg, A. E., 6.

Jackson County: Kellogg, A. E., 1.

Rogue River valley: Kellogg, A. E., 3.

Waldo district, Josephine County: Kellogg, A. E., 2.

Historical geology.

Astoria section: Howe, H. V. W., 9.

Cascade Mountains, central Oregon: Hodge, E. T., 8, 10, 14.

Central Oregon: Chaney, 8.

Cretaceous: Packard, 7.

Columbia Valley: Bretz, 3.

Crooked River Basin: Chaney, 24.

Dalles beds and Columbia River gorge: Buwalda, 24.

Eagle Creek formation: Chaney, 1.

Eastern Oregon: Buwalda, 4; Merriam, 25.

Empire formation, Coos Bay: Howe, H. V. W., 1, 2.

Geological history: Buwalda, 12.

John Day beds: Thorpe, 3.

John Day region: Buwalda, 15, 18, 21, 25.

John Day and Deschutes River canyons: Hodge, E. T., 13.

Jurassic, Silvies Canyon, Harney County: Packard, 2.

Malheur County: Renick, 11.

Marine Oligocene: Schenck, 5.

Marine Tertiary: Hertlein, 3.

Mesozoic formations: Goranson, 1.

Mississippian, central Oregon: Packard, 8.

Northeastern Oregon: Livingston, 5.

Oligocene, western Oregon: Schenck, 12.

Paleozoic and Mesozoic, central Oregon: Packard, 6.

Pleistocene history: McCornack, 1.

Rattlesnake formation; Merriam, 19.

"Satsop" and Dalles formations, age: Buwalda, 19.

Steens Mountains, southeastern Oregon: Smith, W. D., 10, 14.

Waldo district, Josephine County: Kellogg, A. E., 2.

Oregon—Continued.

Mineralogy.

Laumontite, Grants Pass. McClellan, 1.
 Petzite, Cornucopia district: Shannon, 59.

Priceite, Curry County: Gale, 4.

Zeolites, Ritter Hot Spring, Grant County: Hewett, 21.

Paleontology.

Agriochœrus, John Day beds: Thorpe, 7.

Araucocyon: Thorpe, 13.

Astoria section: Howe, H. V., W., 9.

Bridge Creek flora: Chaney, 11, 16, 24.

Camelidae, John Day beds: Lull, 7.

Canidae, Tertiary: Thorpe, 11.

Cassididae: Schenck, 3.

Central Oregon: Chaney, 8.

Conifers: Mason, H. L., 1.

Cretaceous Mollusca: Reagan, 7.

Crustacea, stalk-eyed: Rathbun, 5.

Diatoms in western Oregon shales: Schenck, 7.

Eagle Creek flora: Chaney, C. A., 1, 2.

Eastern Oregon: Merriam, 25.

Echinoidea: Kew, 3.

Elphidiids, Tertiary and Quaternary: Cushman, 34.

Empire formation, Coos Bay: Howe, H. V. W., 2.

Eporeodon, John Day beds: Thorpe, 6.

Foraminifera, Coast Range: Cushman, 44.

Fresh-water Mollusca: Hanna, G. D., 6.

Hackberry, John Day series: Chaney, 18.

Hyaenarctid bear, John Day Basin: Merriam, 24.

Ichthyosaurian reptile, marine Cretaceous: Merriam, 27.

John Day region: Buwalda, 18.

Felidae: Eaton, G. F., 1.

Gastropoda: Hanna, G. D., 4.

Mollusca: Hanna, G. D., 2.

Jurassic Mollusca: Hertlein, 2.

Mammalia, marine, Newport: Packard, 1.

Marsupial, John Day beds, Logan Butte: Stock, 9.

Mascall flora: Chaney, 17.

Merychippus, Crooked River basin: Maxson, 1.

Oreodontoides oregonensis, John Day formation: Thorpe, 24.

Oyster, aberrant, Eocene: Packard, 5.

Payette flora: Chaney, 6.

Pelecypoda, marine Oligocene: Clark, B. L., 11.

Perchoerus skulls, John Day formation: Pearson, H. S., 1.

Pittsburg Bluff fauna, Oligocene: Schenck, 9.

Pleistocene mastodons: Hay, 32.

Pliocene bear: Merriam, 22.

Pliocyon, John Day Valley: Thorpe, 5.

Oregon—Continued.

Paleontology—Continued.

Promerycochoerus, John Day beds: Thorpe, 3, 22.

Prosthennops (peccary): Thorpe, 25.

Rattlesnake fauna: Merriam, 19.

Reptile, Cretaceous: Gilmore, 40.

Tertiary insects, eastern Oregon: Cockerell, 40.

Terrestrial plants in marine deposits: Chaney, 13.

Trigoninae: Packard, 3.

Umbellularia, John Day series: Chaney, 19.

Upper Triassic: Smith, J. P., 3.

Petrology.

Color of varicolored obsidians, origin: Fuller, R. E., 1.

Glass Buttes, Lake County: Waters, A., 2.

Inclusions in porphyry dikes at Cornucopia: Goodspeed, 1.

Plateau basalts: Washington, 17.

Physical geology.

Caves, Josephine County: Williams, I. A., 1.

Earthquakes: Smith, W. D., 5.

Glass Buttes, Lake County: Waters, A., 2.

Inclusions in porphyry dikes at Cornucopia: Goodspeed, 1.

Klamath Lake region: Gilbert, G. K., 1.

Lava river tunnel: Williams, I. A., 3.

Owyhee project: Smith, W. D., 16.

Steen Mountains: Smith, W. D., 14.

Physiographic geology.

Crater Lake origin: Diller, 11.

Eugene quadrangle: Schenck, 1.

General: Smith, W. D., 9.

Klamath Lake region: Gilbert, G. K., 1.

Northeastern Oregon: Livingston, 5.

Ochoco erosion surface: Buwalda, 23.

Pleistocene history: McCornack, 1.

Pleistocene submergence, Columbia Valley: Bretz, 1.

Tertiary planation, eastern Oregon: Ross, C. P., 8.

Wallowa Mountains: Smith, W. D., 18.

Underground water.

Port Rock valley and Christmas Lake valley: Williams, I. A., 2.

Oregon quadrangle, Illinois: Bevan, 3.

Oreodonts, geological history: Thorpe, 26.

Orogeny.

Appalachians, cross section in southern New England: Woodworth, 3.
 structure: Keith, 2.

Arcuate mountains: Link, 5.

evolution: Hobbs, 7.

Arizona, Jerome, Basin Range structure: Ransome, 15.

Papago country: Bryan, 15.

Basin Range structure: Keyes, 225;
 Louderback, 5.

Orogeny—Continued.

- Basin Ranges: Keyes, 10, 34, 40, 84, 270; origin: Davis, W. M., 5, 26.
- Blue Ridge, erosional history: Wright, F. J., 5.
- California, Warner Range: Russell, R. J., 6.
- Californian orogenic period: Willis, 24.
- Canadian Cordilleras: Dowling, 16.
- Cause: Bowie, 19.
- Coast Ranges, California: Willis, R., 2.
- Cordilleran shield: Lawson, 10.
- Crustal shortening of Colorado Rockies: Chamberlin, R. T., 8.
- Desert range tectonics, trans-Pecos Texas: Baker, C. L., 11.
- Desert ranges of Mexico, origin: Spurr, 4.
- Folded and fault-block mountains, relation: Woodworth, 1.
- Folded mountains, origin: MacCarthy, 8.
- Folding of mountain ranges: Burrard, 1.
- Franklin Mountains, Mackenzie: Williams, M. Y., 16.
- General: Andrews, 2, 6; Barrell, 10; Chamberlin, R. T., 1, 11; Chamberlin, T. C., 25; Daly, 17; Gillson, 11; Hobbs, 17; Lawson, 9; Schuchert, 31; Stille, 1.
- Horizontal compression in Colorado Rockies: Shepard, 5.
- Kober's theory of orogeny: Longwell, 7.
- Laccolithic mountains, origin: Keyes, 29.
- Mexico: Staub, 3.
- Mississippian orogenic movements: Van Tuyl, 2.
- Montana, central: Thom, 6.
- Mountain building in the Canadian shield: Collins, W. H., 21.
- without loss of isostatic equilibrium: Shepard, 8.
- Mountain formation: Bowie, 6; Reid, 9.
- Nevada, western: Ferguson, H. G., 6.
- Oquirrh Range, Utah: Gilluly, 6.
- Orogenic consequence of a diminishing rate of rotation: Keyes, 71.
- Orogenic forces: Reid, 7.
- Paleozoic mountains: Bailey, E. B., 1.
- Permian revolution: Finlay, 2.
- Relation to isostasy: Swanson, C. O., 4.
- Rocky Mountain geosynclinal, Canada: Burwash, 3.
- Rocky Mountain structure: Mansfield, 15; Willis, 20.
- Rocky Mountains: Chamberlin, R. T., 1, 2; Dake, 5;
- southern: Lee, 9.
- Sierra Nevada: Muir, 3; Willis, 30.
- Symmetric disposition of Tertiary mountain systems: Longfellow, 1.

Orogeny—Continued.

- Tertiary epeirogeny: Taylor, 13;
- cause: Taylor, 2.
- Uphrust faulting: Willis, B., 1.
- Utah, central, post-Cretaceous: Spieker, 4.
- Volcanism and mountain-making: Chamberlin, R. T., 5.
- Wyoming, northwestern: Dake, 5.
- Orthaulax, Tertiary guide fossil: Cooke, C. W., 6.
- Orthophragmina and Lepidocyclina: Cushman, 8.
- Oscillation. See Changes of level.
- Osteomyelites, Permian: Moodie, 14.
- Ostracoda.
- Bairdia subdeltoidea, Cretaceous, Texas: Alexander, C. I., 2.
- Description: Roundy, 4.
- Maine, Chapman sandstone: Ulrich, 1.
- Maryland, Upper Cretaceous: Berry, E. Willard, 1.
- Mexico, Moctezuma River, Eocene: Cushman, 21.
- Missouri, Henrietta formation: Knight, J. B., 1.
- Monoceratina, Pennsylvanian, Oklahoma: Roth, 3.
- Oklahoma, Seminole County, Pennsylvanian: Coryell, 3, 4.
- Paleozoic: Ulrich, 9.
- Pennsylvanian, Oklahoma and Texas: Hariton, 1, 4.
- Tennessee, Nashville, Trenton limestone: Kirk, S. R., 1.
- Texas, San Saba County, Mississippian: Roundy, 3.
- Yegua formation: Stadnichenko, M. M., 1.
- Trinity fauna: Vanderpool, 2.
- Overthrusts, Rocky Mountains: Mansfield, 15.
- Oxford and Knee lakes area, northern Manitoba: Wright, J. F., 11.
- Oxidation of sulphides: Carmichael, 1.
- Oxidation products from chalcopyrite: Blanchard, R., 2; from sphalerite and galena: Boswell, 1.
- Oxidation subsidence at Bisbee, Arizona: Wisser, 1.
- Ozarkian system: Walcott, 7; Greenland, northwestern: Poulsen, 1.
- Ozarkian trilobites: Walcott, 15.
- Ozokerite, Utah: Clark, A. F., 1.
- Pahsimeroi Valley, Idaho, ground water: Meinzer, 8.
- Palangana salt dome, Duval County, Texas: Barton, 1.
- Paleobotany.
- Age and area: Berry, 60.
- Algal remains, Unkar group, Grand Canyon: White, D., 39.
- Algae, Miocene, Trinidad: Howe, M. A., 2.
- Alberta, Cretaceous: Berry, 74.
- Paskapoo formation: Berry, 73.

Paleobotany—Continued.

- Angiosperms, origin: Knowlton, 14.
 Paleozoic, in coal: Hoskins, 1.
 Animas formation, Colorado: Knowlton, 13.
 Annularia with *Paleostachya* fruit, Rhode Island: Round, 3.
 Araceae, Miocene, Trinidad: Berry, 69.
 Aralias, Cretaceous: Fritel, 1.
 Araucarioxylon in the Cretaceous: Jeffrey, 2.
 Arizona, fossil wood: Reagan, 16.
 Brachyruscus, Florissant, Colorado: Cockerell, 14.
 Brandon flora: Berry, 8.
 Bridge Creek flora, Oregon: Chaney, 11, 16, 24; Asiatic relationships: Chaney, 14.
 British Columbia, Cassiar district, Cretaceous: Bell, W. A., 14.
 Kootenay Valley, Saint Eugene slits: Hollick, 10.
 Tertiary floras: Berry, 78.
 Caddis case, Eocene, Tennessee: Berry, 84.
 Calamites, East Bellevue, Pennsylvania: Grier, 1.
 Calatoloides, Eocene fruit, Texas: Berry, 38.
 Calcareous algae in Pacific coast limestones: Nelson, R. N., 3.
 Calcified log, Pittsburgh coal, Morgantown, West Virginia: Fettke, 8, 9.
 California, Carpinteria asphalt pit: Chaney, 23.
 Cretaceous diatoms: Hanna, G. D., 33.
 Pleistocene, Rancho La Brea: Frost, 2.
 Puente flora: Chaney, 4.
 southern, Pleistocene: Chaney, 26.
 Tesla region, Miocene: Scott, F. M., 1.
 Callixylon, New York: Hylander, 1.
 Calycophysoidea, cucurbitaceous fruit, Tertiary, Texas: Berry, 53.
 Cantheliophorus, Carboniferous: Bassler, 12.
 Carboniferous plants, Illinois, structure: Hoskins, J. H., 4.
 Catmint, Florissant, Colorado: Cockerell, 38.
 Celtis, Miocene, Kansas: Brooks, B. W., 1.
 Celtis stones, western States: Berry, 96.
 Charophyte fruits, Texas: Groves, 1.
 Cheyenne sandstone flora, Kansas: Berry, 37.
 Classification of plants: Conard, 1.
 Climate, determination by plants: Knowlton, 6.
 Coal balls: Clark, F. L., 1; Noé, 7, 10, 12.

Paleobotany—Continued.

- Coal flora, Richland County, Illinois: Reed, F. D., 1.
 Narragansett Basin and Henry County, Missouri: Round, 5.
 Cold Spring Harbor, Long Island, New York: Grier, 2.
 Collecting fossil plants: Berry, 83.
 Colorado, Green River: Cockerell, 27.
 Tertiary lake beds flora: Knowlton, 12.
 Conifers, anatomy and physiology: Torrey, R. E., 1.
 Cretaceous, Alberta: Bell, W. A., 15.
 western America: Mason, H. L., 1.
 Cornus, Converse County, Wyoming: Knowlton, 10.
 Costa Rica, Tertiary: Berry, 27.
 Cretaceous floras: Berry, 17.
 Carroll County, Tennessee: Berry, 104.
 eastern Alabama: Berry, 50.
 Gulf region: Berry, 4.
 Cryptozoon, Arbuckle Mountains, Oklahoma: Decker, 6.
 Cupressinoxyla of the Mesozoic: Jeffrey, 3.
 Cycadeoidea: Wieland, 7, 15, 23, 24, 26.
 Alberta, Kootenay coal measures: Warren, P. S., 6.
 Alberta and Texas: Wieland, 10.
 distribution and relationships: Wieland, 3.
 localities, Texas: Sellards, 27.
 monocarpy: Wieland, 8, 13.
 origin: Chamberlain, 1.
 Cycad-like leaves, Permian, Texas: Noé, 1.
 Cycadophyte investigation: Wieland, 11.
 Cycadophyta, classification: Wieland, 1.
 Cycads: Dahlgren, 1; Hollick, 3; Wieland, 17.
 Dakota flora: Gress, 1.
 age: Berry, 23.
 Devonian floras: Berry, 91; Wieland, 12.
 Devonian forest, Gilboa, New York: Bancroft, J. A., 2; Clarke, J. M., 4, 17, 18; Goldring, 5, 6, 7, 9; Petry, 1.
 Devonian plant localities, New York: Arnold, C. A., 1.
 Devonian seed ferns, New York: Berry, 55.
 Devonian trees, West Virginia: Reger, 15.
 Dinosaur feed: Wieland, 18.
 District of Columbia, buried forest: Cuno, 1.
 Dominican Republic, Tertiary: Berry, 26.
 Eagle Creek flora, Oregon and Washington: Chaney, 1.

Paleobotany—Continued.

- El Consuelo, Oaxaca, cycadeoids: **Wieland, 22.**
 Environmental interpretation of fossil plants: **Berry, 44.**
 Eocene, Gulf States: **Berry, 89.**
 Eocene floras, southeastern North America: **Berry, 51.**
 western Canada: **Berry, 70.**
 Eocene climate: **Berry, 40.**
 Eucalyptus: **Berry, 7.**
 Esmeralda formation, western Nevada: **Berry, 92.**
 Evolution of floras: **Berry, 14.**
 Fossil plants as evidence for resistance to environment: **Wieland, 14.**
 Ganado petrified forest, Arizona: **Reagan, 13.**
 General: **Berry, 14, 105; Chaney, 22, 28; Guppy, 1, 2; Hollick, 1, 11; Knowlton, 3, 17; Wieland, 2, 16, 21.**
 Grand Canyon, fossil floras: **White, D., 34, 41.**
 Great Basin, Tertiary floras: **Chaney, 27.**
 Green River flora: **Knowlton, 11.**
 Greenland, Cretaceous: **Seward, 3, 4.**
 Growth rings in Carboniferous wood: **Goldring, 2.**
 Growth rings in trees, climatic significance: **Antevs, 10.**
 Hackberry, John Day beds, Oregon: **Chaney, 18.**
 Hackberry seeds, Nebraska: **Barbour, 5.**
 Haiti, Tertiary: **Berry, 32.**
 Hazel, history: **Berry, 13.**
 Hepatica, Florissant, Colorado: **Howe, M. A., 3.**
 Hermit shale flora, Grand Canyon, Arizona: **White, D., 33.**
 Hickory logs and nuts, Nebraska: **Troxell, 29.**
 Hydrangea, Tertiary, Alaska: **Hollick, 5.**
 Hymenaea, Cretaceous, Alabama: **Berry, 5.**
 Illinois, Braidwood flora: **Noé, 2.**
 Chester formation, stigmairian root: **Foerste, 14.**
 Harrisburg: **Noé, 11.**
 northern, Pennsylvanian: **Noé, 6, 8.**
 Pennsylvanian plants, structure: **Hoskins, J. H., 3.**
 Inga culebrana: **Berry, 21.**
 Iron sulphide pseudomorphs of plant structure: **Schwartz, 20.**
 John Day Basin: **Chaney, 9.**
 Juglans seeds, Titanotherium beds, Nebraska: **Berry, 80.**
 Labiatae, antiquity: **Cockerell, 34.**
 Kentucky, western, coal field flora: **Noé, 3.**
 Lance-Union flora: **Knowlton, 9.**

Paleobotany—Continued.

- Laramie flora: **Cockerell, 20; Denver Basin: Knowlton, 8.**
 Latah formation, Washington and Idaho: **Knowlton, 16.**
 Lecythidoanthus, fossil flower, Trinidad: **Berry, 54.**
 Linden and ash, history: **Berry, Edw. W., 1.**
 Lithospermum nutlets: **Berry, 101.**
 Locust, geologic history: **Berry, Edw. W., 2.**
 Mackenzie, Mackenzie River basin, Tertiary: **Bell, W. A., 3.**
 Marpolia, Cambrian alga, British Columbia: **Walton, 1.**
 Maryland, Federal Hill: **Berry, 16.**
 Mascall flora, Oregon: **Chaney, 17.**
 Matonidium americanum, Colorado: **Berry, 11.**
 Mesozoic and Cenozoic plants, catalog: **Knowlton, 2.**
 Mesozoic floras of North and South America: **Knowlton, 1.**
 Mexico, southern, Miocene: **Berry, 48.**
 Mississippi, Pleistocene plants: **Berry, 6.**
 Mississippi Gulf, Eocene: **Berry, 58.**
 Mississippian floras, Appalachian trough: **White, D., 29.**
 Modern plant fossil: **Round, 2.**
 Modern plants, evolution: **Sci. Serv., 1.**
 Montana, Missoula region: **Jennings, 1.**
 Morrison flora, Colorado: **Knowlton, 4.**
 Mother plants of petroleum in Devonian black shale: **White, D., 11, 19.**
 Myeloxylon, coal measures, Illinois: **Seward, 1.**
 Nevada, Davis Creek beds: **Chaney, 10.**
 New Brunswick: **Wilson, W. J., 1.**
 Carboniferous flora: **Round, 4.**
 Minto coal basin: **Bell, W. A., 11.**
 Utica and Lorraine formations: **Ruedemann, 17.**
 Nilsonia, Steamboat, Arizona: **Reagan, 12.**
 North Carolina, Mesozoic flora: **Berry, 20.**
 Pleistocene: **Berry, 75.**
 North Dakota, Fort Union beds, apparent fruits: **Stainbrook, 1.**
 Nova Scotia, Minto coal horizon: **Bell, W. A., 6.**
 Oaks, geologic history: **Trelease, 2.**
 Oklahoma, Beaver County, leaves: **Berry, 82.**
 Cimarron County, Dakota sandstone: **Noé, 8.**
 Permian: **Gould, C. N., 26.**
 Oldhamia, Cambrian, northern Maine: **Smith, E. S. C., 5.**
 Ontario, Mattagami series: **Bell, W. A., 16.**

Paleobotany—Continued.

- Ophioglossum, Tertiary, Wyoming : Cockerell, 25.
- Ophioglossum allenii, status : Hollick, 2.
- Ophioglossum hastatifforme : Cockerell, 29.
- Ophioglossum hastatifforme-Danaea coloradensis : Berry, 57.
- Orontium, Florissant, Colorado : Cockerell, 31.
- Pacific region : Chaney, 12.
- Palaeochara, coal measures, Nova Scotia : Bell, W. A., 4.
- Paleozoic angiosperm : Noé, 5.
- Paliurus, Miocene, Washington : Berry, 102.
- Palm fruit, Miocene, Panama : Berry, 103.
- Palm nut, Miocene, Canal Zone : Berry, 25.
- Palmoxylon, Colorado, Denver formation : Stevens, N. E., 1.
- South Dakota, Pierre formation : Stevens, N. E., 1.
- Paraphyllanthoxylon arizonense, Cretaceous, Arizona : Bailey, I. W., 1.
- Parichnos in gymnosperms : Jeffrey, 7.
- Pathological conditions : Berry, 47.
- Payette flora : Chaney, 6.
- Pennsylvanian plants, Illinois, structure : Hoskins, 2.
- Permian : White, D., 17.
- Petrifaction of wood : St. John, 1.
- Petrified wood industry : Berry, 79.
- Phenacocladus, Eocene, Colorado : Cockerell, 35.
- Pine cone, Oakland, California : Metcalf, W., 1.
- from drift : Thomas, 21.
- Pines, Mesozoic : Jeffrey, 6.
- Plant evolution and climate : Wieland, 19.
- Plants erroneously referred to cycadeoids : Wieland, 25.
- Plants from Stanford collection : Reagan, 16.
- Platanus, geologic history : Gould, C. N., 2.
- Pleistocene : Berry, 88.
- Alabama and Tennessee : Berry, 84.
- District of Columbia : Berry, 52.
- Interglacial, British Columbia : Berry, 33.
- Porto Rico : Hollick, 12.
- Collazo River : Hollick, 6, 8.
- Potamogeton perryi, Henry County, Tennessee : Berry, 30.
- Pre-Cambrian floras : Berry, 100.
- Psaronius, Schoharie County, New York : Hovey, 5.
- Pseudocycas, British Columbia : Berry, 31.
- Psilophyton, cuticular structure : Edwards, W. N., 2.
- Quercus, Green River Eocene, Colorado : Cockerell, 39.

Paleobotany—Continued.

- Rancho La Brea beds, flora : Chaney, 5.
- Ranunculus florissantensis : Cockerell, 11.
- Recent work : Fenneman, 3.
- Redwoods, history : Hollick, 13.
- Relations with Asia : Berry, 93.
- Rhaetic flora, Scoresby Sound, east Greenland : Harris, T. M., 1.
- Rhode Island, Carboniferous flora : Round, 4.
- Ripley flora : Berry, 63.
- Saccoglottis : Berry, 43.
- Sagenopteris : Berry, 45.
- St. John collection : Reagan, 17.
- Salix, Iowa : Reagan, 12.
- Salvinia, Eocene : Berry, 71.
- Sequoia, ancestry : Berry, 16.
- in the Mesozoic : Jeffrey, 1.
- Sparganium, Eocene, Wyoming : Berry, 61.
- Standing stone forests, Yellowstone Park : Mitchell, G. E., 1.
- Stigmara, Kansas : Reagan, 12.
- Sweet gum, history : Berry, 13.
- Teaching paleobotany : Berry, 19.
- Tempskya knowltoni, Montana : Seward, 2.
- Tennessee, Cretaceous : Berry, 28.
- late Cretaceous : Berry, 17.
- Pleistocene : Berry, 6.
- Terminalia, lower Eocene : Berry, 76.
- Terrestrial plants in marine deposits : Chaney, 13.
- Tertiary floras : Berry, 3.
- Pacific region : Chaney, 3.
- of the West : Chaney, 7.
- terrestrial plants : Berry, 62.
- Tetracetrion, Trochodendron, and Drimys : Wieland, 4.
- Texas, central, Eocene florule : Berry, 56.
- trans-Pecos region, Eocene : Berry, 25.
- Tree, Red Deer Valley, Alberta : Kindle, 14.
- Tree ancestors : Berry, 46.
- Tree trunk, Manhattan Island, New York : Hollick, 7.
- vertical, Scranton, Pennsylvania : Davis, R. N., 1.
- Trinidad, Pleistocene flora : Berry, 67.
- Tertiary flora : Berry, 64.
- Umbellularia, John Day beds, Oregon : Chaney, 19.
- Upper Cretaceous : Berry, 10.
- Utah, Shinarump conglomerate, cycads : Berry, 90.
- Walnut, Miocene, Nevada : Berry, 98.
- Weichsella, Cretaceous, Texas : Berry, 95.
- Western floras : Chaney, 25, 28.
- West Indies : Hollick, 4.
- Wilcox flora : Berry, 41.
- Wood, replacement by dolomite : Adams, S. F., 1.

Paleobotany—Continued.

- Wyoming, Bridger beds, Wind River Basin: Berry, 72.
 Triassic: Berry, 59.
 Yellowstone National Park, fossil forests: Knowlton, 18.
- Paleocene, status and limits: Matthew, 8.
- Paleoclimatology.
- Alaska: Blackwelder, 1.
 Algae as limestone makers and climatic indicators: Glock, 3.
 Ameliorations of present Arctic climates: Chamberlin, T. C., 20.
 Ancient: Coleman, 25.
 Astronomical considerations: Shapley, 1.
 California, Coalinga Tertiary formations: Reed, 5.
 Climate, determination by plants: Knowlton, 6.
 Climatic changes: Antevs, 4.
 Climatic environment of extinct animals, determination: Case, 9.
 Colorado, Carboniferous: Tieje, 3.
 Cretaceous climate: Seward, 4; Wieland, 11.
 Eocene climate: Berry, 40.
 Evolution of geologic climates: Knowlton, 3, 7; Manson, 2.
 Fossil marine faunas as indicators of climate: Kirk, E., 10.
 General: Allison, V. C., 2; Antevs, 13; Chamberlin, T. C., 23; Coleman, 8; Huntington, 1, 2; Keyes, 219, 230; Knowlton, 3; Manson, 3; Ramsay, 1; Richarz, 4; Sayles, 8; Schuchert, 17; Scott, W. B., 4, 8; Visher, 3; White, D., 22, 28; Wieland, 9; Anon., 69.
 Glacial climate in non-glaciated regions: Bryan, 31.
 Glacial period: Moscheles, 1.
 Great Basin, Pleistocene history: Antevs, 12.
 Growth rings in trees, climatic significance: Antevs, 10.
 Kansas, Permian: Dunbar, 4.
 Lake Lahontan, geologic history: Jones, J. C., 2.
 Late Paleozoic climates: Coleman, 24.
 Mesozoic climate: Knowlton, 15; Stanton, 9, 10.
 Mexico, Quaternary: Jaeger, 1, 2.
 Mild geological climates: Huntington, 4.
 Miocene climate, tropical America: Woodring, 13.
 Modern climates, evolution: Sci. Serv., 1.
 Ocean, effect on climate: Chamberlin, T. C., 19.
 Oceanic salinity: Visher, 5.
 Ordovician: Kindle, 5.
 Pacific coast States, Pleistocene changes: Buwalda, 17.

Paleoclimatology—Continued.

- Paleozoic: White, D., 26; late: Case, E. C., 2.
 Peat deposits, their evidence of climatic changes: Dachnowski, 3.
 Pennsylvanian: Savage, 18.
 Permian: Hall, G. M., 1.
 Physiography and past climates: Evans, O. F., 8.
 Plant evolution and climate: Wieland, 19.
 Pleistocene: Antevs, 11; Meinzer, 5.
 Mexico: Brückner, 2.
 Polar anticyclones: Hobbs, 32.
 Polar ice caps, extent: Adams, L. H., 10.
 Polar temperatures and coal measures: Stefansson, 1.
 Post-Tertiary changes, Alaska: Smith, P. S., 13.
 Pre-Cambrian climate: Coleman, 21.
 Quebec: Cooke, H. C., 2.
 Quaternary climate: Grunsky, 1.
 Recession of the last ice sheet in New England: Antevs, 1.
 Relief hypothesis: Ramsay, 1.
 Rocky Mountains, Pleistocene changes in elevation: Pardee, 16.
 Seasonal records of geologic time: Reeds, 4.
 Silurian: Alling, 14.
 Solar-cyclonic hypothesis: Visher, 8.
 Tertiary: Berry, 86.
 and Quaternary, California region: Smith, J. P., 1.
 Triassic climate, eastern North America: Bissell, 4.
 White River beds, South Dakota: Wanless, 3.
 Winters in Upper Devonian of New York and Acadia: Schuchert, 34.
- Paleo-ecology.
- Principles and methods: Clements, 2, 3.
 Wyoming, Como Bluff, Quarry 9: Simpson, G. G., 11.
- Paleogeographic maps.
- Alabama, Paleozoic: Butts, 8.
 California, Tertiary: Clark, B. L., 5.
 Central States: Cummings, 1.
 Cretaceous: Schuchert, 25.
 Devonian: Clark, T. H., 9; Dunbar, 1; Savage, 2.
 late middle: Stauffer, 3.
 Eocene: Stanton, 3.
 middle: Berry, 40.
 Iowa, pre-Cretaceous distribution of Paleozoic formations: Keyes, 229.
 Mexico, Rio Grande drainage basin and Gulf Coast region: Böse, 8.
 New York, Ordovician: Ruedemann, 16.
 Niagaran: Cummings, 4.
 North America: Schuchert, 22.
 Oklahoma: Wilson, R. A., 8.
 Pennsylvanian: Dott, 1.
 Ordovician: Savage, 2.

Paleogeographic maps—Continued.

Paleozoic, Atlantic-Arctic region :
Holtedahl, 2.

late : Case, E. C., 2.

Paleozoic geosynclines, North America : Schuchert, 25.

Pennsylvanian : McCoy, 5.

Oklahoma and Texas : Powers, 26.

Permian : Schuchert, 25, 52.

Phosphoria sea : Mansfield, G. R., 29.

Silurian : Savage, 2 ; Schuchert, 25 ;
Ulrich, 8.

Texas and Oklahoma : Powers, 26.

Triassic : Branson, 17 ; Simpson, G. G., 5.

Upper Cretaceous : Stanton, 3.

Paleogeography. See also Geologic history ; Paleoclimatology ; Paleogeographic maps.

Acadia : Bailey, L. W., 2.

Alaska, Cretaceous : Martin, G. C., 13.

Appalachian geosyncline : Schuchert, 20.

Atlantic bridges nonexistent : Matthew, 6.

California, central Coast Ranges, Miocene : Reed, 7.

Tertiary : Clark, B. L., 5.

Canada, maritime provinces, Carboniferous : Bell, W. A., 13.

Canadian Rocky Mountains : Walcott, 17.

Caribbean region : Vaughan, 3.

Central America : Sapper, 7.

Colorado, Carboniferous : Tiejie, 3.

Cordilleran trough : Walcott, 13.

Cretaceous : Stanton, 5.

Utah : Spieker, 5.

Devonian : Clark, T. H., 9 ; Grabau, 6.

General : Case, E. C., 2 ; Schuchert, 13, 22 ; Keith, 8 ; Troedsson, 1 ;
Ulrich, 3.

Graptolite beds, significance : Moore, R. C., 40.

Great Lake region : Grabau, 12.

Idaho, southeastern : Mansfield, G. R., 29.

Jurassic peneplain, Oklahoma and Arkansas : Melton, 8.

Kentucky, eastern, Pennsylvanian : Hudnall, 3.

Little River group delta : Matthews, G. F., 1.

Llanoria : Miser, 7.

Marine invertebrate faunas, distribution : Schuchert, 18.

Maryland, Cambrian and Ordovician : Bassler, R. S., 1.

Mid-Continent oil field : McCoy, 5.

Mississippian orogenic movements : Van Tuyl, 2.

Missouri, Paleozoic : Branson, 6.

Montana, Upper Cretaceous : Robinson, E. G., 1.

New Mexico : Keyes, 11.

New York, Ordovician : Ruedemann, 16.

Paleogeography—Continued.

Oklahoma : Wilson, R. A., 8.

Henryetta district, Pennsylvanian :
Reed, R. D., 2.

Pennsylvanian : Dott, 1.

western : Gould, 16.

Pacific coast : Hanna, 23.

Pacific continent : Hanna, 24.

Pacific Ocean, existence in Ordovician time : Ruedemann, 26.

Paleozoic : Schuchert, 18.

Atlantic-Arctic region : Holtedahl, 2.
late : Case, E. C., 2.

Pennsylvanian, Oklahoma and Texas :
Powers, 26.

Pennsylvanian sedimentation around
Healdton Island, Oklahoma : Merritt, J. W., 1.

Permian : Schuchert, 25, 52.

Great Plains : Dunbar, 4.

Permo-Carboniferous : Case, E. C., 3 ;
deposition conditions : Case, E. C., 1.

Physiography and past climates :
Evans, O. F., 8.

Pre-Cambrian : Miller, W. J., 21 ;
Ruedemann, R., 1.

Pre-Cambrian continents, existence
and configuration : Ruedemann, 11.

Pre-Cambrian land masses : Ruedemann, 10.

Quantitative criteria : Moore, R. C., 20.

Ripple marks, interpretation : Bucher, 1.

Shore line of Galena seas : Sardeson, 27.

Silurian : Ulrich, 8.

Indiana and Illinois : Tharp, 1.

Siouan Mountains : Keyes, 228.

Source of original Huronian sediments :
Bain, 16.

Stones River time : Coryell, 2.

Tertiary floras : Berry, 3.

Texas, Panhandle : Gould, 16.

Triassic : Simpson, G. G., 5 ; Smith, J. P., 3.

and Jurassic : Schuchert, 48.

Upper Cretaceous Mississippi Gulf :
Berry, 10.

West Indies : Trelease, 1.

Paleontology. For areal see names of States. See also the classes of animals ; Invertebrates (general) ; Evolution ; Paleobotany ; Problematic organisms ; Restorations.

Ammonite shell investing commensal
Bryozoa : Dunbar, 13.

Animals of the past : Lucas, F. A., 1.

Application to oil industry : Jones, R. A., 5.

Applications of paleontology : Scott, W. B., 7.

Applied paleontology : Weller, 3.

Archean, evidence of life in evaluated :
Hawley, J. E., 2.

Paleontology—Continued.

- Arrested evolution, paleontology of: Ruedemann, 6, 9.
- Bakelite for preserving fossil material: Case, 17.
- Biostratigraphic aspect of micropaleontology: Schenck, 11.
- Biostratigraphic terms: Fenton, C. L., 6.
- Bone, fossil, mineralogy and petrography: Rogers, A. F., 19.
- California Academy of Sciences, report of curator: Hanna, G. D., 3.
- Canada, index to paleontology: Nicolas, 3.
- Casts of invertebrate fossils: Feiss, 1.
- Cephalopod adaptation: Dunbar, 5.
- Climate, determination by plants: Knowlton, 6.
- Climate environment of extinct animals, determination: Case, 8.
- Collecting fossil fishes in Cleveland shale: Hyde, 2.
- Collecting fossil plants: Berry, 83.
- Collecting fossils: Ruedemann, 25; on Anticosti Island: Twenhofel, 25.
- Collecting in Mississippian formations: Weller, 13.
- Collecting in the Badlands: Johnston, W. D., 1.
- Collections in Boston and vicinity: Raymond, 4.
- Comparison of most ancient and recent marine faunas: Clark, A. H., 1.
- Conodonts, classification and stratigraphic use: Bassler, 16.
- Contributions to knowledge: Berry, 29.
- Development of American paleontology: Scott, W. B., 5.
- Development stages in teaching paleontology: Jackson, 1.
- Dinosaurian climatic response: Lull, 15.
- Disease in extinction of races: Moodie, 1.
- Early collecting of fossil vertebrates, Lull, 18; Matthew, 36.
- Ecology in interpretation of fossil faunas: Baker, F. C., 5, 7.
- Evolutional paleontology in relation to the lower Paleozoic rocks: Elles, 1.
- Evolutionary changes, use in correlation: Thomas, N. L., 2.
- Extinction and extermination: Tolmachoff, 5.
- Extraction of fossils from refractory rocks: Hanna, G. D., 20.
- Foraminifera, classification: Cushman, 28.
- Fossil, use of term: Field, 3, 4; Miller, A. M., 7, 8.
- Fossil marine faunas as indicators of climate: Kirk, E., 10.
- Fossil plants as evidence for resistance to environment: Wieland, 14.

Paleontology—Continued.

- Fossils, separation by heavy liquids: Hanna, M. A., 4.
- Fossils and life: Bather, 4.
- Fossils as age markers: Price, G. M., 2.
- Fossils from wells: Schenck, 4.
- General: Bather, 3; Buwalda, 13; Diamond, 1; Manson, 1; Matthew, 19; Merriam, 20; Parks, 31; Peabody Mus. N. H., 1; Shimer, 4; Smithsonian Inst., 1; Stock, 18; Wieland, 21; Woodring, 16.
- Great Basin and Pacific regions: Merriam, 12.
- History of life: Matthew, 39.
- Invertebrates, inorganic constituents: Clarke, F. W., 2.
- John Day region: Merriam, 14.
- Journal of Paleontology: Hanna, M. A., 8.
- Marking of type specimens: Howell, B. F., 10.
- Marine invertebrate faunas, distribution: Schuchert, 18.
- Micro-fossils in correlation: Schuchert, 24.
- Origin of oldest fossils: Brooks, W. K., 1.
- Origin of species: Osborn, 38.
- Orthogenesis: Osborn, 17.
- Ozarkian system: Walcott, 7.
- Pacific region: Merriam, 10.
- Paleontologic studies, practical value: Berry, 24.
- Paleontological researches in Pacific region: Merriam, 16.
- Paleontology and human relations: Weller, 18.
- Paleozoic, late: Case, E. C., 2.
- Parasitic disease: Bather, 2.
- Parasitism: Clarke, J. M., 16.
- Petrification of wood: St. John, 1.
- Photographing fossils: Mehl, 8.
- Place of paleontology among the sciences: Clark, J. M., 6.
- Prehistoric evidence: Frick, 2.
- Present tendencies in paleontology: Berry, 9.
- Progress of life: Keyes, 28.
- Progress on Pacific coast: Merriam, 7.
- Prototypes: Troxell, 6.
- Rectifications of nomenclature of Mollusca: Hanna, G. D., 13.
- Repopulation of sea bottoms: Sardeeson, 24.
- Researches in western States: Merriam, 10.
- St. John collection: Merrill, 33.
- Silurian faunal facies in juxtaposition: Ruedemann, 20.
- South American faunas, origin: Loomis, 5.
- Species, nature of: Troxell, 6.
- Statistical identification: Frost, 1.
- Symbiosis: Clarke, J. M., 16.

Paleontology—Continued.

- Type fossils in museum of Ohio State University: Morningstar, 2.
- U. S. National Museum, paleontological exhibits: Bassler, 5.
- Value of paleontology: Matthew, 32.
- Variations of specific distinctions: Lull, 13.
- Ways of life: Lull, 17.
- X-ray studies of fossils: Swartz, J. H., 13.

Cambrian.

- Alabama: Butts, 8.
- Alberta, trilobites: Raymond, 36.
- Algae, Middle Cambrian: Walcott, 1.
- Arthropods: Henriksen, 1.
- Brachiopoda: Walcott, 8.
- Belt fauna: Rothpletz, 1.
- British Columbia, Marpolla: Walton, 1.
- California, Bristol Mountain: Resser, 6.
- Mohave Desert: Clark, C. W., 1.
- Chordates, Vermont: Bryant, 6.
- Greenland, northwestern: Poulsen, 1.
- Iowa, St. Lawrence limestone, Trilobita: Walter, 1.
- Maine, Oldhamia: Smith, E. S. C., 5.
- Maryland: Bassler, R. S., 1.
- Massachusetts, Boston area: Clark, T. H., 10.
- Montana, Helena region: Rothpletz, 1.
- Nevada, Silver Peak district, trilobites: Walcott, 5.
- New Brunswick: Howell, 8.
- Newfoundland, Paradoxides faunas, Manuels Brook: Howell, 4.
- Olenellus getzi, antennae: Dunbar, 9.
- Quebec, Levis: Clark, T. H., 11.
- Spongiae, British Columbia: Walcott, 2.
- Stromatocystites, Newfoundland: Schuchert, 3.
- Trilobites: Walcott, 15.
- Vermont, northwestern, trilobites: Raymond, 23.

Carboniferous.

- Alabama: Butts, 8.
- Mississippian conodonts: Holmes, G. B., 1.
- Alberta, Banff area: Warren, P. S., 4.
- Crowsnest Pass: Warren, P. S., 7.
- Lake Minnewanka section: Shimer, 6.
- Nordeg, Kinderhook fauna: Warren, P. S., 1.
- Algal deposits: Twenhofel, 3.
- Annularia with Paleostachya fruit, Rhode Island: Round, 3.
- Arizona, Grand Canyon, Hermit shale flora: White, D., 34.
- Permian insect: Carpenter, F. M., 2.
- northwestern: Shimer, 2.
- Arkansas, Fayetteville formation, sharks: Croneis, 4.
- Bend series, central Texas: Moore, R. C., 1.
- British Columbia, Leptodus: Kindle, 38.
- Chester fauna: Weller, S., 1.

Paleontology—Continued.

Carboniferous—Continued.

- Chester series: Ulrich, 5.
- Bryozoa, Illinois and Kentucky: McFarlan, 1.
- Colorado, Pennsylvanian sandstones, footprints: Henderson, J., 5.
- western, Pennsylvanian Crinolidea: Keyte, 1.
- Conodonts: Ulrich, 13.
- Environmental conditions of Permian vertebrates: Case, 15.
- Foraminifera, Pennsylvanian, Oklahoma and Texas: Harlton, 3.
- Idaho, southeastern: Girty, 10.
- Illinois, Galesburg: Jelliff, 1, 3.
- Harrisburg, flora: Noé, 11.
- northern, Pennsylvanian flora: Noé, 6.
- northwestern, Pennsylvanian: Wanless, 5.
- Pennsylvanian marine faunas: Savage, 11.
- Pennsylvanian plants, structure: Hoskins, 2.
- plants, structure: Hoskins, 4.
- Richland County, coal flora: Reed, F. D., 1.
- Stonefort limestone, Fusulinella: Henbest, 1.
- Indiana, Crawfordsville, crinoid occurrence: Ehrenberg, 1.
- Orange County, Chester formations: Hole, 2.
- Porter County, scorpion: Moore, J. I., 1.
- Iowa, Des Moines: Thomas, 18.
- Fort Dodge, Ste. Genevieve marls: Lees, 4.
- Mississippian: Van Tuyl, 8.
- southwestern: Smith, G. L., 1.
- Kansas: Moore, R. C., 4.
- ophiacodont reptile, Permian: Romer, 4.
- Permian Insecta: Carpenter, F. M., 1; Tillyard, 5-11.
- Kentucky, eastern, Mississippian: Butts, 3.
- Kendrick shale: Jillson, 9.
- Pottsville faunas: Jillson, 53.
- western, coal field flora: Noé, 3.
- Warsaw formation, Anisotrypa: Deiss, 1.
- Wayne County, Warsaw formation, brachiopods: Ehlers, 11.
- Mackenzie, Kinderhook: Hume, 6.
- Maryland, Cantheliophorus: Bassler, 12.
- coal measures: Swartz, C. K., 2.
- insects: Cockerell, 37.
- Mexico, Coahuila, Permian: Haack, 1.
- Peregrina Canyon: Girty, 9.
- Michigan, Grand Ledge: Kelly, W. A., 1.
- Mississippian faunal zones: Weller, 12.

Paleontology—Continued.

Carboniferous—Continued.

- Missouri, Henrietta formation, ostracodes: Knight, J. B., 1.
 Henry County, coal floras: Round, 5.
 Mississippian: Moore, R. C., 41.
 upper Devonian and lower Mississippian faunas, relationship: Branson, 8.
 Nebraska, Pennsylvanian, Fusulinidae: Dunbar, 11.
 New Mexico, Abo sandstone, ammonoids: Böse, 4.
 Nova Scotia, Horton-Windsor district: Bell, W. A., 2.
 Ohio, Dunkard series: Stauffer, 1.
 Oklahoma, Carter County, Dornick Hills formation, Foraminifera: Waters, J. A., 1.
 Glenn formation: Girty, 5; Foraminifera: Harlton, 2.
 Pennsylvanian foraminifers: Galloway, J. J., 13.
 Pennsylvanian ostracodes: Coryell, 3; Harlton, 1, 4; Roth, 3.
 Permian amphibian: Mehl, 15.
 Permian Apus: Ruedemann, 8.
 Seminole County ostracodes: Coryell, 4.
 Stanley shale: Honess, C. W., 2.
 Stonewall quadrangle: Morgan, G. D., 5.
 Sycamore limestone: Cooper, 1.
 Ostracoda, Pennsylvanian, Oklahoma and Texas: Harlton, 1, 4.
 Paleozoic, late: Case, E. C., 2.
 Paleozoic angiosperm, Illinois: Noé, 5.
 Pennsylvania, Broad Top coal field, Pocono fauna: Girty, 12.
 Calamites, East Bellevue: Grier, 1.
 Pittsburgh: Leighton, H., 2.
 Permian: Beede, 7; White, D., 17.
 Permian tetrapods: Case, 20.
 Permo-Carboniferous ammonoids, Glass Mountains, Texas: Böse, 1.
 Pocono Brachiopoda: Price, W. A., 2.
 Pottsville fauna, Ohio: Morningstar, 1.
 Rhode Island, coal floras: Round, 5.
 Schwagerina: Beede, 9.
 Texas, Burkburnett: Glenn, 2.
 Canyon formation, Fistulipora: Link, 6; Foraminifera: Waters, J. A., 2.
 northern: Moore, R. C., 15.
 Pennsylvanian foraminifers: Cushman, 42.
 Pennsylvanian ostracodes: Harlton, 4.
 Permo-Carboniferous red beds: Romer, 13.
 San Saba County, Mississippian: Girty, 7; Roundy, 3.
 Seymouria: Romer, 11.
 Sutton County, Carboniferous Foraminifera: Cushman, 45.
 Utah, Girty, 3.

Paleontology—Continued.

Carboniferous—Continued.

- West Virginia, Mercer, Monroe, and Summers counties: Girty, 8.
 Mineral and Grant counties: Reger, 7.
 Mississippian: Girty, 4.
 Nicholas County: Price, W. A., 7.
 Permian vertebrates: Tilton, 10.
 Webster County: Price, W. A., 1.
 Wyoming, Tensleep formation: Brainard, 2.
Cretaceous.
 Alabama: Stephenson, 5.
 Hymenaea: Berry, 5.
 Alberta, Birch Lake sandstone marine fauna: Warren, P. S., 3.
 cichlid fish: Jordan, D. S., 18.
 Colorado shale: Warren, P. S., 8.
 Edmonton formation, Red Deer River: Sternberg, C. M., 7; Warren, P. S., 3.
 dinosaur: Parks, 19, 26; Sternberg, C. M., 10.
 Edmontosaurus: Lambe, 1.
 Laosaurus: Gilmore, 20.
 Paskapoo formation, Mollusca: Russell, L. S., 1; plants: Berry, 73, 74.
 Pelecypoda: McLearn, 3, 5.
 Aralias: Fritel, 1.
 Arizona, Ostrea: Reagan, 18.
 Steamboat, Mancos-Dakota-Tununk formation: Reagan, 19.
 British Columbia, Cassiar district, plants: Bell, W. A., 14.
 California, Gastropoda: Stewart, R. B., 1.
 Santa Ana Mountains: Packard, 4.
 Cannonball fauna: Stanton, 3, 6; corals: Vaughan, 9.
 Carolinas, invertebrates: Stephenson, 9.
 Cheyenne sandstone flora, Kansas: Berry, 37.
 Colorado, Mollusca: Reeside, 17.
 northeastern: Henderson, J., 1.
 Colorado group, Montana: Reeside, 6.
 Coloradoan: McLearn, 10.
 Cuba, oyster: Raymond, 31.
 rudistids: Sánchez Roig, 15.
 Dakota, so-called, Colorado and Wyoming: Reeside, 6.
 Dakota flora, age: Berry, 23.
 Dakota sandstone problems: Stanton, 5.
 Didymotis trinidadensis, Lower Cretaceous, Trinidad: Sommermeier, 1.
 Dinosaurs, Red Deer River: Sternberg, C. H., 1.
 Eagle sandstone, cephalopods: Reeside, 12.
 Fish scales: Cockerell, 1.
 Gulf region: Berry, 4.
 Greenland, plants: Seward, 3.
 western, plants: Seward, 4.
 Haiti: Woodring, 5.

Paleontology—Continued.

Cretaceous—Continued.

- Jamaica : Trechmann, 5, 8.
 crab : Withers, 1, 8.
 decapod crustaceans : Withers, 2.
 Echinoidea : Hawkins, H. L., 1, 2.
 Kansas : Moore, R. C., 4; Twenhofel, 17.
 fishes : Jordan, D. S., 14.
 Martinichthys : McClung, 1.
 Niobrara beds, Anguillavus : Martin, H. T., 1.
 Niobrara cirriped : Withers, 5.
 Manitoba, Foraminifera : Cushman, 33.
 Maryland, Federal Hill : Berry, 16.
 Upper Cretaceous, Ostracoda : Berry, E. Willard, 1.
 Mesozoic floras of North and South America : Knowlton, 1.
 Mexico, Coahuila, Turonian ammonite fauna : Böse, 3.
 Guerrero, Zumpango : Burekhardt, 1.
 Lower California : Anderson, F. M., 4.
 Lower Cretaceous : Burekhardt, 2.
 northern, ammonites : Böse, 9.
 San Felipe formation : Stanton, 4.
 southern, rudistids : Palmer, R. H., 7.
 Tamaulipas, rudistid shells : Stephenson, L. W., 1.
 Tampico Embayment area, Foraminifera : White, M. P., 1.
 Zacatecas, Durango, and Guerrero : Böse, 6.
 Morrison flora, Colorado : Knowlton, 4.
 New Mexico, San Juan County, Reptilia : Gilmore, 4.
 New York, Staten Island : Davis, W. T., 1.
 North Carolina : Stephenson, 4.
 decapod crustaceans : Rathbun, 3.
 Mesozoic flora : Berry, 20.
 Oklahoma, Cimarron County, Dakota sandstone plants : Noé, 9.
 Love County, Comanchean : Bullard, 1, 2.
 Marshall County : Bullard, 3.
 Oregon, Cretaceous pterosaurian : Gilmore, 40.
 ichthyosaurian : Merriam, 27.
 Pacific region, Mollusca : Reagan, 7.
 Plantae, catalog : Knowlton, 2.
 Porto Rico, Ponce district : Mitchell, 7.
 Ripley flora : Berry, 63.
 Scaphites, Upper Cretaceous : Reeside, 14.
 South Dakota, Badlands : Toepelmann, 1.
 Fox Hills formation, beetles : Northrop, S. A., 1.
 ganoid fish : Gregory, W. K., 11.
 Palmoxylon, Pierre formation : Stevens, N. E., 1.
 Ziebach County, boring : Stanton, 11.

Paleontology—Continued.

Cretaceous—Continued.

- Tennessee, Carroll County, plants : Berry, 104.
 Cretaceous flora : Berry, 28.
 late Cretaceous plants : Berry, 17.
 McNairy County, Hamulus : Wade, B., 2.
 Ripley fauna : Wade, 3.
 Texas : Adkins, 5; Scott, G., 2; Stanton, 13.
 ammonites : Scott, G., 6.
 Buda and Georgetown limestones, Turritella : Ellisor, 1.
 central, Foraminifera : Carsey, 1.
 Denton County : Winton, 3.
 Cooke County : Bybee, 3.
 Duck Creek formation, ammonites : Scott, G., 1.
 Exogyra : Böse, 2.
 Fredericksburg formation, ammonites : Scott, G., 5.
 Fredericksburg and Washita formations : Adkins, 1.
 micrology : Alexander, C. I., 1; Carpenter, M., 1; Mahon, 1; Moreman, 1.
 northern, recurrent brachiopods : Sandidge, 1.
 Pectinidae : Kniker, 1.
 southern, ammonites : Böse, 9.
 Tarrant County : Winton, W. M., 1.
 Weichselia : Berry, 95.
 Weno and Pawpaw formations : Adkins, 2.
 Trigonidae, Pacific coast : Packard, 3.
 Trinidad : Harris, G. D., 5.
 rudistids : Harris, G. D., 4.
 Trinity fauna : Vanderpool, 2.
 Utah, Mollusca : Reeside, 17.
 Washington, San Juan Islands : McLellan, 2.
 Woodbine flora, Arthurs Bluff, Texas : Berry, 36.
 Wyoming, Oregon Basin, Cody shale, Cephalopoda : Reeside, 13.
Devonian.
 Alabama : Butts, 8.
 Alberta, Banff area : Warren, P. S., 4.
 Brachiopoda : Kindle, 32.
 Crownsnest Pass : Warren, P. S., 7.
 Lake Minnewanka section : Shimer, 6.
 Peace River : Kindle, 47.
 Arctic regions, Ellesmere Land : Tolmachoff, 1.
 Arizona, Pinal Creek : Stauffer, 11.
 Bothriolepis, Scaumenac Bay, Quebec : Bryant, 3.
 Conodonts : Ulrich, 13.
 Devonaster eucharis (Hall), six-rayed : Willard, B., 2.
 Dolatocrinus and allies : Springer, 3.
 Ellesmere Land : Kirk, 4; Tolmachoff, 2.
 Floras : Berry, 91.
 Glass-sponge colonies : Clarke, J. M., 10.

Paleontology—Continued.

Devonian—Continued.

- Illinois, Oriskany : Savage, 15.
western : Savage, 7.
- Iowa, annelid jaws : Searight, 1.
Aulopora : Fenton, M. A., 1.
Brachiopoda : Thomas, 14.
echinoderms : Thomas, 12, 23; geographic distribution : Thomas, 18.
Hackberry fauna : Fenton, C. L., 1, 3, 4.
Lime Creek shales : Thomas, 9.
Pentameracea : Belanski, 2.
Schizophoria : Fenton, M. A., 3.
Shellrock stage : Belanski, 3.
State Quarry beds : Stainbrook, 2, 3.
Mackenzie River valley, Crinoidea : Springer, 4, 14.
- Maine, Chapman sandstone : Raymond, 21; Ostracoda : Ulrich, 1.
- Michigan, Alpena, Cephalopoda : Foerste, 23.
Crinoidea : Ehlers, 9.
cystid, Lipsanocystis : Ehlers, 6.
gastropod and cephalopod : Ehlers, 5.
southeastern, Hamilton fauna : Ehlers, 12.
- Minnesota : Stauffer, 3.
- Missouri : Branson, 5.
Bailey limestone fauna : Tansey, 1.
central : Greger, 1.
Ste. Genevieve County, Little Saline limestone : Stewart, G. A., 1.
upper Devonian and lower Mississippian faunas, relationship : Branson, 8.
- New York, Devonian crinoids : Goldring, 4.
Eighteenmile Creek, Callixylon : Hylander, 1.
Gilboa, plant material : Goldring, 7.
glass sponge : Clarke, J. M., 25.
Hamilton crinoids : Goldring, 8.
Hamilton group, Protobalanus : Van Name, 2.
Oriskany fauna, Oriskany Falls, Eaton, H. N., 3.
plant localities : Arnold, C. A., 1.
plants : Petry, 1.
Portage group, conodonts : Hibbard, R. R., 1.
seed fern forests : Goldring, 5.
Sherburne sandstone : Grabau, 6.
Vernon shale fauna : Ruedemann, R., 2.
- Nova Scotia, Cephalopoda : Foerste, 27.
- Ohio, Cleveland shale, fishes : Hyde, 4.
Delaware County : Westgate, 5.
Silica shale fauna : Stewart, G. A., 2.
- Ontario, James Bay region : Savage, 2.
- Pisces : Hussakof, 1.
- Portage fauna, Mackenzie River valley : Kindle, 4.
- Quebec, St. George : Clark, T. H., 9.

Paleontology—Continued.

Devonian—Continued.

- Starfish, Gaspe : Ruedemann, 23.
Stringocephalus burtoni, distribution : Kindle, 10.
- Tennessee, western : Dunbar, 1, 2.
Terebratulacea, Iowa : Belanski, 4.
Thread molds and bacteria : Moodie, 10.
- West Virginia, Hardy County : Tilton, 13.
Mercer, Monroe, and Summers counties : Prouty, 14.
Mineral and Grant counties : Reger, 7.
Randall County, trees : Reger, 15.
- Jurassic*.
- Alberta : McLearn, 13.
Ferne formation, Ammonoidea : McLearn, 15; Pelecypoda : McLearn, 9.
- British Columbia : McLearn, 13.
Hazelton group : McLearn, 11.
Parson Bay : Crickmay, 9.
Cardioceratidae : Reeside, 1.
- Cuba, ammonite fauna : O'Connell, 3.
Viñales : Sánchez Roig, 1, 2.
western, fish fauna : Gregory, W. K., 8.
- Mammalia : Simpson, G. G., 3.
- Mexico, Oaxaca and Guerrero, cephalopods : Burckhardt, 3.
Zacatecas, Symon : Burckhardt, 1.
- Montana, Ellis formation, Lithothamnium : Howe, M. A., 4.
- Oregon, Mollusca : Hertlein, 2.
Plantae, catalog : Knowlton, 2.
- Trigonidae, Pacific coast : Packard, 3.
- Trinidad, Northern Range : Trechmann, 7.
- Western North America : Crickmay, 5.
- Wyoming, Como Bluff, Quarry 9 : Simpson, G. G., 11.
Apatodonosaurus : Mehl, 19.
- Ordovician*.
- Alabama : Butts, 8.
Arctic Cephalopoda : Foerste, 11.
- Baffin Island, cephalopoda : Foerste, 29.
corals, brachiopods, gastropods, and ostracodes : Hussey, 2.
- Beloit formation : Sardeson, 22.
Brachiopoda : Sardeson, 24.
- Black River Brachiopoda, Mississippi Valley : Fenton, C. L., 5.
- British Columbia, Glenogle formation, graptolites : Clark, T. H., 14.
- Rocky Mountains : Wilson, A. E., 4.
upper Ordovician, Palliseria : Wilson, A. E., 3.
- Cephalopoda : Foerste, 17, 28.
Ceratopyge fauna : Raymond, 16.
- Cincinnati, recurrent faunas : Shideler, 3.
Trilobita : Foerste, 3.
- Colorado, Macluritella : Kirk, E., 8.
- Dolgeville fauna : Ruedemann, R., 3.

Paleontology—Continued.

Ordovician—Continued.

- Ellesmere Land: Kirk, 4.
 General: Jones, O. T., 1.
 Greenland, northern, Cephalopoda:
 Troedsson, 2.
 northwestern: Poulsen, 1.
 Hudson Bay area, Cephalopoda:
 Foerste, 22.
 Illinois, northeastern, Richmond fauna:
 Evans, J. R. C., 1.
 Thebes sandstone: Savage, 1.
 Indiana, Madison: McEwan, 2.
 Iowa, Maquoketa shale: Bradley, J. H.,
 jr., 1.
 Maquoketa faunas: Ladd, H. S., 4.
 Maquoketa depauperate fauna, Iowa:
 Ladd, H. S., 2.
 Maquoketa echinoderms: Slocum, 1;
 Thomas, 22.
 Kimmswick limestone, Missouri: Brad-
 ley, J. H., jr., 4.
 Maryland: Bassler, 13.
 Michigan, Escanaba River, Trenton,
 cystoids: Hussey, 3.
 Richmond formation: Hussey, 1.
 Minnesota, cephalopods: Sardeson, 17.
 Crinoidea: Sardeson, 16.
 problematic fossils: Sardeson, 18.
 Missouri, Kimmswick and Plattin
 limestones: Foerste, 9.
 Plattin formation: Fenton, C. L., 8.
 Nevada, sponge fauna: Bassler, 22.
 New York, graptolite zones: Ruede-
 mann, R., 3.
 Martinsburg, Trenton fauna: Clark,
 T. H., 1.
 Newburgh quadrangle: Holzwasser, 1.
 Utica and Lorraine formations: Rue-
 demann, 16-18.
 Northwest Territories, Great Slave
 Lake: Hume, 18.
 Ohio, Warren and Clinton counties:
 Austin, G. M., 1.
 Ontario: Foerste, 15.
 black shales: Parks, 32.
 Credit River section: Dyer, 3.
 Dundas formation: Parks, 17.
 Lake Timiskaming area: Hume, 14.
 Ottawa region: Wilson, A. E., 1.
 St. Lawrence Valley: Wilson, A. E.,
 2.
 Toronto area: Fritz, 1; Parks, 8, 9,
 18; Pelecypoda: Stewart, B. H., 1.
 Workman's Creek section: Fritz, 2.
 Pennsylvania, central: Field, R. M., 1.
 Platystrophia: McEwan, 1.
 Quebec: Foerste, 15.
 Anticosti Island: Twenhofel, 30;
 cephalopods: Foerste, 26.
 Levis, Beekmantown series: Clark,
 T. H., 11.
 Montreal, cephalopod: Clark, T. H.,
 16.
 Phillipsburg region, Beekmantown tri-
 lobites: Bradley, J. H., jr., 3.

Paleontology—Continued.

Ordovician—Continued.

- Salterella, nature: Clark, T. H., 12.
 Snake Hill fauna: Ruedemann, R., 3.
 Stones River limestone: Coryell, 2.
 Strophomena, Black River and Rich-
 mond: Fenton, C. L., 9.
 Tennessee, Lenoir and Athens forma-
 tions, brachiopods: Raymond, 37.
 Ottosee and Holston formations,
 brachiopods: Willard, B., 5.
 Stones River group: Coryell, 2.
 Trenton limestone, ostracodes; Kirk,
 S. R., 1.
 Trenton echinoderm faunas, distribu-
 tion: Foerste, 3.
 Trenton fauna, Ontario and Quebec:
 Raymond, 10.
 Trilobita: Raymond, 6.
 Utica and Lorraine shales, faunal facies
 differences: Ruedemann, 22.
 Vermont, central: Richardson, C. H., 1.
 Chazy coral reef: Raymond, 24.
 Fort Cassin: Foyles, 3.
 Grand Isle: Ruedemann, 5.
 Grand Isle County: Perkins, G. H., 9.
 northwestern, trilobites: Raymond,
 23.
 Shoreham and Bridport: Foyles, 3.
 Vertebrata: Tieje, 4.
 Virginia, Lenoir and Athens formations,
 brachiopods: Raymond, 37.
 Ottosee and Holston formations,
 brachiopods: Willard, B., 5.
 West Virginia, Mineral and Grant
 counties: Reger, 7.
 Mercer, Monroe, and Summers coun-
 ties: Prouty, 14.
 Wisconsin, Galena limestone: Ocker-
 man, 1.
 Ozarkian.
 Brachiopoda, Cephalopoda, Notostraca:
 Walcott, 8.
 Pre-Cambrian.
 Algae, Archean: Gruner, 4, 6; Twen-
 hofel, 3.
 Floras: Berry, 100.
 General: Keyes, 58.
 Organic structures, Biwabik iron-bear-
 ing formation: Grout, 4.
 Steep Rock series: Rothpletz, 2.
 Huronian stromatoporoid-like masses,
 Webbwood, Ontario: Bain, 23.
 Quaternary.
 Alaska, Peard Bay region: Meek, 1.
 Pleistocene: Dall, 2.
 Arctic coast, Pleistocene: Dall, 9.
 Arizona, Lake Cochise area: Bryan, 23.
 Atlantic Coastal Plain, Pleistocene:
 Hay, 2.
 British Columbia, Vancouver Island:
 Berry, 33.
 southwestern, Pleistocene: Crickmay,
 3.
 Bryozoa: Canu, 4.

Paleontology—Continued.

Quaternary—Continued.

- California, Carpinteria asphalt pit:
Hoffman, R., 1; Stock, 20.
Los Angeles asphalt pits: Hay, 37.
Los Angeles County, Pleistocene
clam: Oldroyd, I. S., 1.
Pleistocene, McKittrick asphalt de-
posit; Merriam, 9; llama: Mer-
riam, 18; peccary: Stock, 23.
Pleistocene, Arctotherium: Merriam,
17; Foraminifera: Galloway, J. J.,
8; Mollusca: Oldroyd, T. S., 1;
ruminant: Stock, 19; Tanupolama:
Stock, 24.
Rancho La Brea, flora: Frost, 2.
Megalonychinae and Mylodontidae.
Rancho La Brea: Stock, 13.
Rancho La Brea, peccary: Merriam,
8; rodents and lagomorphs: Dice, 1.
southern, Vertebrata: Frick, 1.
Canada, Diatomaceae: Boyer, 1.
Colorado, Yuma County, Pliocene Mam-
malia: Cook, H. J., 2.
Echinoidea, west coast: Israelsky, 1.
Ecology in the interpretation of fossil
faunas: Baker, F. C., 7.
Florida, age of Vero vertebrates: Hay,
36.
Citrus County, Pleistocene mammals:
Simpson, G. G., 26.
Mammalia and Pisces: Hay, 1.
Mollusca: Mansfield, W. C., 1.
Pleistocene Physa: Clench, 1.
Frankstown cave vertebrates, Blair
County, Pennsylvania: Peterson, 9.
Gulf States, Pelecypoda: Maury, 4.
General: Hay, 31.
Haiti, Balanus: Pilsbry, 3.
Helicina occulta, Iowa: Shimek, 1.
Illinois, loess, Alton: Baker, C. L., 2;
Leighton, M. M., 5.
Grundy County, Pleistocene Mol-
lusca: Baker, F. C., 6.
loess deposits, Mollusca: Baker, F.
C., 13.
Pleistocene Mollusca: Baker, F. C.,
8, 9, 11, 12.
Indiana, Pleistocene Mollusca: Baker,
F. C., 3; Porter County: Lyon, 1.
Iowa, Cherokee, Pleistocene: Cable, 8.
Kansas, Pleistocene Bison: Martin,
H. T., 5.
Wallace County, Pleistocene Mol-
lusca: Hanna, G. D., 5.
Mammalian faunas, shifting: Adams,
L. A., 2.
Mammoth, Cheney, Washington: Free-
man, O. W., 6.
Maryland, Cumberland, Pleistocene pec-
caries: Gidley, 4.
Walles Bluff, Pleistocene Mollusca:
Smith, E. R., 1.
western: Gidley, 3.
Massachusetts, bison remains: Allen,
G. M., 1.

Paleontology—Continued.

Quaternary—Continued.

- Mexico, Lower California, Mollusca:
Jordan, E. K., 1, 3; San Quentin
Bay, Pleistocene: Orcutt, C. R., 1.
Pleistocene Mammalia: Furlong, 1.
Michigan, Oakland County, elephant:
Sherzer, 2.
Minnesota, Bison: Hay, 17.
Mississippi, Pleistocene plants: Berry, 6.
Mollusca, marl deposits, Ottawa dis-
trict, Ontario: Whittaker, 1.
Pleistocene: Maury, 5.
Nebraska, Archidiskodon maibeni: Bar-
bour, 7, 8.
Elephas scotti: Barbour, 2.
Giraffa nebrascensis: Matthew, 2.
Tetrabelodon abeli: Barbour, 33.
western, Pleistocene: Matthew, W.
D., 2.
New York, Pleistocene Mammalia:
Hartnagel, 1, 4.
New York City, Pleistocene: Palmer,
K. V. W., 3.
North Carolina, Pleistocene plants:
Berry, 75.
Ohio, Pleistocene Mollusca: Baker, F.
C., 2, 3.
Ontario, Pleistocene, crustacean: Kin-
dle, 48.
St. Lawrence Valley: Whittaker, 3.
Toronto, muskox skull: Bensley, 1.
Oregon, Pliocene bear: Merriam, 22.
Plantae, catalog: Knowlton, 2.
Pleistocene: Baker, F. C., 1.
mammals: Hay, 45.
Maryland, Virginia, and North Caro-
lina: Mansfield, W. C., 6.
mastodons: Hay, 32.
middle region of North America:
Hay, 23.
Mollusca: Goldring, 3.
plants: Berry, 88; Alabama and
Tennessee: Berry, 84.
Vertebrata: Hay, 4, 7, 8, 9, 15, 16,
24, 32, 39.
Pleistocene faunas, distribution: Gold-
ring, 1.
Quebec, St. Lawrence Valley: Whittak-
er, 3.
San Pedro fauna, Nob Hill cut, Cali-
fornia: Oldroyd, T. S., 3.
Tennessee, Pleistocene plants: Berry, 6.
Texas, Dallas County: Shuler, 1; Mam-
malia: Lull, 8.
Pleistocene fresh-water Mollusca:
Hanna, G. D., 9.
southwestern, Pleistocene verte-
brates: Hay, 33.
Vernon, Bison: Cook, H. J., 14.
Trinidad, Pleistocene flora: Berry, 67.
Utah, hairy mammoth: Hansen, 1.
Veneridae, eastern America: Palmer,
K. V. W., 5.
Washington, Big Hope Island, Pleisto-
cene: Henderson, J., 9.

Paleontology—Continued.

Sturrian.

- Alabama: Butts, 8.
 Alaska, Bathmopterus: Kirk, 11.
 Cymbidium: Kirk, 5.
 Harpidium: Kirk, 3.
 Pycnoderma: Kirk, 6.
 Anticosti faunas: Jones, O. T., 1.
 Arctic Cephalopoda: Foerste, 11.
 Arkansas, St. Clair limestone: Thomas, N. L., 1, 2; brachiopoda: Thomas, N. L., 4; Trilobita: Foerste, 14.
 Cephalopoda: Foerste, 19, 28.
 Hudson Bay area: Foerste, 22.
 northern Michigan: Foerste, 16, 17.
 orthoconic: Foerste, 30.
 Crinoida: Springer, 12.
 Echinodermata, Brassfield formation, Ohio: Foerste, 1.
 Illinois, northeastern, Gastropoda: Wing, 1.
 Orchard Creek shale: Savage, 1.
 worm, Lectbaylus: Weller, 9.
 Indiana, Jefferson County, Brassfield: Culbertson, J. A., 1.
 Niagaran: Shrock, 2.
 northern: Cumings, 5.
 Iowa, Herpetocrinus: Thomas, A. O., 4.
 Niagaran, Bilobites bilobus: Thomas, A. O., 25.
 Manitoba, Hudson Bay region: Savage, 2.
 Maryland: Swartz, C. K., 9.
 Massachusetts, Essex County: Foerste, 6.
 Michigan, Mackinac County, Heterolasma: Ehlers, 2.
 New York: Ruedemann, 19.
 adjacent faunal facies: Ruedemann, 20.
 Crustacea: Clarke, J. M., 4.
 new forms of life: Ruedemann, 7.
 salt deposits: Alling, 14.
 Vernon shale fauna: Eaton, H. N., 5.
 Northwest Territories, Great Slave Lake: Hume, 18.
 Nova Scotia, Arisaig area: McLearn, 8.
 Ohio: Foerste, 2.
 Cedarville, cystids and blastoids: Foerste, 10.
 Medinan fauna: Foerste, 14.
 Ontario, Hudson Bay region: Savage, 2.
 Lake Timiskaming area: Hume, 14.
 Timiskaming area, Cephalopoda: Foerste, 18.
 southwestern: Williams, M. Y., 1.
 Whirlpool sandstone: Foerste, 14.
 Quebec, Anticosti Island: Twenhofel, 30.
 St. Clair limestone, Arkansas and Oklahoma: Ulrich, 14.
 Trilobita: Foerste, 3.
 West Virginia, Hardy County: Tilton, 15.

Paleontology—Continued.

Sturrian—Continued.

West Virginia—Continued.

- Mercer, Monroe and Summers counties: Prouty, 14.
 Mineral and Grant counties: Reger, 7.
 Wisconsin, Racine, cystids and blastoids: Foerste, 10.

Tertiary.

- Alabama: Cooke, C. W., 13.
 Eocene, foraminifer: Cushman, 19.
 Eocene Mollusca: Aldrich, T. H., 1.
 Alaska, Pliocene: Dall, 2; pectens: Dall, 3.
 Pribilof Islands: Dall, 1; Hanna, G. D., 1.
 Alberta, Paskapoo formation, Catopsalis: Russell, L. S., 2.
 Red Deer, Paskapoo beds, fish: Russell, L. S., 3.
 Alum Bluff group, molluscan fauna: Gardner, J. A., 7.
 Anguilla, Oligocene, decapod crustaceans: Withers, 4.
 Arachnida: Petrunkevitch, 1.
 Arctic regions, Brock River: Dall, 9.
 Arizona, Benson, bird remains: Wetmore, 5.
 San Pedro Valley, vertebrates: Gidley, 5; Proboscidea and Edentata: Gidley, 7.
 Artiodactyls: Lull, 4.
 Balanocrinus, West Indies: Springer, 8.
 Barbados, Callianassa, Scotland beds: Withers, 6.
 Scotland beds: Trechmann, 6.
 Brandon, flora: Berry, 8.
 Briones fauna, California: Trask, 2.
 British Columbia, Tertiary floras: Berry, 78.
 Vancouver Island, Sooke formation: Clark, B. L., 8; Cornwall, 1; Cirripedia: Cornwall, 2.
 Bryozoa: Canu, 5.
 later Tertiary: Canu, 4.
 Byram marl, Mississippi: Cooke, C. W., 7.
 Foraminifera: Cushman, 13.
 California, Channel Islands: Hertlein, 9.
 Coral: Vaughan, 45.
 Coyote Mountain: Hanna, 25.
 Desmostylus: Hannibal, 1.
 diatoms: Hanna, G. D., 31.
 Domengine horizon, middle Eocene: Clark, B. L., 16.
 echinoid: Schenck, 8.
 Foraminifera: Cushman, 29, 32.
 Vicksburg group: Cushman, 16.
 Gastropoda: Stewart, R. B., 1.
 Hippurion mohavense, Puente formation: Stock, 26.
 Kern County, Miocene marine vertebrates: Hanna, G. D., 20.
 La Jolla quadrangle: Hanna, M. A., 5.

Paleontology—Continued.

Tertiary—Continued.

California—Continued.

- Lompoc, humpback whale: Kellogg, R., 3; Miocene birds: Miller, L. H., 3.
- Los Angeles, Miocene algae: Gardner, N. L., 1.
- Martinez Eocene: Nelson, R. N., 2.
- Meganos fauna: Clark, B. L., 2, 18.
- Miocene fishes: Jordan, D. S., 15.
- Mohave Desert: Merriam, J. C., 1;
- Alticamelus: Davidson, P., 2;
- Merycodus: Furlong, 2.
- Monterey group, whale: Hanna, G. D., 15.
- Monterey shale: Hanna, G. D., 38; diatoms, Gaylord, 2.
- Petaluma, Point Reyes, and Santa Rosa quadrangles, Dickerson, 2.
- Pinnipeds: Kellogg, R., 2.
- Pliocene, canid and rhinocerotid remains: Stock, 16; Gastropoda: Carson, 2; pinniped: Kellogg, R., 1.
- Puente flora: Chaney, 4.
- Puente formation, Hippardion: Stock, 26.
- Rancho La Brea, birds: Miller, L. H., 2.
- Ricardo fauna: Stock, 25.
- San Lorenzo group: Wagner, C. M., 1.
- Santa Barbara County, Miocene fishes: Jordan, 12; physeteroid cetacean: Kellogg, R., 9.
- Sonoma County, Miocene lacustrine mollusks: Hanna, G. D., 7.
- southern, Miocene fishes: Jordan, D. S., 1, 17; Pliocene: Carson, 1; Vertebrata: Frick, 1.
- southern Coast Ranges, Vertebrata: Stock, 3.
- Tejon fauna: Anderson, F. M., 1.
- Temblor group, sharks: Jordan, D. S., 16; sperm whale: Kellogg, R., 15.
- Tertiary and Quaternary Foraminifera: Cushman, 34.
- Tesla region, Miocene flora: Scott, F. M., 1.
- Vacaville, Eocene: Palmer, D. B. K., 1.
- Vaqueros and Temblor formations: Wiedey, 1.
- Canada, Diatomaceae: Boyer, 1.
- Cannonball fauna: Stanton, 3; corals: Vaughan, 9.
- Caribbean region, Foraminifera: Vaughan, 21.
- Cassidiidae, western America: Schenck, 3.
- Cayman Islands, Foraminifera: Vaughan, 42.
- Chipola fauna in Marks Head marl: Gardner, J. A., 5.
- Chitons: Berry, S. S., 1.

Paleontology—Continued.

Tertiary—Continued.

- Colorado, birds, Oligocene: Wetmore, 12.
- Brown's Park formation: Peterson, 11.
- Eocene alga: Cockerell, 35.
- Eocene Insecta: Cockerell, 8.
- Florissant, Miocene insects: Cockerell, 36; beetles: Cockerell, 32; Orontium: Cockerell, 31; parasitic Hymenoptera: Cockerell, 4.
- Green River Eocene, plants and insects: Cockerell, 27.
- Huerfano formation, titanotheres: Osborn, 7.
- Hyopsodus, Eocene: Abel, 2.
- Insecta, Inocellia: Cockerell, 28.
- Moffat County, titanotheres, Eocene: Cook, H. J., 8.
- Palmoxylon, Denver formation: Stevens, N. E., 1.
- Pawnee Creek beds, Amphicyon: Cook, H. J., 9.
- rhinoceros, Oligocene: Gregory, W. K., 19.
- Costa Rica, Miocene Foraminifera and Mollusca: Palmer, K. V. W., 4.
- northern, Miocene: Olsson, 1.
- Plantae: Berry, 15.
- Cuba, cirriped, Miocene: Withers, 7.
- Miocene and Pliocene Squalidae: Sánchez Roig, 3.
- Dominican Republic: Vaughan, 16.
- Anthozoa: Vaughan, 37.
- decapods: Rathbun, 2.
- Mollusca: Pilsbry, 1.
- Plantae: Berry, 26.
- Early Tertiary Bryozoa: Canu, 2.
- Echinoidea: Stefanini, 1.
- west coast: Israelsky, 1.
- Eocene, Foraminifera, California: Hanna, G. D., 10.
- Eocene and Oligocene Mollusca: Cooke, C. W., 10.
- Eocene flora, trans-Pecos Texas: Berry, 12.
- Eutrophoceras, Eocene, South Carolina: Reeside, 9.
- Fishes, Eocene, Utah and Wyoming: Tanner, 1.
- Miocene, California: Jordan, 5.
- Florida, fresh-water mollusks: Marshall, W. B., 1.
- Miocene, Corbula: Gardner, J. A., 8; Foraminifera: Cushman, 9.
- Mollusca: Mansfield, W. C., 1.
- phosphate beds, Cetacea: Allen, G. M., 3.
- Foraminifera: Vaughan, 35.
- Coastal Plain wells: Applin, E. R., 1.
- Mint Spring marl: Cushman, 14.
- Fossils dredged off the northeastern coast of North America: Dall, 11.
- Great Basin and Great Plains faunas: Troxell, 13.

Paleontology—Continued.

Tertiary—Continued.

- Green River flora: Knowlton, 11.
 Green River formation, origin: Henderson, J., 6.
 Gulf States, Pelecypoda: Maury, 4.
 Haiti: Woodring, 5.
 Balanus: Pillsbury, 3.
 cichlid fish, Miocene: Cockerell, 16.
 Eocene Foraminifera: Woodring, 6.
 Mollusca: Woodring, 7.
 plants: Berry, 32.
 Hipparion, Siestan, California: Stock, 8.
 Hoplophonus, South Dakota: Jepson, 2.
 Idaho, Latah flora: Knowlton, 16.
 Idaho formation, Snake River valley: Dall, 10.
 Insecta, Eocene: Cockerell, 3; Texas: Cockerell, 19.
 Rocky Mountains: Cockerell, 2.
 Jamaica, Bowden, Miocene mollusks: Woodring, 10, 22.
 decapod crustaceans: Withers, 2.
 Echinoidea: Hawkins, H. L., 2.
 Foraminifera: Vaughan, 46.
 Richmond formation: Trechmann, 4.
 Yellow limestone: Trechmann, 3.
 Kansas, Miocene, *Celtis*: Brooks, B. W., 1.
 Louisiana, Pliocene Mollusca: Smith, E. R., 2.
 Maryland, Calvert County, *Eurhinodelphis*: Kellogg, R., 11.
 Calvert Cliffs, Miocene whale: Kellogg, R., 7.
 Zarhachis, Calvert formation: Kellogg, R., 6.
 Miocene porpoise: Kellogg, R., 14.
 Mexico, echinoids, Neogene: Lambert, 2.
 Guayabal formation, Foraminifera: Cole, W. S., 1.
 Gulf of California, Pliocene: Hanna, G. D., 29.
 Lower California, Cedros Island and Turtle Bay: Jordan, E. K., 4; pectens: Hertlein, 1.
 Miocene: Hertlein, 4.
 Maria Madre Island, Miocene marine diatoms: Hanna, 27; Pliocene: Jordan, E. K., 2.
 Moctezuma River, Eocene fauna: Cushman, 21.
 southern, foraminifers: Nuttall, 2.
 Tehuantepec, Miocene: Berry, 39.
 Vera Cruz, Vicksburg Mollusca: Cooke, C. W., 18.
 Miocene fishes, California: Jordan, 6.
 Miocene plants, southern Mexico: Berry, 48.
 Mississippi, Eocene mollusks, Jackson: Cooke, C. W., 15.
 Mollusca, Eocene and Oligocene: Cooke, C. W., 10.

Paleontology—Continued.

Tertiary—Continued.

Mollusca—Continued.

- Miocene and Pliocene: Woodring, 9;
 Coastal Plain: Gardner, J. A., 4.
 Pliocene: Maury, 5.
 Montana, Eocene claeonodonta: Gidley, 2.
 Fort Union formation, footprints: Gilmore, 41.
 Missoula region, plants: Jennings, 1.
 Paleocene primates: Gidley, 6.
 southern, Fort Union formation, Mammalia: Simpson, G. G., 21.
 Myadema, Pacific coast: Clark, B. L., 6.
 Nebraska, Agate Springs, Miocene hawk: Wetmore, 9.
 avian Miocene and Pliocene fossils: Wetmore, 4.
 Brown County, longirostrine elephant: Cook, H. J., 16.
 Miocene birds: Wetmore, 7.
 Miocene Mammalia: Matthew, 35.
 Peltosaurus, Oligocene: Gilmore, 29.
 Prosthennops, peccary: Barbour, 3.
 Sioux County, birds: Wetmore, 13; hawk: Wetmore, 11.
 Nevada, Esmeralda formation, flora: Berry, 92.
 Fish Lake valley, *Hypohippus*: Stock, 17.
 Miocene walnut: Berry, 98.
 Thousand Creek Pliocene, Mammalia: Merriam, 28.
 New Mexico, San Juan County, *Reptilia*: Gilmore, 4.
 North Carolina, Castle Hayne and Trent marls: Kellum, 2.
 Miocene Mollusca: Mansfield, W. C., 7.
 Pliocene: Mansfield, W. C., 6.
 Oregon, Astoria section: Howe, H. V. W., 9.
 Coast Range, Foraminifera: Cushman, 44.
 Coos Bay, Empire formation: Howe, H. V. W., 2.
 Crooked River basin, *Merychippus*: Maxson, 1.
 Eagle Creek flora: Chaney, C. A., 1.
 eastern, insects: Cockerell, 40.
 fresh-water Mollusca: Hanna, G. D., 6.
 John Day Basin, hyaenarctid bear: Merriam, 24; Mollusca: Hanna, G. D., 2.
 John Day beds, hackberry: Chaney, 18; Umbellularia: Chaney, 19.
 John Day region, Miocene Gastropoda: Hanna, G. D., 4.
 Merychippus isonesus, Crooked River Basin: Maxson, 1.
 Rattlesnake fauna: Merriam, 19.
 Orthaulax: Cooke, C. W., 6.
 Orthophragmina and *Lepidocyclus*: Cushman, 8.

Paleontology—Continued.

Tertiary—Continued.

- Pacific slope, sharks and rays: Jordan, 11.
 stalk-eyed Crustacea: Rathbun, 5.
 Panama Canal Zone: Vaughan, 3.
 Miocene palm nut: Berry, 25.
 Payette flora: Chaney, 6.
 Pelagic mammals: Kellogg, R., 8.
 Pacific coast: Kellogg, R., 10.
 Plantae, catalog: Knowlton, 2.
 Porto Rico, Lares district: Hubbard, B., 3.
 Ponce district: Mitchell, 7.
 Mollusca: Hubbard, B., 1; Maury, 3.
 St. Maurice and Claiborne Pelecypoda: Harris, G. D., 1.
 Snake Creek fauna: Matthew, W. D., 2.
 Rhinoceroses and hyracodonts, early
 Tertiary: Wood, H. E., 6.
 South Carolina, Mollusca, Miocene: Gardner, J. A., 1.
 Oligocene sea turtles: Hay, 19.
 South Dakota, badlands: Jepson, 1;
 Toepelmann, 1; Ischromys: Miller, G. S., 1.
 Black Hills region: O'Harra, 3.
 Tennessee, Eocene, caddis case: Berry, 4.
 Terminalia, lower Eocene, southeastern North America: Berry, 76.
 Terrestrial plants: Berry, 42.
 Texas, Bastrop County, Cook Mountain Eocene: Price, W. A., 12.
 Butler salt dome, Midway brachiopod: Gardner, J. A., 6.
 central, Eocene florule: Berry, 56.
 Eocene crabs: Rathbun, 6.
 Eocene Mollusca: Gardner, J. A., 11.
 Jackson Foraminifera: Cushman, 24.
 Miocene vertebrates: Hay, 20.
 southwestern, Eocene Mollusca: Gardner, J. A., 2.
 Wilcox group: Gardner, J. A., 3.
 Trinidad: Harris, G. D., 5.
 echinoids: Jeannet, 1.
 Foraminifera: Hodson, H. K., 2.
 Miocene corals: Vaughan, 38.
 Miocene faunas: Maury, 8.
 Miocene gastropods and scaphopods: Mansfield, W. C., 2.
 Tertiary flora: Berry, 64.
 Uinta Basin, Eocene Mammalia: Peterson, O. A., 1.
 Utah, Green River beds, Eocene birds: Wetmore, 8.
 Stehlinius: Matthew, 17.
 Venericardia, West Coast: Hanna, M. A., 1.
 Veneridae, eastern America: Palmer, K. V. W., 5.
 Virginia, Eocene Mollusca: Palmer, K. V. W., 1.
 Miocene Mollusca: Mansfield, W. C., 7; Turritella: Gardner, J. A., 14.

Paleontology—Continued.

Tertiary—Continued.

- Virginia—Continued.
 New Castle, Miocene: Palmer, K. V. W., 2.
 Wasatch and Wind River faunas: Matthew, W. D., 3.
 Washington, Eagle Creek flora: Chaney, C. A., 1.
 Eocene: Weaver, 3.
 Latah flora: Knowlton, 16.
 Lewis County, Eocene Foraminifera: Hanna, G. D., 18.
 Miocene, Paliurus: Berry, 102.
 Oligocene, Crustacea: Withers, 3.
 Olympic Peninsula: Dall, 6.
 Western North America: Hertlein, 2;
 marine Oligocene: Clark, B. L., 11.
 West Indies, Algae: Howe, M. A., 1.
 Bryozoa: Canu, 1.
 decapod Crustacea: Rathbun, 1.
 Foraminifera: Cushman, 3.
 Mollusca: Cooke, C. W., 1.
 White River formation, North Dakota: Leonard, A. G., 4.
 Wilcox flora: Berry, 41.
 Wyoming, amiid fish, Eocene: Romer, 15.
 Big Horn County, Eocene, flightless bird: Sinclair, 11.
 Bridger formation, Reithroparamys: Matthew, 11.
 Eocene Insecta: Cockerell, 8.
 Eocene turtle: Case, 23.
 Miocene, Palaeocastor: Romer, 10.
 Van Tassel, Miocene: Loomis, 6.
Triassic.
 British Columbia, coral reef fauna: Shimer, 7.
 Connecticut Valley: Troxell, 12.
 Footprints: Abel, 4.
 Continental Triassic beds: Huene, 3.
 Dromatherium and Microconodon: Simpson, G. G., 5.
 Greenland, eastern, ammonites: Spath, 1.
 Scoresby Sound, Rhaetic flora: Harris, T. M., 1.
 Idaho, southeastern: Girty, 10.
 Mammals: Simpson, G. G., 22.
 Nevada: Stanton, 12.
 cestracant spine: Davidson, P., 1.
 New Jersey, Hypsognathus: Gilmore, 39.
 New Mexico, phytosaur: Mehl, 9.
 Pennsylvania, York County: Wanner, 1, 2.
 Reptilia: Huene, 1.
 Plantae, catalog: Knowlton, 2.
 Texas, Coelophysis: Case, 22.
 fishes: Warthin, 1.
 phytosaur: Case, 24.
 Reptilia: Case, 10.
 vertebrates: Case, 16.
 western: Case, 11, 27; cotylosaur: Case, 26.

Paleontology—Continued.

Triassic—Continued.

Unionid pelecypods, Texas and Arizona :
Reeside, 16.

Upper Triassic: Smith J. P., 3.

Utah: Girty, 3.

Shinarump conglomerate, cycads :
Berry, 90.

Virginia: Roberts, J. K., 8.

Wyoming, Phytosauria: Mehl, 19.
plants: Berry, 59.

vertebrates: Branson, 19.

Paleopathology.

Antiquity of disease: Moodie, 20.

Bacteria, Permian: Moodie, 16.

Disease, beginnings: Moodie, 9.

General: Moodie, 1-4, 7, 8, 21.

Histological nature of ossified tendons
in dinosaurs: Moodie, 28.

Historical sketch: Moodie, 17.

Invertebrata: Moodie, 22.

Man: Moodie, 18.

Mesozoic: Moodie, 15.

Opisthotonos: Dean, 3; Moodie, 6.

Osteomyelites, Permian: Moodie, 14.

Pachyostosis: Moodie, 24.

Parasitic disease: Bather, 2.

Phytosauria: Moodie, 19.

Pliocene pathology: Moodie, 23.

Radial exostosis in *Daphne*: Romer, 8.

Trepanation: Moodie, 13.

Tumors in Lower Carboniferous :
Moodie, 26.

Paleozoic (undifferentiated).

Alaska, Alaska Railroad region: Capps, 6.

Kiwalik-Koyuk region: Harrington, 5.

northern, Canning River region :
Leffingwell, 1.

Tolstoi district: Harrington, 2.

Arctic coast: O'Neill, 5.

British Columbia, Ainsworth district :
Schofield, 4.

Dease Lake area, Cassiar district :
Kerr, F. A., 1.

California, Randsburg quadrangle :
Hulin, 3.

Idaho, Cassia County, Goose Creek
basin: Piper, 1.

Nevada, Jarbidge district: Schrader, 5.

New Brunswick, Burnthill Brook area :
Young, G. A., 1.

Nova Scotia, Kings and Annapolis
counties: Faribault, 4.

Washington, Stevens County: Weaver, 2.

Palladium.

Alaska, Prince of Wales Island: Camp-
bell, D. G., 1; Mertie, 4.

Ontario, Thunder Bay district, She-
bandowan Lake: Tanton, 9.

Panama (including Canal Zone).

Economic geology.

Manganese ore, Boqueron River: Sears, 2.

Historical geology.

Boqueron River: Sears, 2.

General: MacDonald, D. F., 1, 2;
Vaughan, 3.

Panama (including Canal Zone)—Contd.

Historical geology—Continued.

Geology with special reference to the
slides: MacDonald, 5.

Haut Chagres beds, age: Vaughan, 41.

Paleontology.

Arcas, recent: Maury, 6.

General: Vaughan, 3.

Palm nut, Miocene, Canal Zone: Berry,
25, 103.

Physical geology.

Earthquakes: Kirkpatrick, R. Z., 1.

Panama Canal slides: Nat. Acad. Sci., 1.

Papago country, Arizona: Bryan, 15.

Papoose oil field, Oklahoma: Roark, 2.

Paraffin dirt, Gulf coast oil fields: Brokaw,
1; Shaw, 2.

Paragenesis of minerals.

Arizona, Jerome district: Fearing, J.
L., 2.

Bornite-chalcocopyrite intergrowth, Brit-
ish Columbia: Uglow, 4.

British Columbia, Hazelton: O'Neill, 1.
Texada Island, Marble Bay mine :
Dolmage, 7.

Butte veins, Montana: Agar, 3; Lind-
gren, 22.

Colorado, Creede district: Emmons, W.
H., 4.

Hinsdale County, mineral zones :
Brown, W. H., 3.

Columbia River basalt: Shannon, 40.
Copper deposits, Parry Sound, Ontario :
Schwartz, 8.

Granite pegmatites, central Maine :
Landes, K. K., 1.

Illinois, Hardin County: Weller, S., 1.
New Mexico, Iron Mountain: Smythe, 2.

Sudbury ore deposits, Ontario :
Wandke, 4.

Timiskaming ores, structure: Schloss-
macher, 1.

Zinc ores: Secrist, 1.

Parasitic disease: Bather, 2.

Parasitism: Clarke, J. M., 16; Carbonifer-
ous crinoids: Moodie, 5.

Pawpaw formation, Texas Comanchean :
Adkins, 2.

Payson district, Arizona: Lausen, 1.

Parajointing: Donnay, 1.

Pearl Bay region, Arctic Alaska: Meek, 1.

Pearl Lake area, Porcupine district, On-
tario: Robinson, H. S., 1.

Peat: Dachnowski, 1, 2; Soper, 1.

Bibliography: Atwood, A. C., 1.

British Columbia, southwestern: An-
rep, 11.

Canada: Anrep, 5; Auer, 1.

Classification: Dachnowski, 2.

and formation: Osbon, 2.

Dismal Swamp: Osbon, 1.

Formation: White, D., 13.

General: Dachnowski, 3; Haanel, B.
F., 1, 2; Odell, 1; Perkins, G. H.,
12.

Indiana: Logan, 12.

Peat—Continued.

- Iowa : Smith, J. E., 11.
- Maine, Livermore quadrangle : Burr, 1.
- Minnesota : Soper, 1.
- New Brunswick : Anrep, 1, 7, 9.
- New England : Dachnowski, 5.
- Nova Scotia : Anrep, 8.
- Ontario : Anrep, 2-4.
- Origin : Talbot, 1 ; Thiessen, 2.
- Quebec : Anrep, 2, 3, 6, 10.
- Tropical peat bog : Wentworth, 18.
- United States : Soper, 2.

Pebbles.

- Chink faceting, new process of pebble shaping : Wentworth, 20.
- Geologic history : Wentworth, 4.
- Measuring and plotting shapes : Wentworth, 8.
- kiver pebbles, field study : Wentworth, 2.
- Shapes : Wentworth, 8 ; of beach pebbles : Wentworth, 10.
- Stream pebbles, San Juan County, shapes : Miser, 28.
- Striated cobbles in southern States : Wentworth, 41.
- Virginia, North River, faceted pebbles : Steidtmann, 6.
- wedge work : Wentworth, 5.
- Pedestal rocks, formation : Leonard, R. J., 2 ; Bryan, 24 ; in stream channels : Bryan, 17.
- Nevada, Pershing County : Reid, J. T., 1.
- Southwest : Bryan, 13.
- Pegmatites : Kemp, 19 ; origin : Merritt, C. A., 1 ; Schaller, 10.
- Natural history : Eng. M. J., 6 ; Hess, 23.
- Pelecypoda. See also Mollusca.
- Alberta, Fernie formation : McLearn, 9.
- Peace and Smoky valleys, Coloradoan : McLearn, 5.
- Arcas, Panama region : Maury, 6.
- Astartella Hall : Girty, 11.
- Barbatia patricia, synonymy : Woodring, 12.
- Barrettia : Trechmann, 2.
- Clementia : Woodring, 17.
- and Egesta, geologic history : Woodring, 18.
- Corbula, Miocene, Florida : Gardner, J. A., 8.
- Costa Rica, northern, Miocene : Olsson, 1.
- Crassatellites, Pleistocene, California : Oldroyd, I. S., 1.
- Cretaceous, Alberta : McLearn, 3.
- Cuba, Cretaceous oyster : Raymond, 31.
- rudistids : Sánchez Roig, 15.
- Didymotis trinidadensis, Lower Cretaceous, Trinidad : Sommermeier, 1.
- Eocene, New Castle, Virginia : Palmer, K. V. W., 2.
- Exogyra, Cretaceous, Texas : Böse, 2.

Pelecypoda—Continued.

- Lutetia and Alveinus : Harris, G. D., 2.
- Mexico, Lower California, pectens : Hertlein, 1.
- Lower California, San Quentin Bay : Dall, 4.
- Tamaulipas, rudistid shells : Stephenson, L. W., 1.
- Modiodesma : Ulrich, 11.
- Myndesma, Pacific coast : Clark, B. L., 6.
- Ontario, Toronto : Stewart, B. H., 1.
- Ordovician clams, habit : Sardeson, 15.
- Ostrea, Arizona : Reagan, 18.
- Ostrea californica Marcou : Hanna, G. D., 34.
- Ostrea multilirata Conrad, occurrence : Gardner, J. A., 10.
- Ostrea oregonensis, Eocene, Oregon : Packard, 5.
- Pecten, Pliocene, Alaska : Dall, 3.
- Pecten lohri, Pliocene, California : Hertlein, 5.
- Pectens, Tertiary, West Indies, new names : Cooke, C. W., 4.
- Cretaceous, Texas : Kniker, 1.
- Pleistocene and Pliocene, Gulf States : Maury, 4.
- Pycinodesma, new name for Pycnodesma : Kirk, E., 9.
- Pycinodesma, Silurian, Alaska : Kirk, E., 6.
- Rudistid, San Felipe formation, Mexico : Stanton, 4.
- Rudistids, southern Mexico : Palmer, R. H., 7.
- Trinidad : Harris, G. D., 3.
- St. Maurice and Claiborne stages : Harris, G. D., 1.
- Triassic unionid pelecypods, Texas and Arizona : Reeside, 16.
- Trigoninae, Pacific coast : Packard, 3.
- Trinitasia : Maury, 9.
- Venericardia, West Coast : Hanna, M. A., 1.
- Veneridae, eastern America : Palmer, K. V. W., 5.
- Western North America, marine Oligocene : Clark, B. L., 11.
- Pelmatozoa, phylogeny and taxonomy : Jaekel, 1.
- Pemberton area, Lillooet district, British Columbia : Cairnes, 8.
- Peneplains.
- Appalachians : Stose, 31, 32.
- northern, Piedmont region : Barrell, 6.
- Blue Ridge : Wright, F. J., 5.
- British Columbia, southern : Uglow, 11.
- Colorado, Front Range : Little, 4.
- Front Range and Rocky Mountain National Park : Lee, W. T., 7.
- Driftless Area, erosional history : Trowbridge, 1.
- Erosion surfaces, eastern Appalachian highlands : Knopf, E. B., 5.

Peneplains—Continued.

- General: Davis, 8.
- Idaho: Mansfield, 19, 29.
- Kentucky: Jillson, 107.
- Marine peneplains: Barrell, 6.
- Mesozoic: Keyes, 202.
- Montana, southern: Bevan, 5.
- Northern Great Plains: Alden, 3.
- Ohio, southeastern: Stout, 5.
- Pennsylvania, Piedmont province: Bascom, 4.
- Pleistocene peneplain in Coastal Plain: Cleland, 5.
- Porto Rico: Meyerhoff, 2.
- Pre-Cambrian: Du Rietz, 1.
- Rocky Mountain region: Keyes, 25.
- Utah: Keyes, 75, 100.
- Virginia, upper James River basin: Wright, F. J., 1.
- West Virginia, Mineral and Grant counties: Reger, 7.

Peneplanation, chemical criteria of: Woolnough, 2.

Pennsylvania.

- Geological Survey, work, 1919-22: Ashley, 13.
- Survey: Ashley, 5.
- Topographic and Geologic Survey, report: Pa. T. G. S., 2.

Areas described

- Allentown quadrangle: Miller, B. L., 5.
- Elkton quadrangle: Bascom, 2.
- Greensburg quadrangle: Johnson, M. E., 1.
- McCalls Ferry quadrangle: Jonas, 2.
- New Holland quadrangle: Jonas, 5.
- Pittsburgh area: Leighton, II., 2.
- Punxsutawney quadrangle: Ashley, 18.
- Quarryville quadrangle: Jonas, 3.

Economic geology.

- Adams County, mineral resources: Stose, 25.
- Anthracite: Ashmead, 1.
- Anthracite region: Parker, E. W., 1.
- Bituminous coal fields: Sisler, 3.
- Bradford oil field: Torrey, 2.
- Building stone: Stone, 19.
- Cambro-Ordovician limestones: Miller, B. L., 11.
- Cannel coal and carbonaceous shale deposits: Fettke, 4.
- Carbonaceous shale: Fettke, 3.
- Chrome ore, southeastern Pennsylvania: Knopf, E. B., 2.
- Chromite deposits: Diller, 1; Gordon, S. G., 7.
- Classification of coals: Ashley, 20.
- Clay: Ries, 5.
- Saylorsburg, Monroe County: Peck, F. B., 1.
- white: Hice, 1.
- Coal: Ashley, 7, 26; Kuhn, 1; Sisler, 1.
- Allegheny Valley: Rayburn, 1.
- low-sulphur: Chance, 1.
- Coal analyses: Fieldner, 2.

Pennsylvania—Continued.

Economic geology—Continued.

- Coal beds of Allegheny formation, correlation: Thiessen, 9.
- Coal resources: Reese, 1.
- Copper deposits: Watson, 15.
- Fire clays: Shaw, J. B., 1.
- northern Appalachian coal basin: Ashley, 2; Lovejoy, 1.
- Glass sand: Fettke, 1.
- Lancaster Gap mine: Phemister, 2.
- Lead and zinc ores: Miller, B. L., 8.
- Limestones: Miller, B. L., 4.
- Mineral resources: Ashley, 8; Pa. G. S., 1.
- Molding sands: Stone, 20.
- Oil and gas, outlook for: Ashley, 10.
- Oil and gas fields: Ashley, 11.
- map: Richardson, G. B., 3.
- Oil in coals and shales: Ashley, 9.
- Oil resources in coal and carbonaceous shales: Fettke, 3.
- Oil sands of Bradford and Allegheny fields, origin: Torrey, 5.
- Petroleum: Johnson, R. H., 3; Majorelle, 1.
- Bradford field: Umpheby, 6.
- Bradford and Allegheny fields: Torrey, 3.
- Pittsburgh coal bed: Ashley, 21; White, I. C., 9.
- Salt deposits: Phalen, 1.
- Silica refractories: Moore, E. S., 6.
- Slate, Northampton County: Behre, 7, 9.
- Vanport limestone, Butler and Venango counties: Fettke, 7; Lawrence County: Peck, F. B., 2.

Historical geology.

- Allegheny formation, typical section: Swartz, C. K., 1.
- Bituminous coals: Sisler, 2, 3.
- Bryn Mawr gravel: Bascom, 5.
- Clinton formations: Ulrich, 9.
- Crystalline schists, southeastern Pennsylvania: Hawkins, A. C., 4; Knopf, E. B., 3.
- General: Johnson, D. W., 9.
- Honeybrook quadrangle: Smith, I. F., 3.
- Huntington-Pittsburgh Basin: Richardson, G. B., 13.
- Lebanon County: Gordon, S. G., 3.
- Lehigh Gap, Silurian stratigraphy: Ashley, 17.
- Limestones: Miller, B. L., 4.
- Lower Allegheny-Pottsville section in western Pennsylvania, correlation: Renick, 2.
- Lower Paleozoic, southeastern Pennsylvania: Stose, 15.
- Loyalhanna limestone, southwestern Pennsylvania: Butts, 4.
- Martinsburg shale: Behre, 3, 10.
- Medina, southeastern Pennsylvania: Eaton, H. N., 4.

Pennsylvania—Continued.

Historical geology—Continued.

- Metamorphic rocks, southeastern Pennsylvania: Jonas, 1.
 Northampton County slate belt: Behre, 6.
 Northwestern Pennsylvania: Decker, C. E., 1.
 Ordovician, central Pennsylvania: Field, R. M., 1.
 Ordovician overlap, Piedmont province: Stose, 18.
 Ordovician shale and lava, southeastern Pennsylvania: Stose, 29.
 Pocono, Broadtop Basin: Reger, 13.
 Pottsville and lower Allegheny formations, western Pennsylvania, correlation: Renick, 1.
 Pre-Cambrian: Jonas, 6.
 Shawangunk formation, age and origin: Willard, B., 3.
 Silurian: Swartz, C. K., 10.
 Southeastern Pennsylvania: Stose, 21.
 Slate belt, Northampton County: Behre, 7.
 Taconic uplift: Behre, 5.
 Terrace gravels of Susquehanna River, correlation: Stose, 33.
 Time scale: Ashley, 22.
 Triassic sediments, Gettysburg area: Stose, 2.
 Triassic northwest of Lebanon: Stose, 26, 27.
 Triassic outlier near Lebanon: Stose, 26.
 York County: Wanner, 1.
 Vanport limestone, Butler and Venango counties: Fettke, 7; Lawrence County: Peck, F. B., 2.

Mineralogy.

- Calcite, Chester County: Gordon, 23.
 Chester County: McKinstry, 1.
 Chlorite, white: Shannon, 37.
 Columbite, Boothwyn: Smith, I. F., 1.
 Crocidolite, eastern Pennsylvania: Wherry, 18.
 Epidesmine, Berks County: Gordon, S. G., 1.
 Falls of French Creek, Chester County: Vaux, 2.
 Glauberite crystal cavities in Triassic, Gettysburg area: Stose, 2.
 Limonite pseudomorphous after pyrite, York County: Holden, E. F., 1.
 Meteorites: Stone, 16.
 New Baltimore, Somerset County: Merrill, 31, 32.
 Mineralogy: Gordon, S. G., 6.
 Monazite, Boothwyn: Wherry, 3.
 Moore's Mill, Cumberland County: Gordon, S. G., 17.
 Pyrite, Cornwall: Hawkins, S.
 French Creek: Wherry, 5.
 Quartz pseudomorphs, Chester County: Vaux, 1.

Pennsylvania—Continued.

Mineralogy—Continued.

- Texas, Lancaster County: Gordon, S. G., 5.
 Unionville corundum mines, Chester County: McKinstry, 3.
 Wavellite: Gordon, S. G., 10.
 York: Jandorf, 1.
 Zaratite, Lancaster County: Slavik, 1.
Paleontology.
 Calamites, East Bellevue: Grier, 1.
 Frankstown cave vertebrates: Peterson, 9.
 Olenellus getzi, Lancaster County: Dunbar, 9.
 Ordovician, central Pennsylvania: Field, R. M., 1.
 Palaeaspis: Bryant, 4.
 Pocono fauna, Broad Top coal field: Girty, 12.
 Tree trunk, vertical, Scranton: Davis, R. N., 1.
 Triassic, Reptilia: Huene, 1.
 York County: Wanner, 1, 2.

Petrology.

- Albitite bodies, origin: Larsen, 22.
 Anorthosite, Piedmont province: Smith, I. F., 3.
 genesis: Smith, I. F., 2.
 Bentonite: Ross, C. S., 21.
 Black granite (diabase), Bucks County: Stone, 17.
 Elkton quadrangle: Bascom, 2.
 Granitic pegmatites: Gordon, S. G., 4.
 Hunting-Pittsburgh Basin: Richardson, G. B., 13.
 Igneous dike, southwestern Pennsylvania: Honess, A. P., 3.
 Ordovician volcanics, Lebanon County, Gordon, S. G., 3.
 Peridotite dike, Dixouville, Indiana County: Honess, A. P., 4.
 Serpentine: Gordon, S. G., 7.

Physical geology.

- Anthraccite basins, structural features: Kemp, 10.
 Calcareous concretions in streams: Roddy, 1.
 Conglomeratic limestone, Nittany Valley: Eaton, H. N., 2.
 Coudersport ice mine: Balch, 1.
 Igneous dike, southwestern Pennsylvania: Honess, A. P., 3.
 Limestone decomposition, Annville: Miller, B. L., 10.
 Martinsburg shale, structural features: Behre, 3.
 Post-Cretaceous faulting in Appalachians: Stose, 31.
 Structural features, southeastern Pennsylvania: Stose, 21.
 Structures in the slates, Northampton County: Behre, 6.
 Taconic folding: Miller, B. L., 5.
 Tectonic map, progress: Stose, 30.

Pennsylvania—Continued.

Physiographic geology.

Cycles of erosion, Piedmont province:
Bascom, 4.

Erosion surfaces, eastern Appalachian
highlands: Knopf, E. B., 5.

General: Johnson, E. B., 4.

Glacial deposits: Williams, E. H., 1.

Glacial investigations: Leverett, 20.

Glaciation: Ashley, 23.

High gravels, Susquehanna River:
Stose, 33.

Kansan pondings: Williams, E. H., 1.

Penepains, correlation: Stose, 31.

Subordinate ridges: Eaton, H. N., 1.

Susquehanna deeps: Daly, 7.

Underground water.

Allentown quadrangle: Miller, B. L., 5.

Oil-field waters, Bradford pool: Tor-
rey, 2.

Pennsylvanian. See Carboniferous.

Penrose medal: Kemp, 22.

Pentremites. See Blastoides.

Peridotite.

Arkansas, Pike County: Miser, 12;

Scott County: Miser, 9.

Periodic diastrophism: Shepard, 6.

Perisphinctinae, costal development: O'Con-
nell, 2.

Permian. See Carboniferous.

Permian ice age: Schuchert, 52.

Permian revolution: Finlay, 2.

Pershing oil and gas field, Osage County,
Oklahoma: Rubey, 2.

Petrified forests.

Arizona: Edwards, I., 1.

Ganado: Reagan, 13, 14.

Devonian forest, Catskill Mountains:
Clarke, J. M., 19.

Sonoma, California: Dickerson, 2.

Petrified wood industry: Berry, 79.

Petroleum. See also Oil shales.

Accumulation: Mills, R. V. A., 2;
Reeves, J. R., 10; Washburne, 2.

by moving underground water:
Blackwelder, 5.

in sands: Emmons, W. H., 1.

in Rocky Mountain region: Harri-
son, T. S., 2.

of oil and gas, time factor: John-
son, R. H., 5.

Alabama, northern, oil possibilities:
Semmes, 2.

Alaska: George, H. C., 1; Martin, G.
C., 8, 12; Smith, P. S., 10.

Anchorage: Brooks, 10.

Chignik region: Martin, G. C., 14.

Cold Bay district: Smith, W. R., 4.

Cold Bay-Chignik district: Smith,
W. R., 1.

Cold Bay field: Palmer, L. A., 1.

Iniskin Bay district: Moffit, 3.

Iniskin-Chinitna Peninsula: Moffit, 7.

Kamishak Bay region: Mather, 7.

northwestern Arctic: Smith, P. S., 7.

Point Barrow region: Paige, 5.

Petroleum—Continued.

Alberta: Coste, 1; Dowling, 6; Hume,
15, 17, 23, 28; Link, 3; McLearn,
14; Ross, C. C., 1.

northern: Elworthy, 4.

Peace River: Rutledge, 1.

southern: Williams, M. Y., 15.

Sheep River area: Slipper, 2.

Turner Valley: Davies, S. J., 1;

Elworthy, 3; Hume, 22.

Wainwright field: Emmens, 1;
Hume, 10, 21.

Wainwright-Irma area: Hume, 13, 16.

Wainwright-Vermilion area: Hume,
19.

western: Prudy, 1.

Alberta and British Columbia, foot-
hills belt: Hopkins, O. B., 4.

Anticlinal theory: White, I. C., 10.

Appalachian oil and gas fields, geol-
ogy: Mills, R. V. A., 2.

Appalachian oil field: Reeder & Com-
pany, 1.

Appalachian region: Willis, 4.

Arizona, northeastern, Holbrook area:
Hager, D., 3.

Arkansas, El Dorado field: Crider, 1;
Heald, 8; Hull, 9; Ley, 1; Pratt,
W. E., 3; Teas, 4.

age of producing sand: Stephenson, 2.

Rainbow City field, Union County:
Spooner, 4.

Smackover oil and gas field: Bell, H.

W., 2, 3; Schneider, H. G., 1.

southern, oil fields, structural fea-
tures: Crider, 2.

Barometric surveying in petroleum
mapping: Lahee, 3.

Bedrock, rôle in distribution of hydro-
carbons: Monte-Flores, 1.

Berea sand, Ohio, lithology: Panyity, 2.

Bibliography: Burroughs, E. H., 1-5;
Hoyt, 1.

Biogenesis of hydrocarbons by dia-
toms: Tolman, 2.

Black Hills region, oil possibilities:
Rubey, 5; Sinclair, E. G., 1.

Brines of oil fields: Washburne, 3, 4.

British Columbia, Peace River district:
Spieker, 1.

British West Indies: Catherall, 1.

Calcium chloride waters, connate and
diagenetic: Lane, 28.

California: Collom, 1; Landero, 1;
Legraye, 2; McLaughlin, R. P., 1,
2; Vander Leek, 1.

Alamitos and Seal Beach fields: Cun-
ningham, C. M., 1.

Buena Vista Hills, Midway oil field,
Kern County: Godde, 2.

chemical characteristics: Prutzman,
1.

Ciervo field: Stalder, 1.

Coalinga field: Wilhelm, 4.

development of oil fields: Moran, 3.

Dominguez oil field: Dodd, 2.

Petroleum—Continued.

California—Continued.

early oil development: Orcutt, W. W., 1.
 Goleta district: Vickery, 6, 8, 9.
 Huntington Beach field: Case, J. B., 3; Gester, S. H., 1; Graser, 1.
 Inglewood oil field: Huguenin, 2.
 Kern County: English, W. A., 1; Belridge and North Belridge fields: Boezinger, 1; Devils Den field: Huguenin, 1; Hovey Hills field: Saunders, 1; Lost Hills field: McCabe, R. E., 1; Poso Creek field: Kaiser, 2; Sunset field: Copp, 1; Farnsworth, 1, 2; Thirty-five anticline: Godde, 3; Sunset Extension field: Rogers, R. G., 1; Wheeler Ridge field: Kaiser, 1.
 Kern River oil field, Kern Front area: Hendrickson, 1.
 Long Beach field: Case, J. B., 2; Schwennesen, 2.
 Los Angeles Basin: Arnold, 3; Eaton, J. E., 1, 3; Milner, 4; Vickery, 11; structural features: Ferguson, R. N., 2.
 Los Angeles and Ventura counties: Kew, 6.
 McKittrick oil field: English, W. A., 4.
 Mt. Poso oil field: Wilhelm, 3.
 oil field development: Heller, 1.
 oil fields: Kew, 8; Tolman, 2.
 Olinda oil field: Clute, 1.
 origin: Anderson, F. M., 2, 3; Anderson, R., 1; Cunningham, 1; Stipp, 1; and accumulation: Gester, G. C., 1, 2.
 petroleum geology, development: Hamilton, W. F., 1.
 production decline: McLaughlin, R. P., 2.
 Potrero field: Eaton, J. E., 5.
 Puente Hills region: English, W. A., 3.
 Richfield field: Musser, 3.
 Rincon oil field: Kotick, 1.
 Rosecrans oil field: Musser, 2.
 San Joaquin Valley: English, W. A., 5; Stevens, J. B., 1.
 Santa Clara Valley: Reinhard, 1.
 Santa Fe Springs field: Case, J. B., 1; Templeton, 1.
 Santa Maria district: Collom, 2.
 Simi Valley: Kew, 1.
 Sonoma County: Mendenhall, 4.
 southern: Eaton, J. E., 9; Jensen, 1.
 South Mountain field, Ventura County: Hudson, F. S., 2.
 Sunset-Midway field: Pack, R. W., 1.
 Torrance oil field: Musser, 1.
 Ventura Avenue oil field: Hertel, 3.
 Ventura Basin: Eaton, J. E., 4.

Petroleum—Continued.

California—Continued.

Ventura oil field: Bush, 1; Craddock, 1; Eaton, J. E., 2; Hertel, 1.
 Ventura County: Godde, 1; Tallafiero, 1; Lindero anticline: Warner, T., 2.
 Ventura County and Newhall district: Hertel, 2.
 West Goleta district: Sherman, 1.
 Wheeler Ridge field: Cunningham, G. M., 1.
 Canada: Brock, 6; Dowling, 8, 9, 13; Hume, 6, 11, 28, 29; Pearce, 1; Rigaud, 1.
 Great Plains: Hume, 25; oil indications: Flisher, C. A., 2.
 oil reserves: Arnold, 4.
 Capillarity and oil migration: Russell, W. L., 3.
 Capillary relationships of oil and water: Cook, C. W., 2, 3; Washburne, 6.
 Carbon ratios: Storm, 4.
 in Carboniferous coals: Price, W. A., 4.
 in Oklahoma coals: Fuller, M. L., 4.
 western Canada: Jones, I. W., 1.
 Carbon-ratio theory, present status: Dorsey, 3; Reeves, F., 14.
 and Hilt's law: Reeves, F., 14.
 proofs: Russell, W. L., 12.
 Carbonaceous rocks, microthermal study: Stadnichenko, 1.
 Carbonate waters: Washburne, 7.
 Cementation process in sandstone: Johnson, R. H., 1.
 Central America: Milner, 2; Redfield, 9.
 oil reserves: Redfield, 5.
 Classification of undeveloped oil land for valuation: Beal, 1.
 Classifying discovery of oil fields: Udden, Jon A., 3.
 Closed contour map: DeGolyer, 18.
 Coal as an aid in oil exploration: Lilley, 2.
 Coal tar mistaken for oil residue: Martin, G. C., 11.
 Colorado: Wheeler, H. A., 7.
 northeastern: Mather, 12.
 Compaction as cause of migration: Beckstrom, 1.
 Compendium: Ziegler, 1.
 Conditions of occurrence: Harrison & Eaton, 1.
 Cone domes of oil fields: Sardeson, 4.
 Correlation of oil sands by sedimentary analysis: Trowbridge, 10.
 Correlative value of heavy minerals: Tickell, 1.
 Costa Rica: Redfield, 7.
 Cuba: Allende, 15; Corral, 4.
 Decline curves of various oil pools: Johnson, R. H., 1, 4.

Petroleum—Continued.

- Deposition conditions of some Tertiary petroliferous sediments: Grabau, 2.
- Detecting small quantities: Heald, 7.
- Diatom oil, analysis: Becking, 1.
- Diatom theory of origin: Hanna, G. D., 36; Takahashi, 1, 3.
- Diatomiferous horizons and petroleum deposits: De Landero, 1.
- Diatoms as source of petroleum: Pratt, W. E., 16.
- Differential compacting the cause of certain Claiborne dips: Teas, 5.
- Direct synthesis of higher from lower hydrocarbons: Thom, 9.
- Distillation of oil from organic sediments: Baker, C. L., 9.
- Distribution: Van Tuyl, 4.
- Domes, origin by isostatic adjustment: Albertson, 1.
- Drainage areas for production: Mather, 2.
- Eastern United States: Majorelle, 1.
- Economics: Pogue, 2.
- Estimating petroleum reserves: DeGolyer, 5; Veatch, A. C., 1.
- Examination of well cuttings: Trager, 1.
- Examining calcareous well cuttings: Claypool, 1.
- Experimental petroleum geology: McCoy, 4.
- Factors controlling oil accumulation: Lahee, 2.
- Features of oil structures: Ziegler, 2.
- Field mapping for oil geologist: Warner, C. A., 1.
- Field methods in petroleum geology: Cox, G. H., 1; Lahee, 6.
- Field work, surveying: Taylor, 1.
- Fifty years of petroleum geology: Ohern, 1.
- Files of oil geologist: Dreher, 1.
- Filtering earths: Nutting, 3.
- Finding of oil: DeGolyer, 10.
- Fishes the source of petroleum: Macfarlane, 2.
- Flooding of oil wells by fresh water: Brown, T. C., 1.
- Folding, effect of stratigraphic variation on: Gardescu, 1.
- Folds of Osage type, occurrence: Brown, R. W., 2.
- Foraminifera, use in determining underground structure: Cushman, 15.
- Fractionation during migration: Cook, C. W., 6, 9.
- Future oil supply: White, D., 6.
- Gas, factor in accumulation: Thiel, 1.
- General: Andros, 1; Arnold, 6; Butler, G. M., 2; Clapp, F. G., 5; Garfias, 1; Hager, D., 8; Haney, M., 3; Hartsook, 1; Hummel, 1; Johnson, R. H., 7; Krey, 2; Lilley, 3; Lloyd, E. R., 1; Logan, 5; Mc-

Petroleum—Continued.

General—Continued.

- Beth, 2; Moore, R. C., 3; Nicolescu, 1; Northrop, J. D., 1; Pan-
yity, 1; Phelps, 1; Prettyman, 1;
Redwood, 1; Reinholt, 1; Richard-
son, G. B., 5, 7, 9, 10; Semmes,
2; Smith, G. O., 7; Vander Leck,
1; Van Tuyl, 4, 6, 11; White,
D., 2, 21; Ziegler, 1; Anon., 35,
45, 55.
- Generation by geologic distillation:
Rich, J. L., 11.
- Genesis: Balliet, 1, 2; Mabery, 1.
- Genetic factors of oil occurrence:
White, D., 1.
- Geochemical relations to silica and
water: Nutting, 1.
- Geographic distribution: Mehl, 2.
- Geologic aid in exploration: Ellison, 1.
- Geologic distillation: Willis, 4.
- Geologic exploration: Villatoro, 1.
- Geologic factors in water flooding:
Torrey, 4.
- Geologic structure favorable for ac-
cumulation: Watts, W. L., 1.
- Geological organization of an oil com-
pany: Gaylord, 1.
- Geologist and petroleum industry: De-
Golyer, 10.
- Geology: Emmons, W. H., 2; Lilley, 4.
in finding of oil: White, D., 18.
in finding and recovery of oil:
White, D., 15.
in relation to valuation: Arnold, 2.
in the petroleum industry: DeGolyer,
11.
of salt dome oil fields: DeGolyer, 17.
- Geophysical methods: Barton, 15.
in Gulf Coastal Plain: Barton, 6.
for finding oil fields: Craig, 1.
- Gravitational compaction, effect on
sedimentary rocks: Hedberg, 1;
Rubey, 8.
- Gravity anomalies and petroleum ex-
ploration: Hubbert, 3.
- Gulf coast: Lucas, A. F., 1, 2; Mc-
Beth, 1; salt domes: Hill, R. T.,
1; Wolf, 1.
- Gulf coast oil fields: Barton, 13.
- Handbook of the petroleum industry:
Day, D. T., 1.
- History, epochs in: White, I. C., 4.
- Honduras: Redfield, 8.
- Hydraulic theory of oil migration and
accumulation: Rich, 7.
- Hydrocarbons, inorganic origin: Young,
J. W., 6.
- Idaho, oil possibilities: Heald, 10.
- Illinois: Barrett, N. O., 1; Colling-
wood, 2, 4, 5; Moulton, 3, 12, 17;
Sporr, 1.
- Allendale oil field: Moulton, 6, 21;
extension: Collingwood, 7.
- Ava-Campbell Hill area: Root, 1.

Petroleum—Continued.

Illinois—Continued.

Bond County, Ayers anticline:
 Bell, A. H., 9.
 carbon ratios: Moulton, 4.
 Carlyle-Centralia district: Shaw, 9.
 Centralia area: Bell, A. H., 2, 3.
 Colchester and Macomb quadrangles: Hinds, H., 1.
 Crawford County: Hance, 2; Flat Rock pool: Tough, 1.
 Decatur area: Collingwood, 6.
 eastern: Mylius, 6.
 east-central: Mylius, 7.
 faulting, influence of: Wheeler, H. A., 4.
 Hoing sand oil pools, prospecting: Moulton, 11.
 Jacksonville area: Bell, A. H., 7; Collingwood, 3.
 Lawrence County, St. Francisville area: Bell, A. H., 10.
 Marion County, Wamac pool: Wheeler, H. A., 5.
 Martinsville pool, Clark County: Moulton, 15.
 Monroe County: Mylius, 3.
 oil and gas fields, map: Richardson, G. B., 1.
 oil field operations: Moulton, 14.
 petroleum developments during 1925: Moulton, 10.
 Pike County, oil prospects: Bell, A. H., 1.
 Sandoval oil field: Bell, A. H., 6.
 Sparta area: Moulton, 9.
 Trenton field: De Wolf, 4.
 Waterloo field: Lamar, 1; Moulton, 16.
 Wabash County: Moulton, 19.
 western: Bell, A. H., 11.
 Yanaway well in Siggins pool: Lamar, 12, 13.
 In a fossil cast: Reeves, J. R., 9.
 Indiana: Barrett, E., 5; Bownocker, 3; Logan, 5, 10, 22; Reeves, J. R., 7; Wright, Floyd E., 1.
 middle Ordovician: Heald, 9.
 southwestern: Logan, 18; Moulton, 20; Tri-County field: Esarey, 2.
 Sullivan County field: Visher, 2.
 Indications of oil fields: Barton, 14.
 Inorganic origin: Hixon, 1.
 Inorganic petroleum: Lewis, 12.
 Invasion of oil into a water-wet sand: Skirvin, 1.
 Isocarb ratio, southwestern Virginia: Eby, 2.
 Jamin action: Herold, 1.
 Kansas: Kesler, 1; Moore, R. C., 8, 9; Snider, 1.
 Allen and Neosho counties: Moore, R. C., 5.
 Anderson County: Charles, 1.
 anticline in Benton shale area: Thomas, C. R., 1.

Petroleum—Continued.

Kansas—Continued.

Burket-Seeley oil pool: Loomis, H., 2.
 Butler County: Uhrlaub, 1.
 central: Williams, D. W., 2.
 eastern, shoestring oil pools: Rich, 6, 9.
 Eldorado field: Fath, 2; Stapleton oil horizon, age: Fath, 4.
 Golden Lanes, Greenwood County: Cadman, 2.
 map of oil and gas fields: U. S. Geol. Survey, 2.
 Nemaha Mountains, flank production: Thomas, C. R., 2.
 oil domes, origin: Blackwelder, 3.
 Rainbow Bend field, Cowley County: Snow, 1.
 Rice County: Ley, 7.
 Russell County: Rubey, 3.
 Sallyards field: Berger, 2.
 southeastern: Williams, D. W., 1.
 Urschel oil pool, Marion County, water conditions: Shea, 1.
 western, oil possibilities: Lupton, 2.
 Wilson and Montgomery counties: Moore, R. C., 6.
 Woodson County: Moore, D. W., 1.
 Kentucky: Gardner, J. H., 3; Glenn, 1; Jillson, 2, 4, 21, 23, 25, 35, 57, 73; Leonard, W. C., 1; Nelson, 16.
 Allen County: Jillson, 12; Miller, A. M., 5; Shaw, E. W., 1.
 Barren County: Butts, 2.
 Boyd County: Jillson, 81.
 Breathitt and Knox counties: Jillson, 13.
 central southern: Nelson, 15.
 Cumberland County: Beckner, 3.
 eastern: Fiske, 1; Jillson, 32; pay oil sands: Jillson, 17; Wier sand: Jillson, 16.
 Irvine district: St. Clair, 1.
 Island Creek oil pool, Owsley County: Jillson, 84.
 isocarbs and oil and gas production: Russell, W. L., 5.
 Johnson County, Paint Creek uplift: Rhodes, 1.
 southeastern: Jillson, 8.
 Warren County: Jillson, 18; St. Clair, 3, 4.
 Kerogen and origin of oil: Trager, 4.
 Kerogen of oil shales: Van Tuyl, 9.
 Light oils in the Rocky Mountain region, origin: Gels, 1.
 Limestone reservoirs, classification: Howard, W. V., 3.
 Limestones as a source of oil: Trask, 9.
 Localization of folds: Brown, R. W., 3.
 Louisiana: Snider, 1.
 Bellevue oil field: Holman, 1; Hull, 6.

Petroleum—Continued.

Louisiana—Continued.

- Cotton Valley field, Webster County:
 McDonald, W. W., 1; Powers, 14.
 Edgerly field: Minor, 3.
 Haynesville field: Albertson, 2; Hull,
 4; Scott, W. W., 1, 2; Teas, 2, 3.
 Jennings field: Barton, 12.
 map of oil and gas fields: U. S. G. S.,
 5.
 northern: Hull, 5; oil fields, struc-
 tural features: Crider, 2.
 Pine Prairie salt dome: Barton, 7.
 Red River field: Bates, 1.
 Sabine uplift: Powers, 2.
 salt domes: Deussen, 1.
 Spring Hill-Sarepta field: Ponton, 1.
 Trinity sand: Easton, 2.
 Vinton field: Wrather, 1.
 Vinton salt dome, Calcasieu Parish:
 Thompson, S. A., 1.
 Welsh oil field: Reed, L. C., 1.
 Mackenzie River valley: Bosworth, 2,
 3, 4; Hume, 27; Kindle, 9, 15;
 Kitto, 1; Ness, 2; Redfield, 2.
 between Norman and Beaver River:
 Hume, 5.
 Norman fields: Hume, 4.
 Mexico, oil fields: Hartley, 2; Huntley,
 L. G., 1; Iglesias, 1; Obregon, 1;
 Ortega, G., 1; Sansom, 1; Shaw, 3.
 Chiapas and Tabasco: Vivar, 1.
 Hidalgo-Vera Cruz region: Palmar,
 R. H., 4.
 islands in Gulf of California: Pare-
 des, 5.
 Isthmus of Tehuantepec: Huntley,
 S., 1; Redfield, A. H., 1; Ver
 Wiebe, 5-7.
 Lower California: Bustamante, 1.
 Panuco district: Baker, C. L., 7, 8;
 Torres, 1; Trager, 5.
 petroleum geology: Hartley, 1.
 southern: Ver Wiebe, 2, 3.
 Tabasco: Jones, W. F., 3; Ver-
 Wiebe, 4; and Chiapas: Lajous,
 1.
 Tamaulipas, Ordóñez, 1, 2.
 Tepetate-Chinampa pool, graphic
 model: Huntley, U. G., 2.
 Vera Cruz fields: Semmes, 5.
 Zacamixtle pool: DeGolyer, 3.
 Michigan: Newcombe, 1; Smith, R. A.,
 3.
 Saginaw oil field: Carlson, 3.
 Microfossils and geology: Diaz, 6.
 Microscopical research: Hanna, 26.
 Mid-Continent oil fields: Bosworth, 1;
 Snider, 1; and geology: Gould,
 C. N., 21.
 origin of oil: Greene, 3.
 paleogeography and historical geol-
 ogy: McCoy, 5; reflected buried
 hills: Powers, 11.
 structures: Monnett, 2.

Petroleum—Continued.

- Migration of oil: Dodd, 1; Mather, 5;
 and accumulation: Jones, R. A.,
 10; Rich, 3, 7; Van Tuyl, 12;
 Weeks, A. W., 1; effect of pressure
 on: Van Tuyl, 14.
 Migration of oil and water: Parks,
 E. M., 1.
 Minor constituents: Wells, 12.
 Mississippi, oil possibilities: Easton, 1.
 petroleum prospecting: Morse, P. F.,
 2.
 Missouri: Wilson, Malcolm E., 1.
 Mississippi Valley: Moulton, 8.
 Montana: Clarke, F. B., 1; Rowe, J.
 P., 1, 2, 3.
 Cat Creek oil field: Lupton, 1; and
 Devils Basin fields: Reeves, F., 10.
 central: Reeves, F., 3, 5; and east-
 ern: Clapp, C. H., 2.
 Garfield County, oil and gas pros-
 pects: Thom, 3.
 Kevin-Sunburst oil field: Clark, F.
 R., 3; Heald, 16; Hendrickson, 1;
 Perry, 2; U. S. G. S., 11.
 Lake Basin field: Bauer, 5.
 Quadrant formation: Freeman, O.
 W., 2.
 Soap Creek oil field: Thom, 1.
 Sunburst field: Hager, D., 5.
 Sweet Grass arch: Clapp, F. G., 3;
 Perry, 2.
 Mother plants of petroleum in Devo-
 nian black shale: White, D., 11.
 Movements of oil and water through
 sands: Mills, R. V. A., 4.
 National Research Council and oil
 geology: Heald, 11.
 Natural gas associated with oil de-
 posits: Stuart, 1.
 Natural gas in oil migration: Mills,
 R. V. A., 5.
 Natural reduction of sulphates: Bas-
 tin, 15.
 Near shore conditions in locating de-
 posits: Branson, 13.
 New Mexico: Ellis, R. W., 1, 3; Knox,
 J. K., 2, 3.
 Artesia oil field: Rich, A., 1.
 Chaves County: Merritt, J. W., 2.
 New York: Clarke, J. M., 18; Hart-
 nagel, 3; Johnson, R. H., 3.
 Northwest Territory: Anon., 10.
 Notebook and symbols for petroleum
 geologists: Woodruff, 2.
 Oceanography and oil deposits: Trask,
 7.
 Occurrence: Clapp, F. G., 2, 6; and
 origin: Juarez, 1.
 Ohio: Bownocker, 3.
 Clinton sandstone: Lockett, 1.
 Columbiana County: Stout, 5.
 eastern: Lockett, 2; structural con-
 ditions: Cottingham, 4.
 Ordovician horizons: Panyity, 3.

Petroleum—Continued.

Ohio—Continued.

underground structure: Cottingham, 3.

Vinton County: Stout, 6.

Wayne County: Conrey, 1.

Oil and gas problems: Scheffel, 3.

Oil, gas, and water, relations in Sunset-Midway field, California: Rogers, G. S., 1.

Oil accumulation and periods of folding: Hintze, 1.

Oil deposits, surface indications: Pearson, P. H., 1.

Oil domes, central Kansas, origin: Blackwelder, 3.

Oil geology and science: Heald, 13.

Oil in vesicular cavities of igneous intrusions: Osborne, C. B., 1.

Oil pools, relation to ancient shore lines: Jones, W. F., 1; Lahee, 4.

Oil reserves: Keyes, 63; White, D., 3. United States: White, D., 8.

Oil reservoirs and shore line deposits: Brewer, C., 1.

Oil sands and production relations: George, H. C., 5.

Oil saturation in certain sandstones: Ruby, 2.

Oil shale, relation to petroleum: Van Tuyl, 13.

Oil structures: Hill, E. A., 1.

Oil supply: White, D., 9; Wrather, 8. United States: U. S. G. S., 8.

Oil to carbon ratio, Alabama: Lloyd, S. J., 1.

Oil-field geology: Hager, D., 1.

Oil-field temperatures: Washburne, 8.

Oil-field waters: Palmer, C., 2; Renick, 8; Rogers, G. S., 2; Gulf coast: Rogers, G. S., 6.

Oklahoma: Gould, 7; Powers, 20; Shannon, C. W., 1; Snider, 1.

Beckham County: Gouin, 2.

Bristow quadrangle: Fath, 6.

Burbank field, Osage County: Sands, 1, 2.

Caddo and Grady counties: Becker, 1.

Caddo County, Cement field: Clapp, F. G., 1; Reeves, F., 1.

Carter County: Tomlinson, 4; Fox field: Storm, 3; and Graham fields: George, H. C., 2; Tomlinson, 1; Healdton field: Bartram, 1; Merritt, J. W., 1; Roark, 1; Swigart, 1.

Coal and Pittsburg counties: Clawson, 1.

Comanche County: Gouin, 3.

Creek County: Merritt, J. W., 4.

Crinerville oil field, Carter County: Powers, 22.

digest of oil and gas fields: Mills-Bullard, 2.

Garber field: Vanderpool, 1.

Petroleum—Continued.

Oklahoma—Continued.

Garber sands, age and correlation: Wheeler, H. C., 1.

Glenn pool: Rich, J. L., 13; Wilson, W. B., 1.

Kay County: Aurin, 1.

Kay, Grant, Garfield, and Nobel counties: Clark, G. C., 3.

Logan County: Bale, 1.

Love County: Bullard, 2.

McIntosh County: Clark, R. W., 4. map of oil and gas fields: U. S. G. S., 6.

Marshall County: Bullard, 3.

Morrison field, Pawnee County: Carpenter, E., 1.

Muskogee County: Soyster, 1.

northeastern: Williams, D. W., 1.

Nowata and Craig counties: Bloesch, 4.

oil production: Mills-Bullard, 1, 2.

Okmulgee district: Clark, R. W., 1, 2.

Osage County: Beckwith, H. T., 1;

Miller, W. Z., 1; folds: Millikan, 1; structural conditions: Hartley, 3.

Osage Nation: Mason, 1.

Osage Reservation: Goldman, 2, 4;

Heald, 1-4; Hopkins, O. B., 1;

Robinson, H. M., 1, 2; Ross, C. S., 2; Roundy, 1.

Papoose field: Roark, 2.

Pawnee County: Greene, 10.

Payne County: Koschmann, 1.

Pershing oil and gas field: Rubey, 2.

Pontotoc County: Conkling, 1.

Robberson field, Galvin County:

Denison, A. R., 1; English, L., 1;

Oklahoma G. S., 2; Roth, 1.

Rogers County: Woodruff, 4.

Sayre field, Beckham County: Birk, 1.

Seminole County: Leversen, 2.

Seminole uplift: Powers, 23.

southern: Burton, G. E., 2; Hop-

kins, O. B., 2; Moore, R. C., 10;

structural trends: Decker, L., 1.

southwestern: Howell, J. V., 2.

Stephens County: Gouin, 1; Storm, 1, 2.

Stroud field: McFarland, 1; Powers, 15.

Thomas field, Kay County: Clark, S. K., 1.

Tonkawa field: Clark, G. C., 1, 2; Hosterman, 1.

Turkey Mountain lime pools: Ruedemann, P., 2.

unconformities: Bloesch, 1.

Wagoner County: Boyle, 1.

Washington County: Carpenter, E., 2.

Old shore lines and origin of oil: Branson, 12.

Petroleum—Continued.

- Ontario: Harkness, 1, 3-7; Williams, M. Y., 3.
 future prospects: Williams, M. Y., 9.
 Kent County: Williams, M. Y., 5.
 Manitoulin County: Williams, M. Y., 11.
 Romney: Davis, H. R., 1.
 southwestern: Williams, M. Y., 2, 4.
 Oregon, possibilities: Smith, W. D., 8.
 Organic material of carbonaceous shales: Rae, 2; Washburne, 5.
 Origin: Burling, 6; Carmody, 1; Gurtwisch, 1; Hixon, 3; Hume, 28; Jones, J. C., 1; Jones, R. A., 8, 9; Lahee, 12; Lajous, 2; Landero, 1; Lewis, 9; Moore, R. C., 3; Rich, J. L., 12; Roger, 1; Sardeson, 7; Semmes, 2; Singewald, Q. D., 1; Stadnichenko, 2; Stromborg, 1; Thomas, C. S., 1; Torres, 2; Van Tuyl, 7; Washburn, 1.
 and accumulation: McCoy, 7.
 California: Takahashi, 2.
 humus-acid: Rae, 1.
 in swamp muds: MacDonald, D. F., 3.
 migration, and accumulation: Somers, 2.
 Paraffin dirt, Gulf coast oil fields: Barton, 11; Brokaw, 1.
 Pennsylvania: Ashley, 10, 11; Johnson, R. H., 3; Pa. G. S., 1.
 Bradford and Allegany fields: Torrey, 3.
 Bradford oil field: Torrey, 2; Umpleby, 6.
 Greensburg quadrangle: Johnson, M. E., 1.
 oil and gas fields map: Richardson, G. B., 3.
 Permeability and absorption of "sands": Melcher, 2, 4.
 Petroleum geology: Lahee, 14; Van Couvering, 1.
 as a profession: Woodruff, 3.
 east of the Mississippi: Richards, R. W., 1.
 past and future: Goodrich, 1, Powers, 7.
 Petroleum hydrology, Mid-Continent field: Neal, 1.
 Petroleum provinces: Lilley, 1.
 Petroleum-bearing concretions: Binney, 1.
 Petroliferous provinces: Mehl, 6; Schuchert, 8; Woodruff, 1.
 of the United States: Redfield, 10.
 Phosphorus in Californian petroleum: Palmer, C., 1.
 Plant life as source of petroleum: Bartle, 2.
 Pore space of oil and gas sands: Melcher, 1.

Petroleum—Continued.

- Porosity and crushing strength as indices of regional alteration: Russell, W. L., 11.
 Porosity of sands, determination: Russell, W. L., 10.
 Present stage of oil geology: Clapp, 7.
 Pressure, effect on migration of oil: Thomas, E. T., 2.
 Principles of accumulation: McCoy, 1.
 Problems in oil geology: White, D., 10.
 Production, reserves, etc.: Arnold, 5.
 Progress in petroleum geology: Plummer, 2.
 Projecting structure through an angular unconformity: Corbett, 1.
 Prospecting: Panyity, 1.
 Quality of oil, relation to structure: Ley, 1.
 Radioactivity and oil field location: White, D., 12.
 Recovery of oil by flooding: Torrey, 5.
 Relation to carbon values in north Texas: Fuller, M. L., 3.
 Research projects: Anon., 66.
 Research work: Heald, 19; Thour, 15.
 Rock classification: Knapp, A., 1.
 Rock pressure: Heroy, 1.
 Rocky Mountain oil fields: Arnold, R., 7, 8; deeper drilling: Lupton, 4.
 Rocky Mountain region, microscopic subsurface work: Wilson, J. H., 2.
 Salt domes: Barton, 17.
 Sand porosity: McCoy, 3.
 Sea beach observations: Kemp, 2.
 Seismographic method for underground observations: Udden, 9.
 Sericitization and dolomitization as indices in oil-bearing formations: Lahee, 10.
 Source and origin of salt-dome oil: Lucas, A. F., 1.
 Source beds: Trask, 10.
 Sources of material: Henderson, J., 8.
 South Dakota, geologic features and oil possibilities: Wilson, R. A., 4.
 Spacing of wells: Uren, 1.
 Stratigraphy and paleogeography, relations to petroleum geology: Schuchert, 4.
 Structural features for oil accumulation: Ziegler, 2.
 Studies on organic nature of sediments: Trask, 8.
 Submarine deposits: Urbina, 1.
 Subsurface contouring: Bloesch, 2.
 Subsurface correlation by heavy minerals: Hoots, 3; Reed, R. D., 12.
 Subsurface folds and faults: Kirk, C. T., 2.
 Subsurface relations in oil and gas fields: McCoy, 3; Mills, R. V. A., 2, 3.
 Sulphate-reducing bacteria in oil field waters: Bastin, 13.

Petroleum—Continued.

Surface indications in Louisiana: Steinmayer, 1.
 Symbols for drilling operations: Mehl, 4.
 Synclinal oil occurrence and regional uplift: Thom, 20.
 Temperature of fluids in wells: Lahee, 7.
 Tennessee: Glenn, 1, 3; Nelson, 8, 16.
 central-northern: Nelson, 15.
 northern: Nelson, W. A., 1.
 Overton County: Butts, 1.
 structural conditions: Lusk, 2.
 Willow oil field: Jillson, 47.
 Texas: Snider, 1; Udden, 7.
 Amarillo district: Harrison, T. S., 1.
 Archer County: Hubbard, W. E., 1.
 Barbers Hill field: Bevier, 2.
 Batson oil field, Hardin County: Sawtelle, 1.
 Beaumont, Spindletop field: Sur, 1.
 Bend series, water problems: Fuller, M. L., 1.
 Bexar County: Sellards, 7, 10.
 Big Lake field: Sellards, 21.
 Blue Ridge salt dome, Fort Bend County: Hager, D. S., 2.
 Brazoria County, West Columbia field: Barton, 2.
 Caldwell County, Luling: Pratt, W. E., 6.
 Central: Matteson, 1.
 Coke County: Beede, 1; Jones, R. A., 4.
 Cooke County: Hawtof, 1.
 Currie field, Navarro County: Lahee, 9.
 Damon Mound oil field: Bevier, 1.
 Eastern: Dumble, 1.
 Eastland and Stephens counties: Adams, H. H., 1.
 Edna, Jackson County: Price, 11.
 Goose Creek oil field, Harris County: Minor, 2.
 Gulf coastal region oil fields: Wolf, 2.
 Luling oil field, Caldwell County: Brucks, 1; Sellards, 19.
 Lytton Springs oil field: Bybee, 2; Collingwood, 8.
 McLennan County, Adkins, 2; Pace, 1.
 Marathon fold: Liddle, 1.
 Mexico oil field: Lahee, 17; Pratt, W. E., 7; Whitney, R. H., 1; Wrather, 2; faulting and petroleum accumulation: Pratt, W. E., 9.
 Minerva field, Milam County: Hager, D. S., 1.
 Navarro County, Currie structure: Lahee, 19; drilling near: De Wolf, 7.
 New Richland field: Lahee, 11.
 Nigger Creek pool: Hull, 14.
 northeastern, salt domes: Cheney, C. A., 1.

Petroleum—Continued.

Texas—Continued.
 north-central: Hager, D., 2.
 northern: Roberts, J. R., 1; Wheeler, H. A., 1, 2.
 Palangana salt dome: Barton, 1.
 Panhandle: Bauer, 7; Lockwood, 2; Pratt, W. E., 8.
 Pecos County, Fort Stockton: Pratt, W. E., 2.
 Powell oil field: Hill, H. B., 1.
 Ranger field: Reeves, F., 2.
 Reynosa Escarpment: Jones, R. A., 1.
 salt domes: Barton, 4; Deussen, 1; Jones, R. A., 6.
 San Marcos quadrangle: Brucks, 2.
 Saratoga oil fields: Suman, 1.
 Sipe Springs and Deep Creek oil fields: Wade, A., 1.
 South Bend field, Young County: Cheney, M. G., 1.
 South Dayton salt dome: Bowman, 1.
 southwestern oil fields: Owen W. T., 1; Stephenson, 3.
 Spindletop salt dome: Barton, 5.
 Thrall field, Williamson County: Bybee, 1.
 Val Verde County: Calvert, 2.
 Webb and Zapata counties: Sellards, 13.
 Westbrook field, Mitchell County: Edwards, E. C., 1.
 western: Powers, 24.
 Yates pool, Pecos County: Metcalf, R. J., 1.
 Zapata County: Wrather, 4.
 Texture of oil sands and production of oils: Melcher, 3.
 Theories: Ely, 1.
 Thermal currents in oil accumulation: Pepperberg, 1.
 Topographic criteria of oil field structure: Monett, 1.
 Trinidad: Carmody, 1; Catherall, 1; Macready, 1; Milner, 1; Waring, 5, 6.
 Underground conditions in oil fields: Ambrose, 2.
 Underground water in migration and accumulation of oil and gas: Bonine, 1.
 United States: Rigaud, 1.
 Utah, San Juan field: Miser, 17.
 southeastern: Prommel, 3.
 southern, oil possibilities: Moore, R. C., 17, 18.
 Washington County: Bassler, H., 2.
 Vanadium and nickel in petroleum: DeGolyer, 9.
 Virginia, Powell Valley: Giles, 9.
 Washington, southwestern, oil in basalt: Hudson, F. S., 5.
 Water analyses in oil production: Parks, E. M., 2.
 Water displacement in oil and gas sands: Johnson, R. H., 2.

Petroleum—Continued.

- Water in oil fields: Ambrose, 1.
 Waters associated with petroleum and natural gas: Mills, R. V. A., 2.
 West Indies: Milner, 2; Redfield, 4, 9.
 West Virginia: Reger, 2, 4.
 Cabin Creek oil field: Wasson, 2.
 carbon ratios of coals in oil fields: Reger, 5.
 Copley pool: Reger, 14.
 Fayette County: Hennen, 1.
 Mercer, Monroe, and Summers counties: Reger, 9.
 Nicholas County: Reger, 3.
 Webster County: Reger, 1.
 Wyoming: Ball, M. W., 1; Bartlett, 1, 5; Estabrook, 2; Heald, 5; Wegemann, 1.
 accumulation: Heald, 6.
 black oil: Bartram, 3.
 Elk Basin oil field, faulting: Estabrook, 1.
 Hanna Basin and Red Desert: Krampert, 2.
 Lance Creek field: Hancock, 5.
 Laramie and Medicine Bow districts: Bartlett, A. B., 2.
 Lost Soldier-Ferris district: Fath, 5.
 Maverick Springs: Collier, 6.
 Mule Creek oil field: Hancock, 4.
 oil and gas fields, map: Richardson, G. B., 4.
 Oregon Basin, Meeteetse, and Grass Creek quadrangles: Hewett, 18.
 Osage oil field, Weston County: Collier, 7.
 possibilities near Osage field: Anon., 30.
 Rawlins-Lost Soldier district: Krampert, 1.
 Salt Creek oil field: Estabrook, 4; Fisher, C. A., 1; water conditions in First Wall Creek sand: Nowels, 1.
 southern: Bartram, 2.
 Teapot Dome: Clapp, F. G., 4; Wheeler, H. A., 6.
 Thermopolis district: Collier, 4.
 Upton-Thornton oil field: Hancock, 3.
Petroleum geology, contributions to geologic science: DeGolyer, 4.
Petroliferous provinces: Schuchert, 8; Woodruff, 1.
Petrology (general). For areal see names of States. See also **Igneous and volcanic rocks**; **Sedimentary rocks**; **Technique**.
 Aa and pahoehoe, formation: Emerson, O. H., 1.
 Abstracts and reviews: Behre, 2; Johannsen, 4.
 Albitite bodies, origin: Larsen, 22.
 Alkalies in minerals and rocks, determination: Shannon, 72.

Petrology (general)—Continued.

- Alkaline rocks, origin: Gillson, 12; Smyth, 3.
 Analysis of gases from volcanoes and from rocks: Shepherd, 3.
 Anorthositic, origin: Lodochnikow, 1; Loewinson-Lessing, 1; Smith, I. F., 3.
 Assimilation and petrogenesis: Stansfield, 7.
 Basic and ultrabasic rocks, tectonic conditions accompanying intrusion: Benson, W. N., 2.
 Bend series sediments: Waite, 1.
 Calculations, use of: Grout, 21.
 Chalk, origin: Tarr, 14.
 Chemical analysis of rocks: Washington, 1.
 Chemical changes caused by shearing: Cooke, H. C., 22.
 Clinckertill: Dove, 4.
 Color of varicolored obsidians, origin: Fuller, R. E., 1.
 Colors of American and European rocks: Johannsen, 13.
 Comagmatic regions and the Wegener hypothesis: Washington, 24.
 Contact phenomena, gneiss limestone in western Massachusetts: Eskola, 1.
 Corundum and albitite bodies, hydrothermal origin: Larsen, 21.
 Deformation of crystallizing magma: Bowen, 5.
 Domes of petrology: Berkeley, 5.
 Density of rocks from Mauna Kea and Haleakala: Washington, 25.
 Determination of common minerals and rocks, tables for: Tarr, 7.
 Dolomites, chemical study: Knight, N., 1.
 occurrence: Van Tuyl, 10.
 Dunite and basalt glass, compressibility: Adams, L. H., 8.
 Feldspar determination of metamorphic rocks: Carlson, 1.
 Feldspar in sandstones: Reed, R. D., 14.
 Feldspars as indicators of origin: Steldtmann, 1.
 Field book: Loomis, 8.
 Field classification of igneous rocks: Johannsen, 9.
 Fifty years' progress: Bascom, 7.
 Final consolidation phenomena in the crystallization of igneous rock: Colony, 4.
 Fossil bone: Rogers, A. F., 19.
 Garnet reaction rims in anorthosite: Roesler, 1.
 Gels, function in the formation of quartz and carbonate veins: Merritt, C. A., 2.
 Genetic classification of rocks: Sen, 1.
 Granite massives, primary structure: Balk, 1.
 Granitic pegmatites: Gordon, S. G., 4.

Petrology (general)—Continued.

- Graphic study of igneous rock series: Grout, 8.
- Graphs of rock analyses: Lane, 24.
- Igneous intrusion, after-effects: Kemp, 12.
- Igneous rocks: Iddings, 2.
 - average chemical composition: Clarke, F. W., 3.
 - classification: Hodge, E. T., 3, 11; Mathews, 1.
 - evolution: Bowen, 23.
 - density determination from norm: Iddings, 3.
 - quantitative mineralogical classification: Johannsen, 3.
- Igneous rock textures, experiments illustrating: Wright, F. E., 4.
- Inclusions in basalt: Richarz, 2.
- Iron coloration: MacCarthy, 3.
- Jades of middle America: Washington, 18.
- Jasperoid of Joplin district: Smith, W. S. T., 1.
- Lamprophyres: Stansfield, 5.
- Lava, surface fusion: Diller, 10.
- Leverrierite, schist-forming mineral: Corbett, 2.
- Limestones: Howell, J. V., 3.
 - nomenclature: Kindle, 23.
- Liquid immiscibility in silicate magmas: Bowen, 20.
- Lithium pegmatites, genesis: Schaller, 11.
- Lithologic character of shale as an index to metamorphism: Wilson, J. H., 3.
- Metasomatic processes in silicate rocks: Goldschmidt, V. M., 1.
- Metasomatism: Lindgren, 16.
- Microscopical determination of rocks in sections: Johannsen, 6.
- Mineralogical phase rule: Bowen, 18.
- Movements in crystallizing magmas: Grout, 6.
- Natural glasses, relation of physical properties and chemical composition: George, W. O., 1.
- New petrology: Berkey, 9.
- Origin of foliation and naming of syntectic rocks: Alling, 9.
- Pegmatites: Kemp, 19.
 - natural history: Hess, 23.
- Pegmatitic growths, function of colloids in: Merritt, C. A., 1.
- Petrographic unconformity: Berkey, 4.
- Phenocrysts in granitic intrusions: Hess, 4.
- Pillow structure in basalts: Foye, 10, 11.
- Planimeter determination of percentage composition: Johannsen, 2.
- Plateau basalts: Washington, 17.
- Pressure in magmas: Morey, 1.
- Pyroxene group: Winchell, 5.

Petrology (general)—Continued.

- Quantitative determination of rock color: Grawe, 3.
- Quantitative microscopic rock analysis: Alling, 12.
- Reaction principle in petrogenesis: Bowen, 12.
- Recording micrometer for rock analysis: Wentworth, 12.
- Red color of rocks, loss: Moulton, 23.
- Residue from silica in rock analysis: Auroousseau, 2.
- Rock classification for engineering: Pirsson, 1; Smith, W. D., 2.
- Rock conditions for high dams: Ransome, 20.
- Rock minerals, comparative losses in crushing and sifting: Johannsen, 10.
- Rocks, determination: Ellis, R. W., 4.
- Rocks and rock minerals: Pirsson, 6.
- Rosinall method for determining minerals: Johannsen, 1.
- Salt dome cap rocks, petrography: Goldman, 12.
- Sectioning rocks: Keyes, M. G., 1.
- Sections mounted on glass slides, labeling: Shead, 6.
- Segregation granites: Lane, 8.
- Silexite, Miller, W. J., 1.
- Silicate and carbonate rocks, analysis of: Hillebrand, 1.
- Stone for concrete: Loughlin, 33.
- Subaerial sun cracks: Swartz, J. H., 8.
- Table for determining common rocks: Lane, 1.
- Tactite: Hess, 1.
- Taconic area, southern: Knopf, E. B., 6.
- Tectonic conditions accompanying intrusion of basic and ultra-basic igneous rocks: Benson, 1.
- Till and stratified clay, microscopic sections: Sayles, 4.
- Trachyte and phonolite from pyroxene andesitic magma: Brouwer, 4.
- Triassic sandstones, petrographic analysis: Roberts, J. K., 4.
- Ultra-basic rocks, origin: Bowen, 22.
- Verden sandstone: Reed, 3.
- Volatile components of rocks: Day, A. L., 1.
- Phantograph model: Cadman, 1.
- Phillipsburg region, Quebec: Bradley, J. H., Jr., 2.
- Phosphate.
 - Alberta, Banff area: Warren, P. S., 4.
 - Canada: Spence, 2.
 - Florida: Hess, 29; Sellards, 24.
 - General: Blackwelder, 11; Grabau, 3; Mansfield, 21, 25; Stone, 6, 13, 15.
 - Idaho: Kirkham, 4; Mansfield, G. R., 35.

Phosphate—Continued.

Idaho—Continued.

Fort Hall Indian Reservation:
Mansfield, G. R., 3.

southeastern: Mansfield, G. R., 29.
Kentucky, Woodford County: Miller,
A. M., 22.

Montana, Granite County: Pardee, 6.
Melrose field: Richards, R. W., 2.
Three Forks-Yellowstone Park re-
gion: Condit, 5.

Origin: Graham, W. A. P., 1.
Reserves: Mansfield, G. R., 28.
Tennessee: Rogers, A. F., 31; Smith,
R. W., 1, 2.

phosphorites, nature and origin:
Rogers, A. F., 29.

United States: Voskuil, 1.

Wyoming, Wind River Mountains:
Condit, 4.

Phosphate rock an economic army: Stone,
R. W., 1.

Phosphate practice for field geologists:
Wentworth, 16.

Physical geology (general). For areal
see names of States.

Alberta, structural features produced
by Pleistocene glaciation: Hop-
kins, O. B., 3.

Algae as limestone makers and cli-
matic indicators: Glock, 3.

Algal reefs in Green River formation:
Bradley, W. H., 7.

Angle of cleavage fracture: Sheldon, 4.

Angular inclusions in ore deposits:
Merritt, C. A., 3; Spurr, 22;
Young, J. W., 7.

and banded structure in ore veins:
Schagen van Soelen, 1.

and replacement deposits: Bateman,
13; Fairbanks, 3.

Appalachian structure: Prouty, 17.

Appalachians, cross section in southern
New England: Woodworth, 3.

new structural type in: Stose, 21.
structure: Keith, 2.

Arcuate and lobate mountain struc-
tures: Taylor, 1.

Atlantic and Gulf Coastal Plain, struc-
tural features: Stephenson, 16.

Bacteria as agents of chemical denuda-
tion: Thiel, 11.

Bacterial deposition: Breger, 1.

Banded structure: Boydell, 10.

Banding around rock fragments in
veins: Douglas, C. B. E., 1; Spurr,
28.

Basic dike injections in magmatic vein
sequences: Spurr, 20.

Basin Range structure in the Great
Basin: Gilbert, G. K., 1; Keyes,
225, 228; Louderback, 5.

Jerome, Arizona: Ransome, 15.

Batholiths: Chamberlin, R. T., 14.
and schistosity: Blackwelder, 9.

Physical geology (general)—Continued.

Batholiths—Continued.

laterally spreading theory: Cham-
berlin, R. T., 16.

Beach cobbles: Clarke, J. M., 21.

Black shale formation: Goldman, 11.

Bleaching of red beds: Moulton, 7.

Bottom deposits, Lake Ontario: Kindle,
35.

Breaking waves in shallow water:
MacClintock, 2.

Calcareous concretions in streams:
Roddy, 1.

Calcite, force of crystallization: Roth-
rock, 2.

Calcium carbonate, precipitation: Em-
mons, R. C., 8.

Caliche and its origin: Lonsdale, 6.

Caliche and pseudo-anticlines: Price,
10.

Capillary relationships of oil and
water: Washburne, 6.

Carbon in pre-Cambrian formations:
Moore, E. S., 12.

Carbonization of Colorado coals by
igneous intrusion: Eby, 3.

Caribbean region, tectonic features:
Woodring, 23.

Cavernous weatherings in arid re-
gions: Blackwelder, 25.

Chert and flint, origin: Tarr, 17.

Chink faceting, new process of pebble
shaping: Wentworth, 20.

Clastic dike intrusion: Jenkins, 13.

Clay balls, formation: Haas, 2.

Cleavage and grain of slates: Behre, 6.

Coalification process: Fisher, D. J., 5.

Cobble of peculiar shape: Wentworth,
14.

Collapse of mountain summits: Young,
G. J., 2.

Colloidal products of rock weathering,
distribution: Wallace, 9.

Colloidal solution: Burton, E. F., 1.

Color of red sandstone: Cartwright,
L. D., 1.

Colors produced by iron in minerals
and the sediments: MacCarthy, 5.

Columnar and buttress structures:
Branson, 20.

Columnar holes in wandering dunes,
origin: Harshberger, 1.

Cone-in-cone: Tarr, 20.

Conglomerate, marine and terrestrial:
Barrell, 9.

Contact metamorphism: Bain, 25;
Hess, 11.

processes: Geijer, 2.

Continental drift, theory of: Van der
Gracht, 1.

Continental fragmentation: Barrell, 11.

Continental movement: Evans, J. W.,
2; Gregory, J. W., 2; and tidal
forces: Taylor, 5.

Continents, origin: Richarz, 2.

Physical geology (general)—Continued.

- Continents and oceans, origin: Ruedemann, 24; Wegener, 1.
- Control zones of earth: Chamberlin, T. C., 11.
- Cordilleran region: Beeson, 1.
- Craters on the moon, formation: Wright, F. E., 11.
- Crustal movements, California: Day, 4.
- Crypto-volcanic structures: Bucher, 10.
- Crystalline schists, origin: Keyes, 22.
- Crystallization temperature of veins near surface: Spurr, 29.
- Cycle of glaciation: Hobbs, 11.
- Deflection of streams by earth rotation: Davis, 6.
- Deformation in ores, Coeur d'Alene district: Waldschmidt, 8.
- Deformation of rocks: Willis, 27.
- Deformative processes: Chamberlin, R. T., 7.
- Dehydration of gypsum: McCormack, 1.
- Desert mud cracks: Longwell, 14.
- Desert phenomena, San Luis Potosi: Wittich, 2.
- Differential compacting the cause of certain Claiborne dips: Teas, 5.
- Dikes and ores of Mississippi Valley: Behre, 8; Eng. M. J., 11.
- Dilatancy, geologic rôle: Mead, 4.
- Diminishing rate of rotation, effects: Keyes, 37.
- Direction of stress producing strain: Hubbert, 2.
- Discoidal structure of the lithosphere: Willis, B., 2, 6.
- Dolomitization near Goodsprings, Nevada: Hewett, 12.
- Domes, origin by isostatic adjustment: Albertson, 1.
- Drag folding in marble: Dale, T. N., 3.
- Dust fall, March 9, 1918: Winchell, A. N., 1.
- Dynamics of faulting and folding: Willis, 14.
- of the lithosphere: Jones, O. C., 1.
- Earth temperatures and structural uplifts: Thom, 13.
- Earth's mobile belts, pattern: Bucher, 8.
- Earthquake rifts, aerial observation: Willis, 7.
- Electrical prospecting: Leonardon, 1, 2.
- Electrical resistivity of rocks: Koenigsberger, 1.
- Ellis-Madison unconformity: Collier, 10.
- En échelon and arcuate mountains: Link, 5.
- Eolian and subaqueous cross-bedding: Bucher, 15.
- Erosion by solution and fill, Pecos Valley, New Mexico: Lee, W. T., 14.
- Erosive processes: Malott, 10.
- Exfoliation, a phase of rock weathering: Blackwelder, 10.
- Fault surface: Geljer, 6.
- Fault troughs: Taber, 15.

Physical geology (general)—Continued.

- Faults, active, criteria for recognizing: Taber, 8.
- Fire as an agency in rock weathering: Blackwelder, 15.
- Fissility of shale, origin: Lewis, 9.
- Folding, effect of stratigraphic variation on: Gardescu, 1.
- types of: Ickes, 1.
- Folding and shearing: Willis, 27.
- Folds from vertically acting forces: Robinson, W. I., 1.
- of Osage type, occurrence: Brown, R. W., 2.
- Foraminifera, used in determining underground structure: Cushman, 15.
- Formation thicknesses, determination: Ickes, 2.
- Framework of the continents, significance: Chamberlin, R. T., 10.
- Fundamental lines of North American geologic structure: Ruedemann, 12.
- Fundamental problems of geology: Chamberlin, T. C., 4, 29, 30.
- Fused sedimentary rocks in drill cores: Bowen, 14.
- Gel replacement: Lindgren, 15.
- Gels, function in formation of quartz and carbonate veins: Merritt, C. A., 2.
- General: Bretz, 8; Davis, 28; Dutton, 1; Grabau, 13; Henderson, J., 7; Keyes, 12; Mather, 14; Meinzer, 11; Osborn, C. S., 1; Scott, W. B., 1; Shimer, 4.
- Geochemistry, data: Clarke, F. W., 1, 5.
- Geodetic work, value to geology: Bowie, 8.
- Geologic structures: Willis, 11.
- Geologic processes: Bretz, 12.
- Geosyncline, significance of term: Swinnerton, 4.
- Geotectonic adaptation through retardation of the earth's rotation: Keyes, 6.
- Geotectonics of the Pacific: Willis, 33.
- Glacially transported mine: Walker, R. T., 1.
- Glacier motion a type of rock deformation: Chamberlin, R. T., 17.
- Glaciers, model, experiments with: DeLury, 7.
- Graben, southeastern Oregon: Smith, W. D., 14.
- Granite, weathered, twice metamorphosed: Allison, I. S., 3.
- Granite massives, primary structure: Balk, 1.
- Gravitational compaction of sedimentary rocks: Hedberg, 1, 2; Rubey, 8; Straub, 1.

Physical geology (general)—Continued.

- Groundwork of diastrophism: Chamberlin, T. C., 10.
- Growing crystals, force: Taber, 13.
- Gulf Coastal Plain salt domes, secondary intrusive origin: Matteson, 2.
- Gullies in the Great Plains, formation: Rubey, 9.
- Gypsum deposits, origin: Keyes, 140.
- Horizontal compression in Colorado Rockies: Shepard, 5.
- Ice, physical properties: Matsuyama, 1.
- Ice ages and the drift of continents: Coleman, 17.
- Ice crystal markings: Allan, 19.
- Ice crystals, growth: Plyler, 1.
- Ice push on lake shores: Scott, I. D., 3.
- Imbricated structure in river gravels: Johnston, W. A., 16.
- Impressions on rocks: Twenhofel, 13.
- Inclosed meanders, Colorado Plateau: Moore, R. C., 30.
- Intraformational corrugated rocks: Miller, W. J., 17.
- Iron-depositing bacteria: North, L., 1.
- Iron sulphide in coal and other sedimentary rocks: Newhouse, 3.
- Island arcs, unstable middle section: Hobbs, 22.
- Isostasy, bearing on geological problems: Bowie, 14.
- Isothrustic structure: Jillson, 48.
- Joint planes, formation: Wright, F. E., 3.
- Keystone faults: Crosby, W. O., 4.
- Laccoliths: Davis, 21.
- formation: Keyes, 98.
- Laccoliths and sills: Davis, 27.
- Laminated structure of drill cores: Udden, 27.
- Land tilting in Great Lakes region: Taylor, 12.
- Lichens as weathering agents of limestone: Weidman, 6.
- Limestone masses and septaria, origin: Lugn, 1.
- Limestone alterations at Bingham, Utah: Winchell, 8.
- Limestone conglomerates, origin: Fillman, 2.
- Limestone slab deformed by gravity: Kindle, 13.
- Liquid silicate immiscibility: Greig, 3.
- Lithologic character of shale as an index to metamorphism: Wilson, J. H., 3.
- Lithosphere, structural failure: Leith, 6.
- Localization of folds: Brown, R. W., 3.
- Meanders, inclosed, significance in the history of the Colorado Plateau country: Moore, R. C., 31.
- Mechanical interpretation of joints: Bucher, 2.

Physical geology (general)—Continued.

- Mechanics of geologic structures: Mead, 1.
- Mechanics of vein formation: Taber, 1.
- Megadiastrophism: Chamberlin, T. C., 12.
- Megatectonics: Chamberlin, T. C., 81.
- Melkaria: Burt, 5.
- Mesabi range cherts, origin: Gruner, 7.
- Metasomatism and the pressure of growing crystals: Boydell, 14.
- Microscopical interpretation of folded structures: Graton, 1.
- Mid-Continent region, structural geology: Powers, 16.
- Migration of geosynclines: Grabau, 1.
- Minerals deposited by bacteria in mine waters: Parry, 1.
- Minor folds: Decker, C. E., 1.
- Mississippian orogenic movements: Van Tuyl, 2.
- Mosses as rock builders: Emig, 1.
- Motion of glaciers: Chamberlin, R. T., 18.
- Mountain summits, collapse: Young, G. J., 2.
- Movements in the earth's crust: Lambert, W. D., 4.
- Mowry shale, origin: Rubey, 7.
- Mud pebbles, origin: Lugn, 9.
- Mud crack and associated joint structure: Kindle, 21.
- Mud crack and ripple mark in recent calcareous sediments: Kindle, 20.
- Mud cracks: Kindle, 37; Ward, 11.
- forming over water: Willard, B., 1.
- on steeply inclined surfaces: McCarthy, 1.
- Mud flow in semiarid mountains: Blackwelder, 18.
- Natural waters, effects of common changes: Wells, 5.
- Normal faulting on upthrust arches: Willis, 28.
- North American geosyncline: Schuchert, 22.
- Ocean basin, origin: Willis, 6.
- Ocean inlets, storm effects: Hite, 1.
- Oolites: Hess, 25.
- Origin of foliation and naming of syntectonic rocks: Alling, 9.
- Oxidation products from chalcopyrite: Blanchard, R. 2.
- Oxidation subsidence at Bisbee, Arizona: Wissner, 1.
- Parajointing: Donnay, 1.
- Parallel folding and boudinage: Quirke, 9.
- Pebbles, wedge work: Wentworth, 5.
- Pedestal rocks in stream channels: Bryan, 17.
- Pegmatites, formation: Schaller, 10.
- natural history: Hess, 23.
- Permeability of rocks: Dahlblom, 1.
- Petrifaction of wood: St John, 1.

Physical geology (general)—Continued.

- Petroleum in a fossil cast: Reeves, 9.
- Pitch of rock folds: Fermor, 1.
- Planetary nuclei, physical phases: Chamberlin, T. C., 20.
- Planetesimal growth: Chamberlin, T. C., 21.
- Planetesimal hypothesis: Chamberlin, T. C., 9.
- Pole displacement: Cotton, 2.
- Polygonal weathering in igneous and sedimentary rocks: Johnston, C. S., 1.
- Porosity and crushing strength as indices of regional alteration: Russell, W. L., 11.
- Postglacial uplift of New England coastal region: Fairchild, 7.
- Pressure, effect on migration of oil: Thomas, E. T., 2.
- Problems in physical geology: Dutton, 1.
- Quartz in veins, genesis: Bancroft, G. J., 1.
- Rectilinear shore lines, New England-Acadian region, origin: Johnson, D. W., 4.
- Recurrent depression and resilience in the Great Lakes region: Taylor, 11.
- Red beds, origin of color: Dorsey, 2.
- Red River as an erosive agent: Wallace, 17.
- Replacement and formation of concretions: Cook, C. W., 10.
- Replacement and recrystallization mechanism: Fairbanks, 6.
- Replacement of aluminous rocks: Dougherty, 5.
- River cobbles: Lugn, 10.
- River deflection due to earth's rotation: Hayes, E., 1.
- Rivers, action: Hill, R. T., 7.
- Rock pressure: Heroy, 1.
- Rock mass movement: Leith, 8.
- Rocks, thermal conductivity and compressibility under pressure: Bridgman, 1.
- Rocky Mountain geosyncline, eastward extension: Keyes, 290.
- Rocky Mountain structure: Flint, R. F., 1.
- Rotational velocity of earth and its geological effects: Daly, 14.
- Rounded sand grains, age: Anderson, G. E., 3.
- Rounding of sand grains by solution: Galloway, J. J., 2.
- Salina formation: Newland, 9.
- Sand bar, unusual type: Kindle, 19.
- Sand grains, rounding: Anderson, G. E., 3.
- rounding by sea urchins: Kindle, 2.
- rate of wear: Anderson, G. E., 1.
- Sand holes of the strand: Palmer, R. H., 6.

Physical geology (general)—Continued.

- Sandstone inclusion in salt in mine on Avery's Island: Heald, 14.
- Sea beach observations: Kemp, 2.
- Sea level surfaces and coastal subsidence: Johnson, D. W., 14.
- Sedimentary processes on volcanic islands: Wentworth, 24.
- Selective segregation of material forming earth: Chamberlin, T. C., 19.
- Self-compression of the earth: Chamberlin, T. C., 9.
- Shale, fissility, and its relations to petroleum: Lewis, 9.
- Shattering of minerals and rocks about inclusions: Walker, 27.
- Shifting of continents: Keyes, 210.
- Shore processes: Johnson, B. L., 3.
- Shrinkage cracks, origin: Twenhofel, 14.
- Shrinkage of the earth: Chamberlin, T. C., 4; Stille, 1.
- Silicification of erosion surfaces: Leith, 14; Tarr, 16.
- Slumping in Slim Buttes region, South Dakota: Toepelman, 5.
- previous to consolidation in Pennsylvanian of Oklahoma: Ross, C. S., 8.
- Solubility and pressure: Boydell, 9.
- Stalagmites and stalactites, growth: Allison, V. C., 1.
- Strain ellipsoid and Appalachian structures: Chamberlin, R. T., 19.
- Stratification: Udden, 25.
- Stratigraphic significance of solution in rocks: Stockdale, 3.
- Stress, strain, and joints: Swanson, C. O., 3.
- and rupture, relations: Lovering, 4.
- Stresses in laccolithic intrusions: Gould, L. M., 2.
- Structural features of North America: Hortedahl, 4.
- Structural geology: Leith, 9.
- progress: Mathews, 8.
- Structural symmetry, North America: Keith, 8.
- Stylolitic structures: origin: Stockdale, 2.
- Subaerial sun cracks: Swartz, J. H., 8.
- Subjacent igneous invasion, relations of regional metamorphism: Barrell, 7.
- Subsidence: Rice, G. S., 2.
- Subsurface folds and faults: Kirk, C. T., 2.
- Syngenetic origin of concretions in shale: Tarr, 10.
- of pyrite concretions in Pennsylvanian shales: Mathias, 1.
- Syngenetic pyritization: Tarr, 19.
- Tectonic adjustment of a rotating straticulate spheroid: Keyes, C. R., 1.

Physical geology (general)—Continued.

- Tectonic conditions accompanying intrusion of basic and ultra-basic igneous rocks: Benson, 1.
- Tertiary diastrophism: Taylor, 18.
- Tertiary epeirogeny: Taylor, 13.
- Textbook: Miller, W. J., 22.
- Thermal conductivity and compressibility of rocks under pressure: Bridgman, 1.
- Thrust faulting, process: Quirke, 5; upthrust faulting: Willis, B., 1. in Basin Ranges: Keyes, 228.
- Tidal forces in the making of continents and mountains: Taylor, 10.
- Time factor in artificial minerals: Peck, A. B., 8.
- Transcontinental structural digression: Hill, R. T., 11.
- Transverse faults along Rocky Mountain trench: Shepard, 10.
- Undertow: Lugn, 8.
- Valley widening by frost action: Culbertson, G., 1.
- Varve materials and banded rocks: Wallace, 20.
- Varved glacial clay, conditions of formation: Antevs, 9.
- Vein formation: Taber, 1; Thompson, W., 1.
- Veining along faults, Pennsylvanian sandstones, Oklahoma: Hoffman, M. S., 2.
- Veins, origin: Taber, 14. of fibrous minerals, origin: Taber, 9.
- Vertical earth adjustments, rate of movement: Hobbs, 15.
- Wave erosion: Swinnerton, 2.
- Wedge theory of diastrophism: Chamberlin, R. T., 11.
- Wedge work of roots: Thomas, A. O., 3.
- White spots in Permian red beds: Shead, 7.
- Physiographic geology (general).** For areal see names of States. See also Drainage changes.
- Airplane photography: Lee, W. T., 5.
- Allegany State Park, New York: Lobeck, 8.
- Amphitheater valley heads: Hinds, 8.
- Appalachian Piedmont deformation: Campbell, M. R., 16.
- Appalachian Valley: Brigham, 3.
- Appalachians, southern: Adams, G. I., 5.
- Arcuate mountains, evolution: Hobbs, 7.
- Atlantic and Gulf Coastal Plain, structural features: Stephenson, 16.
- Atlantic and Pacific coastal regions, contrast: Hobbs, 13.
- Base level: Malott, 12.
- Basin Range topography: Keyes, 293.

Physiographic geology (general)—Contd.

- Basin Range structure in the Great Basin: Louderback, 5.
- Basin-and-Range province, Pleistocene lakes: Meinzer, 5.
- Block diagrams: Lobeck, 1.
- Blue Ridge, erosional history: Wright, F. J., 4.
- Virginia and North Carolina: Wright, F. J., 2.
- "Blue Ridge" in New England: Brown, R. H., 1.
- Brief physiography: Nelson, W. B., 1.
- Caribbean region, tectonic features: Woodring, 23.
- Channels, valleys, and intermont plains: Davis, 34.
- Consequent streams: Vickery, 10.
- Continental shelf: Shepard, 12. differential tilting: Moon, 1.
- Cordilleran region: Keyes, 13.
- Cryptovolcanic structure, Adams County, Ohio: Bucher, 3.
- Cycle of glaciation: Hobbs, 11.
- Cypress Plain, Alberta: Lawson, 8.
- Dalles type of river channel: Bretz, 7.
- Deflection of streams by earth's rotation: Jennings, 2.
- Desert basins of Southwest, origin: Blackwelder, 19.
- Desert range, genetic significance: Keyes, 155.
- Distribution of land and water on the earth: Reid, 5.
- Earthquake rifts, aerial observation: Willis, 7.
- Erosion cycle: Davis, 11.
- Erosion surfaces, eastern Appalachian highlands: Knopf, E. B., 5.
- Erosional history: Trowbridge, 1.
- Eustatic bench of islands of north Pacific: Wentworth, 21.
- Even-crested ridges: Buwalda, 7.
- Evolution of earth: Hobbs, 5.
- Fall line, eastern United States: La Forge, 1; Renner, 1, 2.
- Fault scarps, recognition: Blackwelder, 21.
- Finger Lakes, origin: Fairchild, 20.
- Flood plains, head of: Tilton, 4.
- Geanticlines, horizontal movement: Brouwer, 1.
- General: Daly, 21; Davis, 24, 28; Henderson, J., 7; Jones, W. D., 1; Millis, 2; Scott, W. B., 1.
- Geographic terminology: Campbell, M. R., 13.
- Geographical cycle: Davis, 8.
- Geography among the earth sciences: Penck, 1.
- Geologic maps, interpretation: Dake, 12.
- Great Basin, morphologic features of Basin Range displacements: Louderback, 8.
- Great Basin lakes, origin: Keyes, 116.

Physiographic geology (general)—Contd.

- Great Basin ranges, origin: Keyes, 84.
- Gullies in the Great Plains, formation: Rubey, 9.
- Hanging valleys, origin: Crosby, 5.
- Harbor development by physiographic processes: Cobb, C., 1.
- Hornitos: Sapper, 2.
- Hudson submarine channel: Daly, 7.
- Inclination of surface, determination from contour map: Rich, J. L., 1.
- Inclosed meanders, Colorado Plateau: Moore, R. C., 30.
- Island arcs, unstable middle section: Hobbs, 22.
- Island mountain topography, Arizona and Sonora: Waibel, 1.
- Islands, western end of Lake Erie, control by joints: Cook, C. W., 7.
- Lake Erie, relation to land tilting: Taylor, 14.
- Western end: Cook, C. W., 7.
- Lateral migration of land masses: Daly, 15; Lambert, W. D., 3; Taylor, 3.
- Localization of major geosynclines, cause: Bucher, 4.
- Major features of earth's surface: Diener, 1.
- Maps without culture: Wyckoff, D., 1.
- Meanders in tidal streams: Campbell, M. R., 12, 13.
- Mississippi delta: Malott, 1.
- Morphology of landscape: Sauer, 2.
- Mountain-glacier erosion, types: Hobbs, 3.
- Mountain pediments: Bryan, 4.
- Multiple level cirques: Fuller, M. B., 10.
- Natural boundaries in the Interior Low Plateau physiographic province: Flint, 6.
- New England-Acadian shore line: Johnson, D. W., 8.
- North America and Asia: Taylor, 18.
- Northern Great Plains, physiographic development: Alden, 3.
- Ocean inlets, storm effects: Hite, 1.
- Oceanic islands, classification: Davis, 23.
- Oklahoma stream valley type: Evans, O. F., 5.
- Pacific coast States, Pleistocene changes: Buwalda, 7.
- Panorama of physiographic types: Lobeck, 7.
- Penepains and the geographical cycle: Davis, 8.
- Physiographic divisions of United States: Fenneman, 6.
- Piedmont plains of Great Basin, origin: Blackwelder, 23.
- Pine Prairie salt dome, Evangeline Parish, Louisiana: Barton, 7.
- Plateau region changes: Reagan, 9.

Physiographic geology (general)—Contd.

- Pleistocene, classification and history of investigations: Kay, 16.
- Pleistocene peneplain in Coastal Plain: Cleland, 5.
- Post-Cretaceous faulting in Appalachians: Stose, 32.
- Prairie, origin: Jones, P. M., 1; Miller, A. M., 23; Shimek, 2.
- Pre-Cambrian peneplain of North America: Du Rietz, 1.
- Recessional streams of arid regions: Keyes, 168.
- Relief shading of topographic maps: Matthes, F. E., 1.
- Rivers in arid regions: Keyes, 122.
- Retrograding of offshore bars: Johnson, D. W., 2.
- Rocky Mountains, physiographic history: Keyes, 32.
- Rôle in military operations: Bryan, 6.
- Scabland, Washington: Bretz, 19.
- Scenery of American rivers: Johnson, D. W., 3.
- Sea level surfaces and coastal subsidence: Johnson, D. W., 14.
- Shaded topographic maps: Davis, 22.
- Shading of contour maps: Jillson, 89.
- Shapes of valleys, representation: Lane, 13.
- Stream and ocean terraces in relation to recent earth movements: Holway, 1.
- Stream valleys, origin and development: Branson, 9.
- Subaqueous terraces of the Great Lakes and the Saint Lawrence embayment: Johnson, D. W., 10.
- Submerged coastal plain and oldland of New England: Johnson, D. W., 6.
- Submerged deltas and continental shelves: Shepard, 13.
- Summit plane of Colorado Rocky Mountains: Keyes, 65.
- Tennessee River: Adams, G. I., 5.
- Textbook: Salisbury, 1; Tarr, R. S., 1.
- Tomboloes and points, formation: Johnson, R. H., 6.
- Topographic criteria of oil-field structure: Monett, 1.
- Topographic maps: Davis, 9.
- Trough deeps of island areas: Hobbs, 23.
- Upland: Grabau, 8.
- United States: Lobeck, 2, 4.
- age of present surface: Trowbridge, 2.
- north-south topographic profiles: Trowbridge, 3.
- physiographic map: Lobeck, 3.
- Utah penepains: Keyes, 75.
- Valley development: Branson, 15.
- Valley form: Malott, 11.
- Valley formation, interior plains region: Evans, O. F., 4, 6.
- Piedmont terraces, northern Appalachians: Barrell, 6.

- Pigments, Canada: Fréchette, 2.
 Pine Creek district, Idaho: Jones, Edw. L., 1.
 Pinkham Notch, New Hampshire, physiographic history: Crosby, I. B., 8.
 Pioche district, Nevada: Westgate, 6.
- Pisces.**
 Alberta: Raymond, 30.
 Anaspidæ and origin of vertebrates: Raymond, 29.
 Anguillavus hackberryensis, Niobrara beds, Kansas: Martin, H. T., 1.
 Arizona, Devonian Arthrodira: Stoyanow, 1.
 Arkansas, Fayetteville formation, sharks: Cronis, 4.
 Arthrodiræ: Stensjö, 1.
 Bothriolepis, Scaumenac Bay, Quebec: Bryant, 3.
 California: Hubbs, 1.
 Lompoc: Jordan, D. S., 2.
 Miocene: Jordan, 5.
 Santa Barbara County: Jordan, 12.
 southern: Jordan, D. S., 1, 15, 17.
 Cestracant spine, Triassic, Nevada: Davidson, P., 1.
 Chichlasoma, Haiti: Cockerell, 16.
 Chordates in the Cambrian: Bryant, 5; Howell, 6.
 Classification: Jordan, 10.
 Collecting fossil fishes in Cleveland shale: Hyde, 2.
 Cretaceous fish scales: Cockerell, 1.
 Cretaceous fish spine, Kansas: Moodie, 25.
 Cuba, Squalidae, Tertiary: Sánchez Roig, 3.
 western, Jurassic: Gregory, W. K., 8.
 Deprandus lestes: Gilbert, J. Z., 1.
 Devonian: Hussakof, 1; Kindie, 16.
 Dinichthys pustulosus: Hussakof, 2.
 Environment of early vertebrates: Berry, 68.
 Eobrycon, scales: Cockerell, 18.
 Eocene, Utah and Wyoming: Tanner, 1.
 Eoichthys, St. Albans, Vermont: Bryant, 6.
 Eusthenopteron, structure: Bryant, 1.
 Evolution and distribution: Macfarlane, 1.
 Florida, Pleistocene: Hay, 1.
 Ganoid fish, Lower Cretaceous, South Dakota: Gregory, W. K., 11.
 Ganoid fishes: Gregory, W. K., 8.
 General: Macfarlane, 2.
 Historic fish remains: Miller, A. M., 16.
 Kansas, Cretaceous: Jordan, D. S., 14.
 Kindieia, cichlid fish, Cretaceous, Alberta: Jordan, D. S., 18.
 Kindieia and Styleodon: Russell, L. S., 4.
 Kindieia and Stylomyleodon, Cretaceous, Alberta: Jordan, D. S., 19.
 Lampris zatima, Lompoc, California: Jordan, D. S., 4.
 Lasanius, reconstruction: Simpson, G. G., 8.
- Pisces—Continued.**
 Macropetalichthyids, head: Stensjö, 1.
 Martinichthys, Cretaceous, Kansas: McClung, 1.
 Miocene fishes, California: Jordan, 6.
 restorations: Anon., 17.
 New York, western, Devonian: Hussakof, 1.
 Ohio, Cleveland shale: Hyde, 4.
 Pacific slope, sharks and rays: Jordan, 11.
 Palaeaspis: Bryant, 4.
 Paramilus gurveyi, amilid fish, Eocene, Wyoming: Romer, 15.
 Quisque bakeri, Miocene herring, Texas: Jordan, 8.
 St. John collection: Keyes, 176.
 Sculpin, Nevada: Jordan, 13.
 Sources of petroleum: Macfarlane, 2.
 Shark's teeth, Pliocene, California: Jordan, 9.
 Sharks, Temblor group, Kern County, California: Jordan, D. S., 16.
 South Dakota, Porthus: Bump, 1.
 Stylomyleodon lacus, Paskapoo beds, Alberta: Russell, L. S., 3.
 Texas, Triassic: Warthin, 1.
 Thelodus: Stetson, 4.
 Xyne, Santa Barbara County, California: Jordan, D. S., 3.
- Pitted outwash: Thwaites, 5.
- Placers.**
 Alaska: Mertie, 7.
 British Columbia, Cariboo district: Johnston, W. A., 13.
 Plain geology: Smith, G. O., 14.
 Plane table: Bateman, A. M., 1.
 Plane-table methods: English, W. A., 2.
 Planetary nuclei, physical phases: Chamberlin, T. C., 20.
 Planetesimal growth: Chamberlin, T. C., 21.
 Planetesimal hypothesis: Chamberlin, T. C., 9, 26, 27, 28, 30, 37, 38, 41; Daly, 5; Moulton, 1; Reid, 12.
 astronomical tests: Reid, 8.
 geologic results: Chamberlin, T. C., 34.
- Plants, fossil. See Paleobotany.
- Platinum.**
 Alaska, Chistochina region: Chapin, 3.
 Kahlitna Valley: Mertie, 2.
 Kiwalik-Koyuk region: Harrington, 5.
 Prince of Wales Island, Salt Chuck mine: Mertie, 4.
 Tolstoi district: Harrington, 2.
 Bibliography: Howe, J. L., 1.
 British Columbia: Camell, 5; Uglow, 2.
 Tulameen district: Macaulay, 1.
 Yale district, Tulameen area: Poitevin, 6.
 California: Logan, C. A., 1.

Platinum—Continued.

- Canada: Mackenzie, G. C., 1; O'Neill, 2.
 General: Kemp, 26; Uglow, 1.
 Geology: Vogt, 6.
 In quartz veins: Turner, H. W., 2.
 Nova Scotia, western: Faribault, 2.
 Oregon, Josephine County, Waldo district: Kellogg, A. E., 2.
 southwestern: Kellogg, A. E., 5.
 Wyoming: Duparc, 1.
 Centennial: Hess, 24.
 Encampment district: Finch, J. W., 1.
 Playas: Foshag, 24.
 Pleistocene. See Glacial geology; Quaternary.
 Pleochroic halos: Kerr-Lawson, 2.
 Pliocene. See Tertiary.
 Point Barrow region, Alaska: Paige, 5.
 Point Sur quadrangle, California: Trask, 5.
 Polarized light in the study of ores and metals: Wright, F. E., 1.
 Pole wandering, evidences for, in Alaska glaciation: Richarz, 1.
 Political and commercial geology: Spurr, 2.
 Polyzoa. See Bryozoa.
 Popular and elementary: Benson, A. L., 1.
 Rocks and minerals: Palmer, E. L., 2.
 Rock stories: Palmer, E. L., 1.
 Porosity and crushing strength as indices of regional alteration: Russell, W. L., 11.
 Portland cement. See Cement materials.
 Porto Rico.
 Geology: Berkey, 1.
Areas described.
 Coamo-Guayama district: Hodge, E. T., 1.
 Humacao district: Fettke, 5.
 Lares district: Hubbard, B., 3.
 Ponce district: Mitchell, 7.
 San Juan district: Semmes, 1.
Economic geology.
 Copper prospect, Barrio Pasto: Colony, 9.
 Limonite deposits, Mayaguez Mesa: Fettke, 2.
 Magnetite deposits, eastern Porto Rico: Fettke, 6.
Historical geology.
 Eastern Porto Rico: Vaughan, 22.
 Tertiary formations: Hubbard, B., 2;
 Maury, 3; correlation: Maury, 1.
Paleontology.
 Birds from cave deposits: Wetmore, 1, 3.
 Orthaulax, Tertiary: Woodring, 3.
 Paleobotany: Hollick, 12.
 Plants, Collazo River: Hollick, 6.
 Tertiary Mollusca: Hubbard, B., 1;
 Maury, 3.
 Walnuts and lignite: Hollick, 8.

Porto Rico—Continued.

- Physical geology.*
 Earthquakes: Reid, H. F., 1, 2; October–November, 1918: Reid, H. F., 3.
Physiographic geology.
 General: Lobeck, 5.
 Tertiary: Meyerhoff, 2.
 Potash. See also Alunite.
 Bibliography: Gale, H. S., 1; Hicks, 1, 2.
 Cuba, Santa Clara: Montolieu, 1.
 General: Gale, H. S., 1; Hess, 26;
 Hicks, 1, 2; Mansfield, 17, 20, 24,
 38; U. S. Senate, 1.
 Georgia, Cartersville slates: Maynard, T. P., 1.
 Illinois, potash shales: Austin, N. M., 1; Schroyer, 1.
 Union County: Krey, 1.
 Investigations, 1924: Lang, W. B., 2.
 Minnesota, content in shales: Schmitt, 1.
 Nebraska: Hicks, 3.
 New Jersey greensands: Mansfield, 1, 2, 7, 9, 12.
 New Mexico: U. S. G. S., 15.
 southeastern: Hoots, 1.
 Nova Scotia, Cumberland County: Hayes, 5.
 Oregon: Nattress, 1.
 Texas: Keyes, 285; Udden, 26.
 Midland County: Sellards, 25, 26.
 Potter County: Patton, L. T., 2.
 reserves: White, D., 7.
 western: Hoots, 1; Mansfield, 14;
 Meigs, 1; Udden, 14, 15.
 Utah, Great Salt Lake Desert, potash brines: Nolan, 1, 2.
 Marysville district: Varley, 2.
 Western United States: Mansfield, G. R., 31.
 Potholes.
 Ancient high-level potholes near the Colorado River: Ransome, 13.
 Colorado, Front Range: Fuller, M. B., 5.
 Etched potholes: Udden, 20.
 New Hampshire, Mount Jefferson: Crosby, I. B., 6.
 Ontario, Killarney area: Quirke, 15.
 Practical oil geology: Hager, D., 8.
 Prairies, origin: Jones, P. M., 1; Miller, A. M., 23; Shimek, 2.
 Illinois, origin: Woodard, 1.
 Washington, Olympic Peninsula, origin: Reagan, 23.
 Pre-Cambrian. See also Paleontology, pre-Cambrian.
 Alabama: Adams, S. F., 2.
 Alberta, Rocky Mountains: MacKenzie, J. D., 4.
 Arctic Canada, Baffin Island, Cumberland Sound area: Weeks, L. J., 3.
 Arctic coast: O'Neill, 5.

Pre-Cambrian—Continued.

- Arctic regions, Ellesmere Land: Holte-dahl, 1.
- Arizona: Darton, 17.
- Aravaipa-Stanley region: Ross, C. P., 5.
- Courtland-Gleeson region: Wilson, E. D., 2.
- Grand Canyon district: Moore, R. C., 26.
- Jerome district, Yavapai County: Reber, 1.
- Jerome and Bradshaw Mountains quadrangles: Lindgren, 17.
- Mazatzal quartzite: Wilson, E. D., 1.
- Papago country: Bryan, 7, 15.
- Ray quadrangle: Ransome, 11.
- Ray-Miami region: Ransome, 1.
- Tucson and Amole Mountains: Jenkins, 3.
- Arkansas: Miser, 22.
- Belt series, Montana: Sampson, 15.
- Belt terrane: Keyes, 258.
- British Columbia, Cariboo district, Barkerville area: Johnston, W. A., 22.
- Kamloops district, North Thompson valley: Uglow, 3.
- Rocky Mountain region: Schofield, 8.
- Rocky Mountain trench: Shepard, 3.
- southeastern: Schofield, 10, 12.
- Windermere area, Kootenay district: Walker, J. F., 1.
- California, Deep Spring Valley: Miller, W. J., 35.
- Randsburg quadrangle: Hulin, 3.
- Canada: Baker, M. B., 2; Collins, 10; Cooke, H. C., 19; Miller, W. G., 4, 12.
- Arctic regions: Moore, E. S., 2.
- Canadian Rockies: Burwash, 2.
- Huronian and Grenville rocks, correlation: Quirke, 12.
- Carbon in pre-Cambrian formations: Moore, E. S., 12.
- Classification: Wilson, M. E., 18.
- Colorado: Keyes, 162.
- Big Thompson River valley: Fuller, M. B., 2.
- Boulder County, Ward region: Worcester, 1.
- Grand, Jackson, and Larimer counties (parts): Spock, 1.
- Gunnison River: Hunter, J. F., 1.
- Leadville district: Emmons, S. F., 1.
- Moffat Tunnel: Lovering, 7.
- north central, foothills formations: Henderson, 2.
- northern: Fuller, M. B., 7.
- southwestern: Coffin, 3.
- Twin Lakes district: Howell, J. V., 1.
- Correlation: Cooke, H. C., 19.
- Coutchiching: Grout, 15.
- Coutchiching delta: Bruce, 21.

Pre-Cambrian—Continued.

- Delaware, Wilmington quadrangle: Bascom, 2.
- Folding: Miller, W. J., 21.
- General: Keyes, 117, 209; Lane, 22; Miller, W. J., 21.
- Georgia: McCallie, 1.
- Tate quadrangle: Bayley, 13.
- Greenland, northern: Koch, 4.
- northwestern: Hovey, 11; Koch, 1.
- Grenville subprovince: Wilson, M. E., 13.
- Huronian and Grenville rocks, correlation: Quirke, 12, 18.
- Idaho, Boundary County: Kirkham, 7.
- Coeur d'Alene region: Eby, J. H., 1; Shannon, 14.
- Pend Oreille district: Sampson, 16.
- Pine Creek district: Jones, Edw. L., 1.
- St. Maries region: Anderson, A. L., 4.
- Shoshone County: Umpleby, 3.
- Iowa, Ida County: Lees, 10.
- Kansas, borings: Landes, K. K., 3.
- Keewatin iron formations: Collins, 23.
- stratigraphic position: Gregory, J. W., 4.
- Keweenawan at eastern end of Lake Superior: Moore, E. S., 18.
- Labrador, Lake Melville district: Kindle, 25.
- northeastern: Coleman, 6.
- Lake Superior region: Leith, 16.
- Laurentian problems and atomic disintegration: Lane, 21.
- Literature: Steidtmann, 2, 3.
- Mackenzie River basin: Camself, 1.
- Manitoba: Alcock, 13; Wallace, 14.
- Beresford Lake area: Wright, J. F., 4.
- Bigstone and Fox rivers area: Merritt, C. A., 4.
- Cross-Pipestone area: Alcock, 4.
- Elbow Lake area: Armstrong, P., 3.
- Falcon Lake district: DeLury, 2.
- Flinflon area: Alcock, 15.
- Island Lake area: Wright, J. F., 12.
- Knee Lake district: Bruce, 4.
- Maskwa River: McCann, 1.
- northern: Bruce, 5, 7; Hanson, 1.
- Oiseau River area: Cooke, H. C., 9; Wright, J. F., 10.
- Ospwagan Lake-Burntwood River area: Alcock, 9.
- Oxford and Knee lakes area: Wright, J. F., 11.
- Rat River: Alcock, 10.
- Reed and Wekusko lakes region: Alcock, 3.
- Reed-File lakes area: Alcock, 1.
- Reed Lake-Elbow Lake: Bruce, 2.
- Rice Lake area: Cooke, H. C., 9; Wright, J. F., 3.
- Wekusko Lake area: Alcock, 2.

Pre-Cambrian—Continued.

- Maryland, Elkton quadrangle: Bascom, 2.
 Piedmont Plateau: Knopf, E. B., 3.
 western Piedmont: Jonas, 4.
 Matachewan series, northeastern Ontario: Miller, W. G., 6.
 Mexico, Lower California: Darton, 10.
 Michigan, Baraga County, Huronian slate areas: Barrett, 1.
 Huronian formations: Allen, R. C., 2.
 Minnesota: Grout, 2.
 Cuyuna district: Thiel, 12; Zapffe, 2, 3.
 east Mesabi district: Broderick, 2.
 eastern Mesabi range: Grout, 3.
 Gunflint district: Broderick, 3.
 Lake Superior geosyncline: Hotchkiss, 8.
 Mesabi range: Gruner, 5.
 northeastern: Grout, 22.
 St. Louis County, northern: Grout, 20.
 Missouri: Wilson, Malcolm E., 1.
 Ste. Genevieve County: Weller, 19.
 Montana: Keyes, 234.
 Beartooth Mountains: Bevan, 2.
 Belt series: Wilson, R. A., 5.
 Big Snowy Mountains, Belt terrane: Freeman, O. W., 3.
 Madison Valley: Runner, 9.
 Nevada: Keyes, 128.
 New Brunswick: Bailey, L. W., 1.
 Newfoundland, Avalon Peninsula: Baker, H. A., 1.
 Fortune Bay: Dale, N. C., 5.
 southeastern: Buddington, 3.
 New Jersey, Sussex County: Ries, 8.
 New Mexico: Darton, 26; Keyes, 14.
 Taos Range: Gruner, 1.
 New York, Adirondacks: Ailing, 3; Clarke, J. M., 15; Miller, W. J., 30; western: Agar, 1.
 Ausable quadrangle: Kemp, 23.
 Cortlandt norite, Peekskill: Balk, 5.
 Gouverneur quadrangle: Cushing, 1.
 Grenville sediments: Ailing, 13.
 Lake Bonaparte quadrangle: Smyth, 2.
 Lake Clear region: Ailing, H. L., 1.
 Lake Placid quadrangle: Miller, W. J., 1.
 Luzerne quadrangle: Miller, W. J., 19.
 Lyon Mountain quadrangle: Miller, W. J., 26.
 Mount Marcy quadrangle: Kemp, 7.
 Newburgh quadrangle: Holzwasser, 1.
 Schroon Lake quadrangle: Miller, W. J., 2.
 southeastern: Colony, 3.
 North Dakota: Leonard, A. G., 1.
 Nova Scotia, North Mountain, Cape Breton: Guernsey, 2.

Pre-Cambrian—Continued.

- Nova Scotia—Continued.
 Richmond County, Stirling area: Weeks, L. J., 1.
 Ontario: Hopkins, P. E., 3; Miller, W. G., 1, 2, 4, 10; Quirke, 6; Wilson, M. E., 7.
 Abitibi-Mattagami area: Cross, J. G., 2.
 Algoma district: Brunton, 1.
 Anima-Nipissing area: Todd, E. W., 7.
 Archaean: Cooke, H. C., 17.
 Argonaut gold mine: Knight, 6.
 Arnprior-Quyon area: Wilson, M. E., 10.
 Batchawana area, District of Algoma: Moore, E. S., 19.
 Ben Nevis area: Knight, C. W., 5.
 Black River area: Wright, D. G. H., 1.
 Blanche River area: Burrows, 9.
 Boston-Skead area: Burrows, 8.
 Brockville-Mallorytown area: Wright, J. F., 1, 2, 8.
 Cobalt area: Knight, 11; Whitehead, 1.
 Cochrane district: Hawley, J. E., 3.
 District of Patricia, Red Lake to Favourable Lake: Douglas, G. V., 4; Hurst, 5.
 English River valley: Bruce, 11.
 Fort Hope area: Burwash, 8.
 Gammon River area, District of Kenora: Gilbert, G., 7.
 Goudreau-Lochalsh area: Gledhill, 8.
 Gowganda area: Burrows, 3, 6, 17.
 Grenville subprovince: Wilson, M. E., 15.
 Groundhog River area: Todd, E. W., 4.
 Gunflint iron-bearing formation: Gill, J. E., 1.
 Halleyburian intrusives: Miller, W. G., 3.
 Hastings series: Wilson, M. E., 19.
 Huronian and Grenville rocks: Quirke, 13.
 Huronian complex near Killarney: Quirke, 11.
 Huronian replacement deposits: Quirke, 20.
 Kamiskotia area: Finley, 1.
 Kenogamissi Lake area: Todd, E. W., 3.
 Keweenaw system: Moore, E. S., 18.
 Kirkland Lake area: Burrows, 4, 12; Todd, E. W., 8; Tyrrell, 7; Lebel and Gauthier townships: Hopkins, 7.
 Lake St. Joseph area: Bruce, 8; eastern part: Bruce, 9.
 Lake Superior region: Tanton, 3, 17.
 Larder Lake area: Hopkins, 8.
 Leeds County: Baker, M. B., 1.

Pre-Cambrian—Continued.

Ontario—Continued.

Lightning River area: Burrows, 1; Knight, 12.
 Matabitchuan area: Todd, E. W., 5.
 Matachewan district: Burrows, 2; Cook, H. C., 1.
 Matawin iron range, Thunder Bay district: Tanton, 15.
 Michipicoten district: Collins, W. H., 1, 15; Gledhill, 7; Thomson, E., 4.
 middle Eozoic sediments: Spearman, 3.
 Missinaibi area: Thomson, E., 11.
 Mississagi Reserve and Goulais River iron ranges: Moore, E. S., 15.
 Murphy, Hoyle, and Matheson townships: Rose, 4.
 Night Hawk Lake area: Hopkins, 9.
 north shore of Lake Huron: Collins, 11.
 northeastern: Miller, W. G., 8.
 northern: Bruce, 7; Cooke, H. C., 7, 16.
 Ontario-Manitoba boundary: Burwash, 6; Rickaby, 1.
 Patricia: Burwash, 1.
 Porcupine gold area: Burrows, 13; Robinson, H. S., 1.
 Rainy Lake region, Couchiching rocks: Bruce, 15.
 Red Lake Basin, District of Patricia: Bruce, 12.
 Red Lake Basin, District of Kenora: Bruce, 22.
 Red Lake and Woman Lake areas: Bruce, 23.
 Sakkatawiche Lake section, Woman River iron range, District of Sudbury: Moore, E. S., 20.
 Sault Ste. Marie, District of Algoma: McConnell, 1.
 Schreiber-Duck Lake area: **Hopkins, 5.**
 Shiningtree silver area, District of Timiskaming: Langford, 1.
 southeastern: Quirke, 13.
 Steeprock Lake area, Couchiching: Tanton, 14.
 Sudbury district: Quirke, 7; Grassy River area: Gledhill, 5; Wana-pitei Lake area: Quirke, 8; West Shiningtree area: Finley, 2.
 Sutton Lake area: Hawley, J. E., 1.
 Thunder Bay district: Swanson, W. L., 1; Tanton, 12.
 Shebandowan Lake: Tanton, 9.
 Timiskaming district, Abitibi-Night Hawk gold area: Knight, C. W., 1; Kenogami Lake area: Cooke, H. C., 8; Larder Lake area: Cooke, H. C., 8; Redstone River area: Bruce, 19; Round Lake area: Cooke, H. C., 8.
 Wakomata Lake area, Algoma district: Emmons, R. C., 3.
 Wasapika section, West Shiningtree area: Langford, 2.

Pre-Cambrian—Continued.

Ontario—Continued.

Watabeag area: Wright, D. G. H., 2.
 Webbwood district: Bain, 15.
 western: Bain, 3; Gill, J. E., 2.
 western Patricia: Burwash, 5.
 West Shiningtree area: Hopkins, P. E., 2.
 Whiskey Lake area, District of Algoma: Douglas, G. V., 2.
 Windy Lake region: Knight, C. W., 4.
 Woman and Narrow lakes area, District of Kenora: Greig, 2.
 Oregon: Smith, W. D., 1.
 Peneplain: Du Rietz, 1.
 Pennsylvania, Allentown quadrangle: Miller, B. L., 5.
 McCalls Ferry quadrangle: Jonas, 2.
 New Holland quadrangle: Jonas, 5.
 Piedmont Plateau: Knopf, E. B., 3.
 Quarryville quadrangle: Jonas, 3.
 southeastern: Hawkins, A. C., 4.
 Pennsylvania and Maryland: Jonas, 6.
 Quebec: Cooke, H. C., 7; Wilson, M. E., 7.
 Abitibi County, Destor area: Buf-fam, 1.
 Amherst township: Wilson, Morley E., 1.
 Archean: Cooke, H. C., 17.
 Arnprior-Quyon area: Wilson, M. E., 10.
 Chibougamau district, Quebec: Mawdsley, 2.
 Cléry and Kinojevis areas, Témiscamingue and Abitibi counties: James, 4.
 Coleraine area: Knox, J. K., 1.
 Dufresnoy area, Abitibi district: Harvie, 3.
Dufresnoy township: Cooke, H. C., 27.
 Duparquet area: James, W. F., 1.
 Grenville subprovince: Wilson, M. E., 15.
 Harricaw Basin, pre-Keewatin sediments: Bain, 6.
 Harricaw and Bell river basins: Bain, 22.
 Harricaw-Turgeon basin: Tanton, 1.
 Lake Demontigny region: Mailhot, 4.
 Lake David area: Mawdsley, 5.
 La Motte and Fournière areas, Abitibi County: James, 5.
 middle Eozoic sediments: Spearman, 3.
 northern: Cooke, H. C., 2, 12.
 Pontiac County, Calumet Island: Goranson, 3.
 Rouyn area: James, W. F., 2.
 St. Urbain area, Charlevoix district: Mawdsley, 1.
 Timiskaming County, Opasatika area: Cooke, H. C., 10, 11.

Pre-Cambrian—Continued.

- Saskatchewan, Kapawekka and Deschambault lakes area: DeLury, 6.
 Lake Athabaska: Allan, 10.
 Sinian, use of term: Grabau, 14.
 South Dakota, Black Hills: Paige, 4;
 Runner, 2, 3.
 central Black Hills: Darton, 14.
 Lead area: Hosted, 1.
 Nemo district: Runner, 6.
 Steep Rock series: Rothpletz, 2.
 Taconic area, southern: Knopf, E. B., 6.
 Taconic question: Keyes, 129.
 Taxonomic differentiation: Keyes, 109.
 Tennessee, Ducktown district: Emmons, W. H., 8.
 Terminology: Gregory, J. W., 5.
 Texas: Udden, 12.
 trans-Pecos Texas: Baker, C. L., 6.
 Time scale: Young, G. A., 4.
 Utah: Butler, 4; Keyes, 152.
 Vermont, Northfield: Richardson, C. H., 2.
 Rochester quadrangle: Foye, 1.
 Virginia: Jonas, 7.
 Blue Ridge, west foot: Stose, 1.
 Piedmont: Jonas, 8.
 Wisconsin, Lake Superior geosyncline: Hotchkiss, 8.
 Wyoming, Medicine Bow Mountains: Blackwelder, 14; Runner, 8; north of Laramie: Kemp, 21.
 Yukon, Whitehorse district: Cockfield, 16.
 Sixtymile and Ladue rivers area: Cockfield, 5.
- Pre-Cambrian continents, existence and configuration: Ruedemann, 11.
- Pre-Cambrian life: Keyes, 46.
- Pre-Cambrian peneplain of North America: Du Rietz, 1.
- Precious stones.
 General: Schaller, 2.
 Geologic and geographic occurrence: Bail, S. H., 5.
 United States National Museum collection: Merrill, 18.
- Pribilof Islands, Alaska: Hanna, G. D., 1.
- Primates. See Mammalia.
- Prince Edward Island.
 Glacial history: Coleman, 1.
- Problematic fossils.
 Illinois, Silurian: Weller, 8.
 Minnesota, Ordovician: Sardeson, 18.
 Xenohelix, Chesapeake Bay, St. Marys County, Maryland: Mansfield, W. C., 4.
- Proboscidea. See Mammalia.
- Projecting structure through an angular unconformity: Corbett, 1.
- Prothro salt dome, Bienville Parish, Louisiana: Hull, 13.
- Protobalanus, Hamilton group, New York: Van Name, 1, 2.

Protozoa.

- Silicoflagellata, Cretaceous, California: Hanna, G. D., 35.
- Pseudomorphs.
 Bismuthinite after molybdenite: Graham, R. P. D., 1.
 Chalcidony pseudomorphs, Big Badlands, South Dakota: Honess, A. P., 2.
 Colemanite after inyoite, Death Valley, California: Rogers, A. F., 1.
 Corundum after spinel, Ontario: Ferrier, 2.
 Hematite after goethite: Spencer, L. J., 1.
 Limonite after pyrite: Holden, E. F., 1.
 Iron sulphide pseudomorphs of plant structure: Schwartz, 20.
 Quartz pseudomorphs, Chester County, Pennsylvania: Vaux, 1.
- "Pseudomorphous" quartz: Morgan, P. G., 1.
- Psilophyton, cuticular structure: Edwards, W. N., 2.
- Puente Hills region, California: English, W. A., 3.
- Pumpkin Buttes coal field, Wyoming: Wegemann, 2.
- Punxsutawney quadrangle, Pennsylvania: Ashley, 18.
- Pursell trench, origin: Schofield, 4.
- Pyrite.
 Colorado, Leadville: Lee, H. S., 1.
 crystallography: Whitlock, 15.
 Cuba, Sierra de Trinidad: Allende, 10.
 General: Smith, P. S., 1-3.
 Illinois: Cady, 8; coal beds: Cady, 5.
 In coal: Lindly, 1.
 Indiana: Barrett, E., 8.
 New York, Newland, 2.
 Jefferson and St. Lawrence counties: Buddington, 1.
 St. Lawrence County, origin: Miller, W. J., 27.
 Ohio coal fields: Tucker, W. M., 1.
 Ontario, Ca'abogie district: Wilson, M. E., 3.
 Michipicoten district: Collins, W. H., 1.
 Ottawa Valley: Wilson, M. E., 3.
 South Carolina, Kershaw, Hail mine: Schrader, 1.
 Tennessee, coal pyrite: Holbrook, 1.
 Virginia, northeastern Piedmont: Lonsdale, 7.
- Pyrophyllite.
 North Carolina, Deep River region: Stuckey, 1, 3, 5.
- Pyrrhotite.
 Etching tests on: Boydell, 1.
 New York, Jefferson and St. Lawrence counties: Buddington, 1.
- Quantitative studies: Hubbard, G. D., 9, 10, 11.
- Quarryville quadrangle, Pennsylvania: Jonas, 3.

Quartz.

Maryland: Singewald, 5.
microscopic study: Adams, S. F., 2.

Quaternary. See also Glacial geology; Paleontology, Quaternary.

Alabama: Cooke, C. W., 13.

Alaska, Anvik-Andreafski region: Harrington, 1.

Kantishna region: Capps, 1.

Kodiak Island: Maddren, 2.

northern, Canning River region: Leffingwell, 1.

Porcupine district: Eakin, 1.

Peard Bay region: Meek, 1.

Arizona: Darton, 17.

Lake Cochise area: Bryan, 23.

lower Gila region: Ross, C. P., 1.

Papago country: Bryan, 15.

Atlantic Coastal Plain, Pleistocene: Hay, 2.

Basin-and-Range province, Pleistocene lakes: Meinzer, 5.

British Columbia, Fraser River Delta: Johnston, W. A., 17.

Vancouver Island, Barkley Sound: Dolmage, 2.

California, Blackhawk Canyon, San Bernardino Mountains: Woodford, 7.

Los Angeles County, Baldwin Hills: Tieje, 6.

Pleistocene-Recent boundary: Mathes, 13.

Rancho La Brea: Wyman, 1.

San Benito County: Kerr, P. F., 4.

San Bernardino Mountains: Vaughan, F. E., 1.

San Diego County: Ellis, A. J., 1.
southern, Pleistocene: Eaton, J. E., 6, 7.

Tuolumne Table Mountain: Hay, 35.

Warner Range: Russell, R. J., 6.

Champlain sea, decreasing salinity southward: Goldring, 3.

Coastal Plain terraces, origin and age: Hay, 22.

Colorado, Platoro-Summitville district: Patton, H. B., 1.

Correlation of Pleistocene deposits: Hay, 27.

Costa Rica: Redfield, 7.

Delaware, Wilmington quadrangle: Bascom, 2.

District of Columbia, excavation on Connecticut Avenue: Wentworth, 13.

Florida: Cooke, C. W., 19; Mossom, 1, 2; Sellards, 4, 5.

Everglades section: Sellards, 3.

Melbourne, Vero, and St. Petersburg deposits: Cooke, C. W., 16.

Vero deposits, age: Chamberlin, T. C., 3; Hay, 40.

Georgia: McCallie, 1; Teas, 1.

Coastal Plain: McCallie, 7.

Great Basin, Pleistocene history: Antevs, 12.

Quaternary—Continued.

Greenland: Böggild, 1; Koch, 5.

Haiti: Woodring, 5.

Idaho, Bingham, Bonneville, and Carbou counties: Kirkham, 3.

Fort Hall Indian Reservation: Mansfield, G. R., 3.

Mud Lake basin: Stearns, 6.

Illinois, Carlyle-Centralla district: Shaw, 9.

Colchester and Macomb quadrangles: Hinds, H., 1.

Lawrence County, Pleistocene: Cox, F. W., 1.

Kansas: Moore, R. C., 4.

Syracuse and Lakin quadrangles: Darton, 2.

Kentucky: Miller, A. M., 1.

Lake Lahontan, geologic history: Jones, J. C., 2.

Louisiana, Port Hudson beds: Emerson, F. V., 1.

Maryland, Elkton quadrangle: Bascom, 2.
Talbot County: Miller, B. L., 8.

Mexico, Hidalgo-Vera Cruz region: Palmer, R. H., 4.

Lower California, San Quentin Bay, Pleistocene: Orcutt, C. R., 1.

Oaxaca coast, Pleistocene: Palmer, R. H., 2.

Minnesota, Herman, Barrett, Chokio, and Morris quadrangles: Sardeson, 1.

Mississippi: Lowe, 2.

Missouri, Ste. Genevieve County: Weller, 19.

Montana: Keyes, 234.

Nevada: Keyes, 128.

Newfoundland, western: Schuchert, 16.

New Mexico: Keyes, 14.

northeastern: Garrett, 1.

Raton-Brilliant-Koehler area: Lee, W. T., 6.

New York, New York City, Pleistocene: Palmer, K. V. W., 3.

Oregon: Smith, W. D., 1.

Pleistocene history: McCornack, 1.

southeastern: Smith, W. D., 14.

Pennsylvania, Pittsburgh: Leighton, H., 2.

Pleistocene: Hay, 4, 7, 10, 15.

eastern North America: Hay, 16.

Maryland, Virginia, and North Carolina: Mansfield, W. C., 6.

middle region of North America: Hay, 23.

revision: Hay, 24.

western North America: Hay, 39.

Pleistocene time: Hay, 12.

Porto Rico, Coamo-Guayama district: Hodge, E. T., 1.

Quaternary and Tertiary chronology: Allison, V. C., 2.

Quebec, Lake St. John, Champlain deposits: Tolmachoff, 4.

Quaternary—Continued.

- South Dakota, Newell quadrangle:
Darton, 1.
Texas, Bexar County: Sellards, 10.
Brazoria County, West Columbia
field: Barton, 2.
Colorado County: Bailey, T. L., 1.
Dallas County: Shuler, 1.
eastern: Dumble, 1.
Gulf Coastal Plain near Rio Grande:
Trowbridge, 5.
McLennan County: Adkins, 2.
Potter County: Patton, L. T., 2.
Utah: Butler, 4.
Washington, Big Hope Island, Pleisto-
cene: Henderson, J., 9.
Washington, San Juan Islands: Mc-
Lellan, 2.

Quebec.

- Anticosti Island: Twenhofel, 25.
Nottaway sheet: Collins, W. H., 19.

Areas described.

- Amherst township: Wilson, Morley
E., 1.
Anticosti Island: Twenhofel, 30.
Arnprior-Quyon area: Wilson, M. E.,
10.
Beauceville area: MacKay, B. R., 4.
Calumet Island, Pontiac County: Gor-
anson, 3.
Cléry and Kinojevis areas, Témisca-
mingue and Abitibi counties:
James, 4.
Coleraine sheet: Knox, J. K., 1.
Destor area, Abitibi County: Buffam, 1.
Dufresnoy area, Abitibi district:
Harvie, 3.
Duparquet area: James, W. F., 1.
Eagle River area, Abitibi Territory:
Mawdsley, 6.
Fiedmont and Dubuissou map areas:
James, 7.
Gaspé Peninsula: Coleman, 7, 10.
central: Alcock, 29.
Harricanaw-Turgeon basin, northern
Quebec: Tanton, 1.
Lake David area, Chibougamau dis-
trict: Mawdsley, 5.
Lake Melville district, Labrador: Kin-
dle, 25.
Lemieux, Gaspé County: Alcock, 14;
Mailhot, 1.
La Motte and Fournière areas, Abitibi
County: James, 5.
Maniwaki area: Wilson, M. E., 10.
Mount Albert area: Alcock, 20; Mail-
hot, 2.
Mount Serpentine, Gaspé: Alcock, 22.
New Quebec: Coleman, 6.
Opasatika area, Timiskaming County:
Cooke, H. C., 10.
Rouyn area, Timiskaming County:
James, W. F., 2.
St. Urbain area, Charlevoix district:
Mawdsley, 1.

Quebec—Continued.

Areas described—Continued.

- Shickshock Mountains, Gaspé: Alcock,
21.
Torngat Mountains, Labrador: Cole-
man, 14.

Economic geology.

- Allanite, Lac a Baude, Champlain
County: Harvie, 2.
Apatite deposits: Spence, 2.
Asbestos: Fisher, N. B., 1; Lynch, 1;
RuKeyser, 1.
Black Lake area: Hubbard, W. D., 1.
Weir township, Bonaventure County:
Harie, 1.
Buckingham district: Rowe, R. C., 1.
Chibougamau district: Mawdsley, 2, 4.
Copper, eastern townships: Dresser, 5.
Gaspé Peninsula: Alcock, 16.
Papineau County: Wilson, M. E.,
11, 14.
Rouyn area: Cooke, H. C., 20, 29.
Copper and zinc deposits, western Que-
bec: Dufresne, 7.
Desmeloizes and Trecesson townships:
James, 6.
Dufresnoy Lake area: Harvie, 4.
Eustis mine: Hanson, 1.
Feldspar, Quetachou Manicouagan
Bay: Erlenborn, 1.
Fiedmont and Dubuissou map areas:
James, 7.
Gaspé Peninsula: Alcock, 10, 26, 28.
Gaspesia zinc and lead deposits: Bei-
delman, 1.
Gold, Dubuissou Township: Spearman,
2.
Lake Demontigny: Mailhot, 4.
Lake Fortune area: Goodwin, W.
M., 1.
northwestern Quebec: Dufresne, 3.
Témiscamingue and Abitibi counties:
Dufresne, 4.
Gold belt: Goodwin, W. M., 2.
northern Quebec: Wright, D. G. H.,
3.
Gold fields, northwestern Quebec:
Brunton, 7; Denis, 6.
western Quebec: Cooke, H. C., 15;
Timm, 1.
Gold and copper, western Quebec:
Cooke, H. C., 30.
Graphite: Brumell, 1; Spence, 6.
Buckingham district: Brumell, 2;
Eardley-Wilmot, 1.
Harricanaw River gold area: Mailhot,
3.
Harricanaw and Bell river basins:
Bain, 22.
Huntingdon copper deposit, Eastman:
Hore, 2.
Iron, Belcher Islands, Hudson Bay:
Moore, E. S., 1.
Kaolin, Amherst township: Wilson,
Morley E., 1.
Kienawisik gold district: Tanton, 1.

Quebec—Continued.

Economic geology—Continued.

- Labrador, mineral resources: Coleman, 22.
- Lacorne, Abitibi, molybdenite deposits: Mailhot, 6.
- Lead and zinc: Alcock, 23.
- Limestones: Goudge, 3.
- Magnesite, Grenville: Bain, 1.
- Maskinonge, Saint-Maurice, Champlain, Portneuf, Quebec, and Montmorency counties: Dresser, 4.
- Mineral deposits, western Quebec: Dufresne, 5, 6.
- Mining operations: Denis, 1-11.
- Mineral resources: Dresser, 2.
- Molybdenite, Lacorne and Malartic townships: Gerrie, 1.
- Northern Quebec: Cooke, H. C., 12, 18; Opasatica area: Cooke, H. C., 11.
- Northwestern Quebec: Cooke, H. C., 20.
- Ore deposits, Dubuison Township: Bain, 13.
- Ore relations, Horne and Aldermac mines: Cooke, H. C., 32.
- Peat bogs: Anrep, 2, 3, 6, 10.
- Resorption in Grenville granite magma: Bain, 10.
- Road materials, Montreal district: Gauthier, 1.
- Vaudreuil County: Picher, 1.
- Rouyn area: James, W. F., 3, 8.
- Rouyn ore bodies, structural features: MacGregor, J. G., 1.
- Rouyn-Boischatel area, Temiskaming County: Hore, 9.
- Serpentine belt: Knox, J. K., 1.
- Structural materials, St. Lawrence Valley: Keele, 5.
- Sulphide deposits, northern Quebec: Cooke, H. C., 31.
- Thetford-Black Lake district: Knox, J. K., 1.
- Titaniferous magnetite deposits, Bourget township, Chicoutimi district: Robinson, A. H. A., 3.
- Western Quebec: Dufresne, 10.
- Wright mine, Duhamel Township: Cooke, H. C., 25.
- Zinc-lead field, central Gaspé: Alcock, 29; Beidelman, 2; Mailhot, 5.

Historical geology.

- Anticosti Island: Twenhofel, 7, 12.
- Archean: Cooke, H. C., 17.
- Barrute area, Abitibi County, map: Bain, 8.
- Bonaventure conglomerate, Gaspé: Clarke, J. M., 9.
- Bonaventure formation, age: Clarke, J. M., 26.
- Champlain deposits, Lake St. John: Tolmachoff, 4.
- Devonian limestone, St. George: Clark, T. H., 6, 9.
- Eagle River area, Abitibi Territory: Mawdsley, 3.

Quebec—Continued.

Historical geology—Continued.

- Gaspé Peninsula: Alcock, 28.
- Geologic map showing mineral resources; Canada, Dept. Mines, 1.
- Glacial history, Magdalen Islands: Coleman, 1.
- Grenville pre-Cambrian subprovince: Wilson, M. E., 15.
- Harricaw Basin, pre-Keewatin sediments: Bain, 6.
- Harricaw and Bell river basins: Bain, 22.
- Lake Demontigny region: Mailhot, 4.
- Lake Timiskaming area: Hume, 14.
- Levis formation: Clark, T. H., 7, 8, 13.
- Magog conglomerate: Dresser, 3.
- Middle Eozoic sediments: Spearman, 3.
- Mingan Islands: Twenhofel, 26.
- Monteregian Hills: Howard, W. V., 1.
- Northern Quebec: Cooke, H. C., 12; Opasatica area, Cooke, H. C., 11.
- Original Keewatin surface, Dufresnoy township: Cooke, H. C., 27.
- Paleozoic and pre-Cambrian relationships, southern border of Laurentian Highlands, Wilson, M. E., 7.
- Paleozoic outlier, Lake Timiskaming: Hume, 14.
- Paleozoic submarine landslips near Quebec City: Bailey, E. B., 2.
- Percé: Clarke, J. M., 20; geologic map: Clarke, J. M., 2.
- Phillipsburg region: Bradley, J. H., jr., 2.
- Port Daniel-Gascons area, southeastern Quebec: Schuchert, 29.
- Pre-Cambrian, correlation: Cooke, H. C., 7.
- northern Quebec: Cooke, H. C., 2; Martens, 7.
- Serpentine belt: Knox, J. K., 1.
- Thetford-Black Lake district: Knox, J. K., 1.
- Tillite, Levis: Sayles, 6.
- Upper Ordovician: Foerste, 15.
- Winters in Upper Devonian of Acadia: Schuchert, 34.

Mineralogy.

- Albite, titanite, and scapolite, crystallography: Poitevin, 1.
- Allanite, Labelle County: Walker, 28.
- Lac a Baude, Champlain County: Harvie, 2.
- Biotite, Murray Bay, pleochroic halos: Kerr-Lawson, 2, 3.
- Cacoclasite, Wakefield: Bowen, N. L., 3.
- Diopside: Walker, 18.
- Molybdenite, Lacorne and Malartic townships: Gerrie, 1.
- Native gold in calcite, Dorchester: Dufresne, 1, 2.
- Pectolite and apophyllite, Thetford mines: Parsons, 9.
- Sillimanite, Romaine: Walker, 28.
- Sundry minerals: Poitevin, 10.

Quebec—Continued.

Mineralogy—Continued.

- Telluride: Thomson, 14.
- Thucholite and uraninite, Wallingford mine, Buckingham: Ellsworth, 20.

Paleontology.

- Actinoceras, Trenton limestone, Montreal: Clark, T. H. 16.
- Beekmantown series at Levis; Clark, T. H., 11.
- Bothriolepis, Scaumenac Bay: Bryant, 3.
- Cephalopods, Ordovician, Anticosti: Foerste, 26.
- Champlain fauna, Lake St. John: Tolmachoff, 4.
- Dendrocystis: Bather, 8.
- Devonian starfish, Gaspé: Ruedemann, 23.
- Eusthenopteron, Scaumenac Bay: Bryant, 1.
- Foraminifera, Bonaventure cherts, Gaspé: Bagg, 1.
- Ordovician, St. Lawrence Valley: Wilson, A. E., 2.
- Pleistocene and recent fossils, St. Lawrence Valley: Whittaker, 3.
- Psilophyton, Gaspé: Edwards, W. N. 2.
- Rosetted trails of worms: Clarke, J. M., 27.
- Salterella, nature: Clark, T. H., 12.
- Trenton fauna: Raymond, 10.
- Trilobites, Beekmantown, Phillipsburg region: Bradley, J. H., jr., 3.
- Upper Ordovician faunas: Foerste, 15.

Petrology.

- Almandite, Greenville limestone, Chatham Township: Bain, 2.
- Alnoite, Isle Cadieux: Bowen, 10, 11.
- Essexites of Mount Royal: Bancroft, J. A., 1.
- Granitic segregations in serpentine series: Dresser, 1.
- Hornblendite, Cantley: Stansfield, J., 1.
- Lemieux, Gaspé County: Mailhot, 1.
- Monteregian Hills, outcrops: Howard, W. V., 1.
- Monteregian province extensions: Stansfield, 4.
- Mount Albert, Gaspé County: Mailhot, 2.
- Mount Royal contact-metamorphic zone: Dolan, 1.
- Okaite: Stansfield, J., 6.
- Pre-Cambrian, northern Quebec: Martens, 7.
- Syenite porphyry, Boischatel Township: Gunning, 1.

Physical geology.

- Landslide, Portneuf County: Wilson, M. E., 2.
- Levis formation, structure: Clark, T. H., 13.
- St. Lawrence earthquake, February 28, 1925: Abbott, 1; Hodgson, 8.
- rotation effects: Hodgson, 9.

Quebec—Continued.

Physiographic geology.

- Anticosti Island, postglacial terraces: Twenhofel, 9.
- Beauceville area: MacKay, B. R., 4.
- Gaspé driftless area: Coleman, 2.
- Gaspé Peninsula; Alcock, 17; Coleman, 7, 10.
- Glacial periods: Coleman, 30.
- Ice conditions, northeastern Labrador: Coleman, 15.
- Lake Timiskaming, a Roxen lake: Davis, 25.
- Mingan Islands: Twenhofel, 26.
- Pleistocene terraces: Kindle, 17.
- Rivers of Gaspé: Alcock, 27.
- St. Lawrence-Ottawa Valley, late glacial oscillations of level: Goldthwait, 7.

Quebec group: Dresser, 3.

Quicksands, Brazos County, Texas: Burt 3: genesis: Burt, 2.

Quicksilver.

- Anticlinal theory: Udden, J. A., 2, 6.
- Arizona: Lausen, 3.
- Mazatzal Mountains: Hummel, 3; Lausen, 2.
- Bibliography: Evans, I. P., 1, 2.
- British Columbia, Kamloops Lake: Camsell, 2.
- Vancouver Island, Barkley Sound: Dolmage, 2.
- General: Ransome, 2, 3, 7, 8, 10, 14; Ross, C. P., 4, 9.
- Idaho: Livingston, 2.
- Black Pine: Larsen, E. S., 1.
- Yellow Pine district: Larsen, E. S., 3.
- Mexico: Segura, 1.
- San Luis Potosi, Guadalcázar: Wittich, 5, 7, 11.
- Nevada, Mineral County, Pilot Mountains: Foshag, 32.
- Oregon, Gold Hill district: Kellogg, A. E., 6.
- Jackson County: Kellogg, A. E., 1.
- Texas: Udden, J. A., 2.
- Terlingua district: Lewis, F., 1.
- Racine formation, northern peninsula, Michigan: Ehlers, 3.
- Radian measures in plane-table mapping: Palmer, H. S., 3.
- Radio talks; framework of the world: Leighton, H., 1; on oil and gas: Johnson, R. H., 7.
- Radioactivity in geology: Kovarik, 1.
- Radioactive minerals, calculation of ages: Holmes, A., 2.
- Radium.
- Carnotite ores, Colorado and Utah: Hillebrand, 2.
- Colorado, Central City district, pitchblende: Hirsch, 1.
- Gateway district, carnotite ores: Farnum, 1.

Radium—Continued.

- General: Butler, G. M., 2; Hess, 2, 7, 8, 12, 13, 16, 19, 21; Penrose, 1.
 Ontario, Butt township, pitchblende: Hore, 6; Knight, C. W., 3.
 Utah, southeastern: Williams, G. O., 1.
 Radium and geology: Snowden, 1.
 Rainbow Bend field, Cowley County, Kansas: Snow, 1.
 Raindrops, impressions on rocks: Twenhofel, 13.
 Randsburg quadrangle, California: Hulin, 3.
 Rangeley conglomerate, Maine: Smith, E. S. C., 2.
 Rare earths: Schaller, 4; concentration: Keyes, 267.
 Rare metals: Hess, 21, 27.
 Raton mesas, New Mexico and Colorado: Lee, W. T., 4.
 Rawlins-Lost Soldier district, Wyoming: Krampert, 1.
 Ray quadrangle, Arizona: Ransome, 11.
 Recessional streams of arid regions: Keyes, 168.
 Red beds: Branson, 14; Dobbin, 4.
 origin of color: Dorsey, 2.
 Rocky Mountain region: Branson, 17.
 Red limestones, origin: Galloway, J. J., 4.
 Red Cliff district, Colorado, geology and ore deposits: Crawford, R. D., 3.
 Red Lake area, Patricia, Ontario: Bruce, 18.
 Red Lake Basin, District of Patricia, Ontario: Bruce, 12.
 Red Rock Canyon, California: Miller, W. J., 31.
 Relief maps.
 Alaska Peninsula, Aniakchak Crater: Smith, W. R., 2.
 Black Hills uplift: O'Harra, 5.
 California, central Coast Ranges: Dickerson, 2.
 San Francisco Bay region: Dickerson, 2.
 Canada, Prairie provinces: Dowling, 1.
 Colorado: George, R. D., 6.
 central, and New Mexico, north-central: Lee, W. T., 6.
 Idaho: U. S. G. S., 10; Varley, 1.
 southeastern: Kirkham, 3.
 Illinois, Chicago region: Fryxell, 1.
 Lake Superior region: Winchell, A. N., 2.
 Missouri: Buehler, 9; Keyes, 181.
 Nebraska, Sioux County, Agate anticline: Schramm, 2.
 New Mexico: Darton, 26.
 Ohio: U. S. G. S., 9.
 Oregon, western: Harrison & Eaton, 1.
 Willamette Valley, Oregon: Smith, W. D., 11.
 Quebec, Beauceville area: MacKay, B. R., 4.
 Rocky Mountain region: Butler, 4.
 South Dakota, Custer State Park: O'Harra, 5.

Relief maps—Continued.

- Tennessee: U. S. G. S., 18.
 eastern: Stose, 17.
 United States: Lobeck, 4; Meinzer, 6.
 Virginia: Stose, 16.
 Washington: Leighton, 1; Patty, 3.
 Wisconsin, southwestern: Blanchard, W. O., 1.
 Relief models and their construction: Reeves, J. R., 8.
 Replacement and recrystallization mechanism: Fairbanks, 6.
 Replacement of aluminous rocks: Dougherty, 5.
 Reptilia.
 Alamosaurus, Ojo Alamo formation, New Mexico: Gilmore, 17.
 Alberta: Parks, W. A., 1.
 Cretaceous Dinosauria: Gilmore, 21; Parks, 16, 21.
 Red Deer River: Sternberg, C. H., 2.
 Albertosaurus arctungus, Edmonton formation, Alberta: Parks, 30.
 Alligator, Snake Creek beds, Nebraska: Mook, 5.
 Allognathosuchus, Wyoming: Abel, 6; Case, 19; Mook, 2.
 Amphicoelias: Osborn, 5, 10.
 Antrodemus: Gilmore, 7.
 Apatodonosaurus, Jurassic, Wyoming: Mehl, 19.
 Arrhinoceratops, Alberta: Parks, 20.
 Aspideretes, Belly River Cretaceous, Alberta: Gilmore, 19.
 Barosaurus: Lull, 2; Wieland, 5.
 Brachyceratops: Gilmore, 14.
 California, Mohave Desert: Merriam, J. C., 1.
 Camarasaurus: Gregory, W. K., 5; Osborn, 5, 6, 8, 10.
 Dinosaur National Monument, Utah: Gilmore, 24.
 Centrosaurus apertus, Belly River beds: Parks, 5.
 Ceratopsia: Gilmore, 16.
 carriage and use of head: Tait, 1.
 skull: Sternberg, C. M., 9.
 Ceratosaurus: Gilmore, 7.
 Champsosaurus albertensis, Edmonton formation, Alberta: Parks, 29.
 Chasmosaurus belli, integument: Sternberg, C. M., 4.
 Chelys, shell: Hay, 46.
 Classification: Broom, 1.
 Coelophysis, Texas: Case, 21, 22.
 Connecticut, North Branford, footprints: Lull, 19.
 Corythosaurus, Red Deer River, Alberta: Gilmore, 13; Parks, 10.
 Cotylosaur, Triassic, western Texas: Case, 26, 27.
 Crocodile, vertebrae, mechanics: Troxell, 25.
 Bridger beds: Mook, 3; Troxell, 26.
 Mesozoic: Mook, 8.
 Wasatch beds, Wyoming: Mook, 6.

Reptilia—Continued.

- Crocodylus acer, Manti beds, Utah: Mook, 4.
- Deinodontidae, Cretaceous, Alberta: Matthew, 23, 27.
- Desmotosuchus, Dockum beds, Texas: Case, 8, 12.
- Dimetrodon: Romer, 8.
skull features: Case, 14.
- Dimetrodon gigas: Gilmore, 3.
- Dinosaur, Edmonton formation, Alberta: Sternberg, E. M., 10.
ornithomimid, Arundel formation, Maryland: Gilmore, 5.
- Dinosaur feed: Wieland, 18.
- Dinosaur group, National Museum of Canada: Sternberg, C. M., 8.
- Dinosaur National Monument, Utah: Gilmore, 23-25.
- Dinosaur tracks, Cretaceous, Utah and Colorado: Peterson, W., 1.
Hamilton County, Texas: Wrather, 5.
- Dinosauria: McKelvey, 1; Sternberg, C. M., 2; Matthew, 13; Alberta: Parks, 24.
Belly River formation, Alberta: Gilmore, 18; Parks, 13.
carnivorous: Gilmore, 7.
Coahuila, Mexico: Janensch, 1.
evolution: Matthew, 4.
extinction: Wieland, 20.
Red Deer region, Alberta: Sternberg, C. H., 1; Tyrrell, 6.
- Dinosaurian climatic response: Lull, 15.
- Dromaeosaurus, Alberta: Matthew, 23.
- Dromatherium and Microconodon: Simpson, G. G., 5, 10.
- Dromopus? woodworthi: Lull, 5.
- Dyoplosaurus acutosquameus, Alberta: Parks, 12.
- Edmontosaurus, Alberta: Lambe, 1.
- Environmental conditions of Permian vertebrates: Case, 15.
- Eosuchia, structure: Broom, 2.
- Gavialosuchus americana, Florida: Mook, 1, 7.
- General: Ballou, 1.
- Globidens, Mississippi: Gilmore, 34.
- Histological nature of ossified tendons in dinosaurs: Moodie, 28.
- Hoplosuchus, Morrison formation, Utah: Gilmore, 28.
- Hyposaurus: Troxell, 27.
- Hypsognathus, Triassic, New Jersey: Gilmore, 39.
- Ichthyosaurian, Cretaceous, Oregon: Merriam, 27.
- Ilium in dinosaurs and birds: Romer, 1.
- Kansas, Niobrara group: Wiman, 1.
- Kritosaurus, Belly River formation: Parks, W. A., 2, 3.
- Laosaurus, Cretaceous, Alberta: Gilmore, 20.

Reptilia—Continued.

- Lizards, North America: Gilmore, 38.
- Maryland, Arundel formation: Gilmore, 8.
- New Mexico, San Juan County, Eocene and Upper Cretaceous: Gilmore, 4.
- Nodosaurus textilis: Lull, 6.
- Ophiacodont reptile, Permian, Kansas: Romer, 4.
- Oregon, marine Cretaceous, ichthyosaurian: Merriam, 27.
- Osteology: Williston, 1.
- Palaeoscincus: Matthew, 22.
- Paleopathology, Mesozoic: Moodie, 15.
- Panoplosaurus, Belly River beds, Alberta: Lambe, 2; Sternberg, C. M., 1.
- Parasaurolophus, Red Deer River: Parks, 7.
- Pareiazauroldes, West Virginia: Lull, 16.
- Peltosaurus, Oligocene, Nebraska: Gilmore, 29.
- Pennsylvania, Triassic: Huene, 1.
- Pentaceratops, New Mexico: Osborn, 28.
- Phytosauria: Moodie, 19.
brain: Mehl, 11.
Pseudopalatus pristinus, Arizona: Mehl, 18.
- Triassic, New Mexico: Mehl, 9; Texas: Case, 6, 24.
secondary palate: Mehl, 12.
- Primitive reptilian skull: Case, 14.
- Prosaurolophus maximus, Alberta: Parks, 12.
- Pterodactyls: Matthew, 7.
- Pterosaurian, Cretaceous, Oregon: Gilmore, 40.
- Restorations: Gilmore, 6.
- Saniwa, Bridger beds, Wyoming: Gilmore, 13.
- Saurischian dinosaurs, pelvic musculature: Romer, 2.
- Sauropod dinosaur, San Juan Basin, New Mexico: Gilmore, 12.
- Seymouria, Texas: Romer, 11.
- South Carolina, Oligocene sea turtles: Hay, 19.
- Stelemys nebrascensis, Wyoming: Case, 18.
- Stephanosaurus, crested dinosaur: Parks, 11.
- Stephanospondylus: Romer, 5.
- Struthiomimus, habits: Nopcsa, 1.
- Struthiomimus brevetertius, Edmonton formation, Alberta: Parks, 19.
- Struthiomimus samueli, Belly River formation, Alberta: Parks, 33.
- Stylemys nebrascensis, South Dakota: Case, 4.
- Styracosaurus, Alberta: Gilmore, 9.
- Terrapene, Florida: Gilmore, 30.
- Terrestrial Rhynchocephalia: Simpson, G. G., 12.
- Testudo sellardsi, Florida: Loomis, 17.

Reptilia—Continued.

- Texas, Permo-Carboniferous red beds:
 Romer, 13.
 tortoises: Hay, 18.
 Triassic: Case, 16.
 western, Upper Triassic: Case, 11.
 Thecodontia: Huene, 2.
 Thescelosaurus warreni, Edmonton
 formation, Alberta: Parks, 26.
 Thespesius, Lance formation, Sas-
 katchewan: Sternberg, C. M., 5.
 Thoracosaurus: Troxell, 28.
 Triceratops: Gilmore, 1.
 Troodon validus, Belly River forma-
 tion, Alberta: Gilmore, 22.
 Turtles: Gilmore, 2.
 Amyda nelsoni, Eocene, Wyoming:
 Case, 23.
 armor: Hay, 46.
 Kinosternon arizonense: Gilmore,
 15.
 Tylosaurus, western Kansas: Gil-
 more, 11.
 Uintasaurus, Utah: Holland, W. J., 2.
 Utah, dinosaur footprints: Anon., 51.
 West Virginia, Permian vertebrates:
 Tilton, 10.
 Wyoming, Triassic: Branson, 19;
 Phartosauria: Mehl, 19.
 Resin, fossil: Steele, 1.
 Restorations.
 Aletomeryx: Lull, 4.
 Anchitherium agatense: Romer, 6.
 Antrodemus: Gilmore, 7.
 Blastomeryx marshi: Lull, 10.
 Bracheosaurus: McKelvey, 1.
 Brachyceratops: Gilmore, 4.
 Camarasaurus: Osborn, 6, 10.
 Dinosaur National Monument, Utah:
 Gilmore, 24.
 Ceratosaurus: Gilmore, 7.
 Daphoenus, Sioux County, Nebraska:
 Thorpe, 20.
 Dimetrodon: Romer, 8.
 Dimetrodon gigas: Gilmore, 3.
 Dolichorhinus: Peterson, 7.
 Elephants: Osborn, 35.
 Eospermatopteris: Goldring, 5.
 Eporeodon: Thorpe, 8, 16.
 Eusthenopteron: Bryant, 1.
 Fishes, Miocene, California: Jordan,
 5, 6, 15; Anon., 17.
 Niobrara: Jordan, 14.
 Helderberg fauna: Clarke, J. M., 5.
 Hoplosuchus, Morrison formation,
 Utah: Gilmore, 28.
 Horses: Gidley, 10.
 Hyrachyus: Troxell, 17.
 Hyracodon apertus: Sinclair, 6.
 Mammalia, Black Hills region:
 O'Hara, 3.
 Mastodon: Clarke, J. M., 23; Osborn,
 27, 35.
 Cohoes, New York: Clarke, N. T., 2.
 Merychyus, Peterson, 5.

Restorations—Continued.

- Merycododon, Sioux County, Nebraska:
 Thorpe, 20, 26.
 Methods and examples: Abel, 1.
 Mylodon: Stock, 13.
 Nothrotherium: Stock, 13.
 Palaeoscincus: Matthew, 22.
 Parasaurolophus: Parks, 7.
 Plants: Berry, 14.
 Prosaurolophus maximus, Alberta:
 Parks, 12.
 Pterodactyls: Matthew, 7.
 Quaternary vertebrates: Osborn, 9.
 Reptilia: Gilmore, 6; Williston, 1.
 Seymouria, Texas: Romer, 11.
 Sparganium antiquum: Berry, 61.
 Struthiomimus: Nopsa, 1.
 Styracosaurus, Alberta: Gilmore, 9.
 Triceratops: Gilmore, 1, 16.
 Trilobite, ventral surface: Raymond, 8.
 Troodon validus: Gilmore, 22.
 Tylosaurus, western Kansas: Gil-
 more, 11.
 Tyrannosaurus, pelvic musculature:
 Romer, 2.
 Vertebrates: Lucas, F. A., 1.
 Reynosa formation, lower Rio Grande re-
 gion: Trowbridge, 11.
 Rhizocretions: Kindle, 36.
 Rhode Island.
Economic geology.
 General: Thomas, K., 1.
 Granite: Dale, T. N., 4.
Historical geology.
 Dighton conglomerate, origin: Per-
 kins, E. H., 1.
 Narragansett Basin: Round, 5.
Mineralogy.
 Apatite, South Foster: Hawkins, A.
 C., 2.
 Epidote, Pascoag: Hawkins, A. C., 2.
 Hematite, Manton: Hawkins, A. C., 2.
 Mineral localities: Fisher, L. W., 4.
 Providence County: Fisher, L. W., 2.
 Veins of fibrous quartz and chlorite:
 Richards, G., 1.
Palaeontology.
 Annularia with Paleostachya fruit:
 Round, 3.
 Coal floras, Narragansett Basin:
 Round, 5.
 Crossothea, Carboniferous: Round, 1.
 Flora, Carboniferous: Round, 4.
Physiographic geology.
 Postglacial river changes: Brown, C.
 W., 2.
 Postglacial uplift: Fairchild, 7.
 Rice Lake area, southeastern Manitoba:
 Wright, J. F., 3.
 Richfield oil field, California: Musser, 3.
 Riddle quadrangle, Oregon: Diller, 12.
 Rigidity of the earth: Michelson, 1.
 Ripple marks: Bucher, 1; Kindle, 20; lit-
 erature: Kindle, 28.
 River capture. See Stream capture.
 River pebbles: Wentworth, 8.

Rivers.

- Arid regions: Keyes, 122.
 - Colorado River: Pack, 5; Waldorf, 1.
 - Dallas type of river channel: Bretz, 7.
 - Fraser River: Johnston, W. A., 8.
 - Glacial diversion of the Missouri River: Todd, J. E., 6.
 - Gunnison River, Colorado, course: Branson, 7.
 - Intercision, Pike River, Wisconsin: Ball, J. R., 1.
 - Missouri River: Greene, 2; channel, age: Todd, J. E., 5.
 - Ohio River, genesis: Fowke, 1.
 - Physiographic features: Hill, R. T., 7.
 - Quebec, Gaspé: Alcock, 27.
 - Recessional streams of arid regions: Keyes, 168.
 - Red River, Oklahoma-Texas: Hill, R. T., 7; Sellards, 17, 18; Tex., Atty. Gen., 1.
 - Red River of the North: Wallace, 17.
 - Sand rivers: Hill, R. T., 6.
 - Scenery, origin: Johnson, D. W., 3.
 - South Canadian River near Norman, Oklahoma: Evans, O. F., 3.
 - Susquehanna River: Fairchild, 16.
 - Tennessee River: Adams, G. I., 5.
 - Underground rivers: Reeds, 16.
- Road materials.
- Arkansas: Branner, J. C., 2.
 - General: Bean, 1.
 - Kentucky: Richardson, C. H., 9.
 - Mississippi: Lowe, 4.
 - New Hampshire: Goldthwait, 3.
 - New Brunswick: Picher, 3.
 - Nova Scotia: Picher, 3.
 - Oklahoma, western: Evans, O. F., 7.
 - Ontario, eastern: Picher, 2, 4.
 - Quebec, Montreal district: Gauthier, 1.
 - Vaudreuil County: Picher, 1.
 - Saskatchewan, Regina area: Reinecke, 1.
 - Texas: Nash, 1.
 - Washington: Leighton, M. M., 1.
 - Wisconsin: Bean, 2.
- Robberson field, Garvin County, Oklahoma: Denison, A. R., 1.
 - Rochester district, Nevada, geology and ore deposits: Knopf, A., 7.
 - Rochester quadrangle, Vermont: Foye, 1.
 - Rock classification for engineering: Pirsson, 1; Smith, W. D., 2.
 - Rock distortion in Oklahoma oil fields: Gardner, J. H., 1.
 - Rock glaciers, Utah, La Sal Mountains: Gould, L. M., 4.
 - Rock oil, origin: Singewald, Q. D., 1.
 - Rock pressure: Heroy, 1.
 - Rock products and the war: Loughlin, 3.
 - Rock rivers: Bailey, V., 1.
 - Rock slides. See Landslides.
 - Rock tanks, Arizona, Papago country: Bryan, 15.
 - and charcos, origin: Bryan 5.

Rock-forming minerals, microscopical determination in sections: Johannsen, 6.

Rocks, structural features. See also Igneous and volcanic rocks; Sedimentary rocks.

Cone-in-cone: Tarr, 11.

Coquina, Florida; Brodie, 1.

Crystalline schists, origin: Keyes, 22.

Ice crystals, fossil: Udden, J. A., 1.

Imbricated structure in river gravels: Johnston, W. A., 16.

Intraformational corrugated rocks: Miller, W. J., 17.

Mud cracks on steeply inclined surfaces: MacCarthy, 1.

Ripple marks: Bucher, 1.

Rock distortion in Oklahoma oil fields: Gardner, J. H., 1.

Strand markings in Pennsylvania sandstones, Osage County: Powers, 6.

Zircon as a criterion of origin of metamorphosed rocks: Armstrong, P., 2.

Rocks and rock minerals: Pirsson, 6.

Rocky Bar district, Idaho: Schrader, 7.

Rocky Mountain structure: Flint, R. F., 1.

Romance of geology: Mills, E. A., 1.

Rotational velocity of earth and its geological effects: Daly, 14.

Rounding of sand grains by solution: Galloway, J. J., 2.

Rouyn area, Timiskaming County, Quebec: James, W. F., 2.

Roxbury, Vermont, terranes: Richardson, C. H., 3.

Rubidium: Landes, K. K., 7.

Rutile.

Florida, beach deposits: Martens, 9.

Sabine uplift, Louisiana: Powers, 2.

Sacramento Valley, California: Bryan, 10.

St. Bartholomew.

Tertiary calcareous Algae: Howe, M. A., 1.

St. Croix Island, geology: Vaughan, 11.

St. Kitts, geology: Earle, 6.

St. Lucia: Earle, 2, 4, 5.

St. Maries region, Idaho: Anderson, A. L., 4.

St. Peter sandstone: Dake, 6, 8.

complexity: Keyes, 50.

derivation: Dake, 7.

St. Vincent: Earle, 7.

St. Vincent and neighboring Grenadines, geology: Earle, 9, 10.

Salado arch, Nuevo Leon and Tamaulipas, Mexico: Jones, R. A., 3.

Salina Canyon district, Sevier County, Utah: Spieker, 6.

Saline domes. See Salt domes.

Saline lakes, Mohave Desert: Foshag, 24.

Salmon River district, British Columbia: O'Neill, 4; Schofield, 11.

Salt.

Canada: Cole, L. H., 2, 3.

Deposition, principles: Grabau, 9.

General: Stone, 5, 14.

Salt—Continued.

- Gulf coast salt domes: Wolf, 1; secondary intrusive origin: Matteson, 2.
 Louisiana, Five Islands: Vaughan, F. E., 2.
 interior salt domes: Spooner, 2.
 Mexico, Colima, Cuyutlan area: Paredes, 3.
 Puebla: Wittich, 28.
 New York: Alling, 14; Newland, 2.
 Nova Scotia, Malagash: Chambers, 1; Cole, L. H., 1, 3; Ellsworth, 9; Hayes, 2, 5; Moffatt, 1.
 Oklahoma: Gould, C. N., 29.
 Origin: Phalen, 1.
 New York: Alling, 14.
 Permian deposits, south central United States: Darton, 8.
 United States: Phalen, 1.

Salt domes.

- Colorado, western: Harrison, T. S., 3.
 Economic importance: Barton, 17.
 Formation: Lajous, 3.
 General: Barton, 9; Brantley, 1; DeGolyer, 7; Wolf, 1.
 Geology of salt dome oil fields: DeGolyer, 17.
 Gulf Coastal Plain: Stephenson, 16.
 Gypsum in Gulf salt domes: Barton, 3.
 Louisiana: Thacker, 1.
 Bayou Bouillon salt dome, St. Martin Parish: Donoghue, 2.
 Five Islands: Vaughan, F. E., 2.
 interior salt domes: Spooner, 2.
 Many salt dome, Sabine Parish: Howe, H. V. W., 7.
 Pine Prairie salt dome: Barton, 7.
 Prothro salt dome, Bienville Parish: Hull, 13.
 Section 28 salt dome, St Martin Parish: Donoghue, 3.
 Sulphur salt dome: Kelley, 1.
 Vinton salt dome, Calcasieu Parish: Thompson, S. A., 1.
 Mexico, Tampaulipas, Chapeño salt dome: Belt, 1.
 Tehuantepec Isthmus: Ver Wiebe, 2, 5, 7.
 Origin: Barton, 2, 4; DeGolyer, 14, 15; Hixon, 1; Powers, 12; Pratt, W. E., 4; Rogers, G. S., 4; Wolf, 1, 4.
 by isostatic adjustment: Albertson, 1.
 secondary intrusive: Matteson, 2.
 experimental study: Torrey, P. D., 1.
 intrusive origin, Gulf coast: Rogers, G. S., 3.
 volcanic origin theory: DeGolyer, 2.
 Potash salts and algae in deep boring: DeGolyer, 14.
 Salt cores, origin: Washburne, 3, 4.
 Salt dome waters: Minor, 1.
 Stratigraphy, Gulf Coastal Plain: Shaw, 4.
 Structure: Lucas, A. F., 1.

Salt domes—Continued.

- Texas: Ellisor, 3; Jones, R. A., 6; Renick, 12.
 Barbers Hill oil field, Chambers County: Bevier, 2.
 Batson oil field, Hardin County: Sawtelle, 1.
 Big Hill salt dome, Jefferson County: Hanley, 1.
 Big Hill salt dome, Matagorda County: Wolf, 5.
 Blue Ridge salt dome, Fort Bend County: Hager, D. S., 2.
 Bryan Heights salt dome: Kennedy, 1.
 Butler salt dome: Powers, 3.
 Damon Mound oil field: Bevier, 1.
 Fort Bend County: Pratt, W. E., 5.
 Hockley dome, Harris County: Chapman, 1; Deussen, 2.
 interior salt domes: Powers, 17.
 Lost Lake salt dome: Wasson, 1.
 Moss Bluff and Boggy Creek domes: Pratt, 14.
 northeastern: Cheney, C. A., 1.
 Palangana salt dome: Barton, 1.
 Saratoga oil field: Suman, 1.
 South Dayton salt dome: Bowman, 1.
 southern: Barton, 4.
 Spindletop salt dome: Barton, 5.
 Stratton Ridge salt dome: Applin, P. L., 1.
 West Point salt dome: DeGolyer, 1.
 Utah, southeastern: Harrison, T. S., 3; Prommel, 2.
 Salt dome cap rock, petrography: Goldman, 12.
 Salterella, nature: Clark, T. H., 5, 12.
 Salton Sea region, California: Brown, J. S., 3.
 Salts, natural: Grabau, 9.
 Salvador.
 General: Larde, 3.
Physical geology.
 Earthquake, September 6, 1915: Larde, 1.
 Izcalco Volcano: Heim, 4; Larde, 2, 4; eruption, November, 1926: Bock, 1.
 San Salvador, eruption: Friedlander, 1.
 Samplegraph: Gardner, J. H., 7.
 Sand. See also Glass sand; Silica.
 Florida: Martens, 8.
 General: Stone, 3, 7, 12; Teas, 1; Weigel, 2.
 Georgia: Teas, 1.
 Indiana, molding sand: Hole, 1.
 Minnesota: Knapp, G. N., 1.
 Missouri: Dake, 1.
 Nebraska: Condra, 1.
 Nova Scotia, Melford, Cape Breton Island: Guernsey, 1.
 Ontario: Ledoux, A., 1.
 northern: Keele, 3, 4.
 South Dakota, eastern: Rothrock, 1.
 Minnehaha County: Rothrock, 5.
 Yankton County: Rothrock, 3.

Sand—Continued.

- Texas, Trinity River district: Shaw, E., 1.
 Wisconsin, molding sands: Trainer, 3.
 Sand chrome ore, Maryland: Singewald, 2.
 Sand dunes, Lake Michigan: Parkins, 1.
 Sand grains, measuring roundness: Cox, E. P., 1.
 Rate of wear; Anderson, G. E., 1.
 Rounding: Anderson, G. E., 3; by sea urchins: Kindle, 2; by solution: Galloway, J. J., 2.
 Study of: Galloway, J. J., 3.

Sandstone.

- Cementation in sandstone: Johnson, R. H., 1.
 Structure and origin: Galloway, J. J., 3.
 Sandstone dikes, South Dakota: Lawler, 1.
 San Gabriel Mountains, California, southwestern, geomorphology: Miller, W. J., 33.
 San Juan Canyon, southeastern Utah: Miser, 14, 17.
 San Lorenzo group, San Emigdio region, California: Wagner, C. M., 1.
 San Marcos quadrangle, Texas: Brucks, 2.
 San Onofre breccia, California: Woodford, 3.
 Santa Fe district, Mineral County, Nevada: Clark, C. W., 2.
 Santo Domingo. See Dominican Republic.
 Sapphires, Montana: Harstad, 1.

Saskatchewan.

Areas described.

- Eastend area, Cypress Hills: McLearn, 16.
 Flinflon area: Alcock, 15.
 Riverhurst district: Warren, 5.
 Wapawekka and Deschambault lakes area: DeLury, 6.

Economic geology.

- Carbon ratios: Jones, I. W., 1.
 Cretaceous shale: Ellis, 2.
 Flinflon ore body: Wallace, 5.
 Iron, Lake Athabaska: Allan, 10.
 Lignites: Lee, R. J., 1; MacLean, 1.
 Northern Saskatchewan: Bruce, 13.
 Oil exploration, Pasquia Hills: Wallace, 6.
 Oil prospecting: Dowling, 8; Ness, 1.
 Oil prospects, Battle River: Hume, 20.
 Road materials, Regina area: Reinecke, 1.
 Sodium and magnesium salts: Cole, L. H., 10.
 Souris coal field: Dowling, 11.
 Southeastern Saskatchewan: Stansfield, J., 1.
 The Pas mineral belt: Alcock, 18.
 Volcanic ash near Waldeck: Cole, L. H., 8.

Historical geology.

- Athabaska series: Alcock, 5.
 Battle River: Hume, 20.
 Borings: Dowling, 3.
 Correlation: Dowling, 2.

Saskatchewan—Continued.

Historical geology—Continued.

- Lance formation, southern Saskatchewan: Sternberg, C. M., 3.
 Northern Cordilleran geosyncline: Fisher, C. A., 2.
 Pasquia Hills: Wallace, 6.
 Southern Saskatchewan: Dyer, 10; Sheppard, 1.
 Surface deposits, southeastern Saskatchewan: Stansfield, J., 1.

Mineralogy.

- Annahme meteorite: Johnston, R. A., 1.
 Heavy minerals in sand horizons: Wallace, 23.

Petrology.

- Norite rocks, Lake Athabaska region: Alcock, 7.
 Eastend area, Cypress Hills: Fraser, 2.

Paleontology.

- Neomeryx finni, Dundurn: Parks, 22.
 Thespesius, Lance formation: Sternberg, C. M., 5.

Physical geology.

- Banded precipitates of vivianite in fire clay, Claybank: Stansfield, 3.
 Corrosion by saline waters, Senlac Lake: Rutherford, 1.

Physiographic geology.

- Lake Athabaska, origin: Alcock, 6.

Saratoga oil field, Hardin County, Texas: Suman, 1.

Sault Ste. Marie area, District of Algoma, Ontario: McConnell, 1.

Saunders Creek and Nordegg coal basins, Alberta: Allan, 9.

Sayre oil and gas field, Beckham County, Oklahoma: Birk, 1.

Scablands of Columbia Plateau, Washington: Bretz, 6.

Scaphopoda, Trinidad, Miocene: Mansfield, W. C., 2.

Schwagerina: Beede, 9.

Scobey lignite field, Valley, Daniels, and Sheridan counties, Montana: Collier, 9.

Scree, Triassic, Connecticut Valley: Reynolds, 1.

Seasonal deposition in aqueo-glacial sediments: Sayles, 1.

Seasonal records of geologic time: Reeds, 4.

Secondary enrichment. See Ore deposits, origin.

Section 28 salt dome, St. Martin Parish, Louisiana: Donoghue, 3.

Sedimentary ripples: Bucher, 1.

Sedimentary rocks. See also Petrology.

Algonkian sediments, quantitative study: Trowbridge, 4.

Analysis of sediments: Trowbridge, 10.
 Arbuckle limestone, Oklahoma: Decker, 8.

Banded clays: Sayles, 1.

Sedimentary rocks—Continued.

- Basal glauconite and phosphate beds: Goldman, 10.
- Bend and Ellenburger limestones, Texas, microscopic characteristics: Udden, 4, 23.
- Bend series sediments: Waite, 1.
- Black shale formation: Goldman, 11.
- Boring, Palo Pinto County, Texas: Goldman, 8.
- Caliche, formation: Udden, 16.
- California, Sespe formation, origin: Gianella, 1.
- South Mountain, Sespe formation: Reinhart, 1.
- Ventura quadrangle, Pico formation: Cartwright, L. D., 2.
- Chester series limestones, sedimentary analysis: Lamar, 7.
- Classification: Field, 5.
- Clastic sediments, nomenclature: MacKenzie, 6.
- Color chart: Goldman, 15.
- Colors produced by iron in minerals and the sediments: MacCarthy, 5.
- Contact of Ellenburger and Boone limestones, Texas: Goldman, 16.
- Continental: Keyes, 174.
- Correlative value of heavy minerals: Tickell, 1.
- Description and nomenclature: Tieje, 2.
- Desert sedimentary deposits: Blackwelder, 26.
- Dighton conglomerate, origin: Perkins, E. H., 1.
- Examination of well cuttings: Trager, 1.
- Feldspars: Carlson, 1.
- Glacial sediments: Leighton, 22.
- Glauconite: Schneider, 3.
- association with unconformities: Goldman, 7.
- Gravitational compaction, effect on sedimentary rocks: Hedberg, 1, 2; Rubey, 8; Straub, 1.
- Green River formation, Wyoming, shore phases: Bradley, W. H., 5.
- Green River shales: Bradley, W. H., 3.
- Illinois, St. Peter sandstone: Lamar, 1.
- Iron sulphide in coal and other sedimentary rocks: Newhouse, 3.
- Kansas, Woodson County: Twenhofel, 8.
- Laminated anhydrite, Texas: Udden, 13.
- Limestones: Howell, J. V., 3; nomenclature: Kindle, 23.
- Lithologic correlation: Goldman, 5.
- Marlite balls: Kindle, 22.
- Michigan, Sulphur Island: Ehlers, 8.
- Microscopic structure of rocks: Lamar, 2.
- New York, middle Portage rocks, sedimentation conditions: Sheldon, 5.

Sedimentary rocks—Continued.

- Oklahoma, Carter County boring: Roth, 2.
- Ordovician and Mississippian limestones, petrology at their contact in Texas: Goldman, 14.
- Organic material of carbonaceous shales: Rae, 2.
- Oriskany sandstone with celestite cement: Stow, 1.
- Paleozoic altered volcanic materials: Ross, C. S., 21.
- Petrographic characters: Alling, 2.
- Pyroclastic rocks: Wentworth, 22.
- Quantitative determination of rock color: Grawe, 3.
- Rancho La Brea tar beds, California, mode of accumulation: Gilbert, J. Z., 2.
- Red beds of Front Range of Colorado: Tieje, 3.
- Red color in sediments: Glock, 5; Raymond, 34.
- St. Peter sandstone, Illinois: Lamar, 9.
- Salina formation: Newland, 9.
- San Onofre breccia, California: Woodford, 3.
- Saskatchewan, Cypress Hills, Eastend area: Fraser, 2.
- Scale of hardness and cohesion: Kindle, 44.
- Schedule for field description: Goldman, 6, 9.
- Sedimentary materials, preparation for study: Ross, C. S., 18.
- Shale, fissility, and its relations to petroleum: Lewis, 9.
- Shoestring sands, origin: Rich, 6.
- Siliceous shale formation: Reed, R. D., 13.
- South Carolina, white clays: Neumann, F. R., 2.
- Stratification and time relations: Udden, 11.
- Study and correlation by petrographic methods: Milner, 3.
- Subaerial sun cracks: Schwartz, J. H., 8.
- Terms for clastic sediments: Wentworth, 9.
- Terrestrial: Keyes, 174.
- Texas, characteristics: Udden, 12.
- Till and stratified clay, microscopic sections: Sayles, 4.
- Triassic: Roberts, J. K., 8.
- Varve materials and banded rocks: Wallace, 20.
- Varved glacial clay, conditions of formation: Antevs, 9.
- Varved glacial deposits: Antevs, 6, 18.
- Varves, formation: Fraser, H. J., 1.
- Verden sandstone, Oklahoma: Reed, 3.
- Weight: Lane, 10.
- White River beds: Wanless, 1.
- Wyoming, Cambrian: Tieje, 2.

Sedimentation. See also Conglomerate; Erosion.

Abstraction of potassium during sedimentation: Watson, J. W., 1.

Algal deposits: Twenhofel, 3.

Algae as limestone makers and climatic indicators: Glock, 3.

Alberta, Lake Louise: Johnston, W. A., 15.

Arctic ice, distribution of sediments by: Kindle, 27.

Arizona, Papago country: Bryan, 7.

Atlantic coast sediments: Kindle, 34.

Bacterial agencies: Thiel, 13.

Bacterial deposition: Breger, 1; Parry, 1.

Bahama Bank: Field, 9.

Bahamas, bottom samples: Vaughan, 19.

Barrell's work on sedimentation: Vaughan, 20.

Bay of Fundy: Kindle, 42.

California, San Francisco Bay: Louderback, 1.

Chemical researches on sediments: Merwin, 4.

Chemical studies: Steiger, 1.

Chemical and physical researches: Wells, 6.

Chemistry: Clarke, F. W., 2.

Climatic conditions when coal beds were formed: Brown, T. C., 2.

Coarse sediments: Wentworth, 40.

Colloidal products of rock weathering, distribution: Wallace, 9.

Committee on sedimentation, report; Twenhofel, 34.

work of: Vaughan, 15.

Cycles in glacial and postglacial deposits: Antevs, 3.

Detrital constituents in a reef sand, Bahamas: Goldman, 17.

Diagenesis: Schuchert, 12.

Differential compression of sediments: Mehl, 7.

Fraser River delta, British Columbia: Johnston, W. A., 8, 9, 12.

Gabilan Mesa, Coast Ranges, California, soil deposition: Reed, R. D., 10.

General: Clements, 1; Louderback, 1; Shaw, 5, 7; Twenhofel, 16, 18, 22, 29; Vaughan, 10, 33.

Inequalities of sedimentation: Kindle, 3.

Investigation of marine sediments: Vaughan, 25.

Iowa, status of sedimentation studies: Trowbridge, 8.

Jaundiced snow: Keyes, 227.

Lake Huron winter beach forms: Littlefield, 1.

Lake Ontario, bottom deposits: Kindle, 35.

Marine sediments: Field, 8.

Marl deposition: Kindle, 45.

Sedimentation—Continued.

Mechanical analysis:—Fraser, 2; Wentworth, 27; accuracy: Wentworth, 32.

Minerals deposited by bacteria in mine waters: Parry, 1.

Mississippi River, Davenport to Cairo: Lugn, 7.

Oklahoma, Red River: Evans, O. F., 1.

Ontario, Cobalt Lake: Albertson, 1.

McKay Lake, bottom deposits: Whittaker, 4.

Organic material of carbonaceous shales: Washburne, 5.

Red River of the North: Wallace, 17.

Research in sedimentation: Twenhofel, 28.

Ripple marks: Bucher, 1.

Sand grains, study of: Galloway, J. J., 3.

Sediment, collecting samples from Mississippi River: Lugn, 2.

Sedimentary processes on volcanic islands: Wentworth, 24.

Sediments and climate: Vaughan, 24.

Sediments carried out by Mississippi River: Trowbridge, 12.

Soil studies: Bennett, 2.

Source beds of petroleum: Trask, 10.

Stream aggradation through irrigation: Reagan, 10.

Studies: Posnjak, 2; in universities: Moore, E. S., 3; Twenhofel, 10.

on organic nature of sediments: Trask, 8.

Submarine denudation: Bucher, 12.

Thermal stratification of water in lacustrine sedimentation: Kindle, 45.

Treatise on: Twenhofel, 21.

Types of sediments, Pacific Islands: Wentworth, 33.

Utah, debris of desert torrents: Pack, 6.

Variation in sediments: Twenhofel, 12.

Seismology. See also Earthquakes.

Aleutian Islands: Neumann, 7.

Apparatus for seismic measurements: Kirkpatrick, P., 2.

Azimuth determination in earthquakes: Urrutia, 1.

Berchmans seismograph: Neumann, E. M. S., 1.

Bibliography: Hodgson, 16; Seism. Soc. Am., 1.

California: Willis, 34.

Lassen Peak Observatory: Finch, R. H., 9.

seismic forces: Willis, 30.

seismological investigation: Day, 8.

Coast and Geodetic Survey, seismological work: Heck, 3.

Canada: Hodgson, 11.

Seismology—Continued.

- Committee on seismology, report: Day, 8.
- Cooperation in seismology: Day, 13.
- Depth and twofold character of earthquake origins: Oldham, 1.
- Depth of focus of recent earthquakes in California: Byerly, 3.
- Difficulties in study of local earth movements: Day, 21.
- Dispersion of energy without dispersion of frequencies in transverse elastic waves in the earth: Byerly, 9.
- Earthquake frequency: Cotton, 1.
- Earthquake records made by well recorders: Stearns, H. T., 13.
- Earthquake rifts, aerial observation: Willis, 7.
- Earthquake shock in alluvial areas: Vickery, 2.
- Earthquake waves, analysis: Klotz, 2.
- Earthquake zones of the Pacific: Omori, 1.
- Earthquakes and isostasy: Bowie, 25.
- Epicenters: Davis, W., 4.
 - determining: Neumann, F., 1.
 - locating the epicenter of an earthquake: Makemson, 1.
 - location: Doherty, 12.
- Forecasting of earthquakes: Rickard, 6.
- General: Day, 14, 19, 22, 24; Jones, E. L., 1; Macelwane, 1; Townley, 1; Vaughan, 43; Willis, 29.
- Geologic theory of earthquakes: Montessus de Ballore, 1.
- Greater Antilles seismic belt: Taber, 7.
- Hawaii, earthquake prediction: Finch, R. H., 4.
- Hawaiian lava column, seismometric investigation: Jaggard, 2.
- History: Tondorf, 9.
- Impact a cause of earthquake?: Macelwane, 15.
- Interior of the earth, nature: Adams, L. H., 1.
- Isosismal lines, construction and use: Davison, 1.
- Isostasy, relation to earthquakes: Bowie, 22.
- L waves, variable velocity: Hodgson, 2.
- Measurement of time on seismograms: Byerly, 8.
- Mexico: Muñoz Lumbler, 1.
- Milne-Shaw seismograph: McComb, 1.
- Minute cooling effect revealed by seismograph: Hodgson, 12.
- Monthly reports: Humphrey, 1.
- Moon's influence on earthquakes: Reid, H. F., 18.
- Piezo-electrical accelerograph: Wood, H. O., 3.
- Prediction of earthquakes: Keyes, 142.
- Problems: Heck, 7; Reid, 6.

Seismology—Continued.

- Progress of seismological investigations: Heck, 9.
- Propagation of earthquake waves: Williamson, 1.
- Record of surface waves: Reid, 10.
- Recording seismologic data at Ottawa: Hodgson, 6, 7.
- "Regional" and "world" seismology: Wood, H. O., 2.
- Report of advisory committee on seismology: Day, 7, 14, 19.
- Reports of earthquakes: Wood, H. O., 5.
- Scales of seismic intensity: Davison, 1.
- Seismic instruments and seismic service: Mohorovicic, 1.
- Seismic measurements by overthrow of columns: Kirkpatrick, P., 1.
- Seismic waves: Sogman, 13.
- Seismic waves and surface layers of the earth: Byerly, 14.
- Seismograms: Tondorf, 8; interpretation: Reid, H. F., 14.
- Seismograph, Chicago: Hibbard, F. N., 1.
 - long-period: Romberg, 1.
 - non tilt: Romberg, 2.
 - on a new principle: Morize, 1.
 - temperature control: Hodgson, 4.
- Seismograph and friction: Reid, 13.
- Seismographic stations: Macelwane, 17.
- Seismographs, influence of friction: Reid, 15.
- Seismological investigation: Day, 6.
- Seismological terms: Davison, 2.
- Seismological Society of America, eastern section: Anon., 56.
- work: Willis, 25.
- Seismological tables: Macelwane, 18.
- Seismological work, Canada: Hodgson, 13, 15.
- Carnegie Institution of Washington: Day, 23.
- Coast and Geodetic Survey: Heck, 11; Jones, E. L., 2.
- Jesuit Seismological Association: Macelwane, 21.
- Status and needs: Humphreys, 3.
- Status of seismological work: Klotz, 1, 3.
- Superficial factors in seismic and volcanic activity: Sayles, 20.
- Surface wave velocities in North America: Neumann, 8.
- Tables of earthquake waves reflected at a discontinuity of fifty kilometers: Byerly, 4.
- Torsion seismometer: Anderson, J. A., 1, 2.
- United States Weather Bureau investigation: Marvin, 1.
- Velocity of seismic waves: Byerly, 5.
- Selenium: Cahen, 1; occurrence: Lenher, 1.

- Self-compression of the earth: Chamberlin, T. C., 9.
- Seminole uplift, Oklahoma: Powers, 23.
- Septaria, Pennsylvanian shale, Missouri: Grawe, 2.
origin: Lugin, 1.
- Serpulites, hydrozoan affinities: Price, W. A., 3.
- Shaded topographic maps: Davis, 22.
- Shale.
- Fissility and its relations to petroleum: Lewis, 9; origin: Lewis, 9.
- Illinois, Colchester and Macomb quadrangles: Hinds, H., 1.
- Indiana: Logan, 19.
- Iowa: Galpin, 2.
- Kansas, Arkansas City: Teetor, 1.
- Michigan: Brown, G. G., 1.
- Minnesota: Grout, 1.
- Ontario: Keele, 8.
- Abitibi and Mattagami rivers: Keele, 2.
- South Dakota, Cretaceous shales, analytical examination: Waterman, 1.
- Virginia: Ries, 3.
- Washington: Wilson, H., 2.
- Shale oil: McKee, 1.
- Shapes of pebbles: Wentworth, 8.
- Shawangunk formation, age and origin: Willard, B., 3.
- Shingle: LaForge, 2.
- Shiningtree silver area, District of Timiskaming, Ontario: Langford, 1.
- Shore lines. See also Beaches; Terraces.
- Atlantic coast, shore line investigations: Johnson, D. W., 15.
- Changes affecting sea level: Johnson, D. W., 17.
- Development: Johnson, D. W., 1.
- General: Johnson, D. W., 1, 8.
- Michigan, Elsie and Perrinton quadrangles: Leverett, 2.
- New England-Acadian shore line: Johnson, D. W., 8.
- North Carolina, Cape Hatteras: Rude, 1.
- Ontario, Lake Erie, Point Pelee: Kindle, 11.
- Shore lines (abandoned). See also Glacial lakes; Terraces.
- Indiana, northwestern: Cressey, 1.
- Michigan, Saginaw basin: Leverett, 6.
- Shore processes: Johnson, D. W., 1.
- Shrinkage of the earth: Chamberlin, T. C., 4; Stille, 1.
- Silica.
- Canada, eastern: Cole, L. H., 5.
 western: Cole, L. H., 13.
- New York: Colony, 1.
- Pennsylvania: Moore, E. S., 6.
- Solution and precipitation in cold water: Lovering, 1.
- Silicification of erosion surfaces: Leith, 14; Tarr, 16.
- Sillimanite-schist inclusions in granite: Miller, W. J., 16.
- Silurian. See also Paleontology, Silurian.
For Lower Silurian see Ordovician.
- Acadia: Bailey, L. W., 2.
- Alabama: Butts, 8; Jones, W. B., 13.
Bessemer and Vandiver quadrangles: Butts, 13.
- Clinton formation: Aldrich, T. H., 2.
- Alaska, Chandalar district: Mertie, 12.
interior: Mertie, 13.
- Arctic regions, Ellesmere Land: Holte-dahl, 1.
- Arizona: Keyes, 83.
- Arkansas: Miser, 4, 7, 11.
Batesville district: Miser, 8.
Hot Springs district: Purdue, 1.
- British Columbia, Beaverfoot-Brisco-Stanford Range: Walcott, 9.
- Silurian tillite: Shepard, 1.
- Windermere area, Kootenay district: Walker, J. F., 1.
- Correlation: Alling, 14.
- General: Ulrich, 8; Weigel, 2.
- Georgia: McCallie, 1.
- Greenland, Bøggild, 1.
northwestern: Koch, 1.
northern: Koch, 4.
Peary Land: Koch, 3.
- Judson Bay area: Foerste, 22.
- Idaho, Fort Hall Indian Reservation: Mansfield, G. R., 3.
southeastern: Mansfield, 29.
- Illinois: Savage, 16.
Calhoun County: Lamar, 6.
Herscher quadrangle: Athy, 1.
Joliet quadrangle: Fisher, D. J., 2.
Mississippi Valley: Krey, 2.
Orchard Creek shale: Savage, 1.
- Indiana: Cumings, 1; Logan, 15.
Niagaran: Shrock, 2; Cumings, 3.
northern, coral reefs: Cumings, 3.
- Iowa, Lake Calvin region: Schoewe, 6.
- Kansas, Salina Basin: Barwick, 1.
- Kentucky: Miller, A. M., 1.
Allen County: Miller, A. M., 5;
Shaw, E. W., 1.
- Barren County: Butts, 2.
- Berea region: Burroughs, W. G., 5.
east central: Foerste, 14.
- Jephtha Knob: Bucher, 9.
- Knob region: Burroughs, W. G., 4.
- Monticello quadrangle: MacLachlan, 1.
- Little River group delta: Matthew, G. F., 1.
- Mackenzie, Franklin Mountains: Williams, M. Y., 14.
- Great Slave Lake region: Cameron, 1; Hume, 2.
lower Mackenzie Valley: Kindle, 9.
- Mackenzie River district: Williams, M. Y., 13.
- Mackenzie River between Norman and Beaver River: Hume, 5.

Silurian—Continued.

- Maine: Perkins, E. H., 2.
- Kennebec River to Penobscot Bay: Perkins, E. H., 3.
- Manitoba: Wallace, 14.
- Hudson Bay region: Savage, 2.
- Maryland: Prouty, 9; Swartz, C. K., 6, 7.
- Massachusetts, Essex County: Foerste, 6.
- Michigan, Chippewa County: Ver Wiebe, 11.
- northern peninsula, Niagaran: Ehlers, 4; Racine formation: Ehlers, 3.
- Middle Silurian: Grabau, 7.
- Salina formation: Vanderwilt, 1.
- Mississippi, Tishomingo County: Bramlette, 4.
- Mississippi Valley: Krey, 2.
- Missouri: Wilson, Malcolm E., 1.
- northeastern: Keyes, 42.
- Ste. Genevieve County: Weller, 19.
- southeastern: Flint, 2.
- Montana: Keyes, 234.
- Nevada: Keyes, 128.
- New Brunswick: Bailey, L. W., 1.
- Newfoundland, Notre Dame Bay: Sampson, 8.
- New Hampshire, Ammonoosuc district: Ross, C. P., 2.
- New Mexico: Darton, 26; Keyes, 14.
- eastern: Baker, C. L., 1.
- New York, adjacent faunal facies: Ruedemann, 20.
- Catskill region: Jones, R. W., 1.
- Clinton formations: Ulrich, 9.
- Genesee country: Fairchild, 15.
- Genesee Valley: Fairchild, 24.
- Newburgh quadrangle: Holzwasser, 1.
- Rochester: Giles, 1.
- salt deposits: Alling, 14.
- western: Alexander, W. P., 1.
- Niagaran coral reefs: Cumings, 4.
- Nova Scotia, Arisaig: Jones, O. T., 2; McLearn, 8.
- Ohio: Foerste, 2.
- Delaware County: Westgate, 5.
- Monroe division: Carman, 2.
- Oklahoma: Gould, 9.
- Arbuckle Mountains: Taff, 7.
- Carter County: Tomlinson, 4.
- Mannsville area: Tomlinson, 2.
- northeastern: White, L. H., 3.
- southeastern: Honess, C. W., 6.
- southern Ouachita Mountains: Honess, C. W., 4.
- Stonewall quadrangle: Morgan, G. D., 5.
- Ontario, Hudson Bay region: Savage, 2.
- Lake Timiskaming area: Hume, 1, 14.
- Mattagami and Abitibi rivers: Williams, M. Y., 7.
- Pagwachuan, Kenogami, and Albany rivers: Williams, M. Y., 10.
- southwestern: Cole, G. E., 1, 2; Williams, M. Y., 1.

Silurian—Continued.

- Ordovician-Silurian boundary: Jones, O. T., 1; Miller, B. L., 9; Schuchert, 26; Ulrich, 15.
- Pennsylvania: Swartz, C. K., 10.
- Lehigh Gap: Ashley, 17.
- Northampton County, slate belt: Behre, 7.
- Quebec, Anticosti Island: Twenhofel, 30.
- Gaspe County, Lemieux township: Alcock, 14.
- Mount Albert area: Alcock, 20.
- Port Daniel-Gascons area: Schuchert, 29.
- Shickshock Mountains, Gaspe: Alcock, 21.
- St. Clair limestone, Arkansas and Oklahoma: Ulrich, 14.
- Salina formation: Newland, 9.
- Shawangunk formation, age and origin: Willard, B., 3.
- Tennessee: Nelson, 16.
- Sumner County: Mather, 3.
- Waynesboro quadrangle: Miser, 6.
- Utah: Butler, 4.
- Virginia: Giles, 11.
- Giles County: Hubbard, G. D., 6.
- Little North Mountain: Giles, 8.
- southwestern: Butts, 10.
- Valley coal fields: Campbell, M. R., 10.
- Wise and northern Scott counties: Eby, J. B., 1.
- West Virginia, Hampshire and Hardy counties: Tilton, 15.
- Mercer, Monroe, and Summers counties: Reger, 9.
- Mineral and Grant counties: Reger, 7.
- Pendleton County: Tilton, 14.
- Wisconsin: Ulrich, 12; Thwaites, 3.
- Silver.
- Alaska: Brooks, 5, 12, 14; Martin, G. C., 4.
- Chitina Valley: Moffit, 5.
- Fairhaven district: Levensaler, 1.
- Hyder district: Buddington, 8.
- Kotsina-Kuskulana district: Moffit, 4.
- Ruby: Brown, J. S., 8.
- Susitna Basin, ruby silver prospect: Capps, 10.
- Arizona, Aravaipa-Stanley region: Ross, C. P., 5.
- Chloride and Kingman, origin of ores: Bastin, 1.
- Jerome and Bradshaw Mountains quadrangles: Lindgren, 17.
- Ray quadrangle: Ransome, 11.
- Saddle Mountain and Banner mining districts: Ross, C. P., 6, 14.
- Wickenburg: Bastin, 6.
- British Columbia, Ainsworth district: Schofield, 4.
- Atlin district: Cockfield, 17.

Silver—Continued.

British Columbia—Continued.

- Beaverdell: McKinstry, 8.
 Coquihalla area: Cairnes, 4.
 Hudson Bay Mountain, Coast district: Jones, R. H. B., 1.
 Kitzault Valley: Hanson, 2.
 Premier mine, Portland Canal district: Burton, W. D., 1.
 Salmon River district Banks, 1; O'Neill, 4; Prior, C. E., 1; Schofield, 7, 14.
 Similkameen, Horn mine: Bostock, 1.
 Slocan area: Bancroft, M. F., 2; Bateman, 14; Cairnes, 10.
 Stewart district: Dolmage, 4, 14.
 Stump Lake: Camsell, 7.
 Windermere area, Kootenay district: Walker, J. F., 1.
 California, Kern County, Randsburg: Carpenter, J. A., 2.
 Randsburg quadrangle: Hulin, 1, 3.
 Shasta County, South Fork district: Tucker, W. B., 3.
 Canada: Cole, A. A., 2; Wilson, A. W. G., 2.
 Central States: Dunlop, 1, 4, 6, 9, 12, 16.
 Chemistry of enrichment: Sill, 1.
 Colorado, Aspen: Bastin, 18.
 Bonanza, Eagle mine, secondary enrichment: Wuensch, 2.
 Boulder County, Ward region: Worcester, 1.
 Creede district: Emmons, W. H., 4; Hills, V. G., 1; Ring, 1.
 Hinsdale County: Brown, W. H., 3.
 Pitkin County, Aspen district: Knopf, A., 10.
 Platoro-Summitville district: Patton, H. B., 1.
 Red Cliff district: Crawford, R. D., 3.
 Telluride area: Hurst, 2.
 Eastern States: Dunlop, 3, 7, 11, 15, 18.
 General: Dunlop, 2, 5, 8, 10, 14, 17; Wuensch, 1.
 Idaho: Gerry, 1, 3, 5, 8, 10, 13.
 Alturas quadrangle: Ballard, 2.
 Birch Creek district: Shenon, 2.
 Boundary County: Kirkham, 7.
 Mineral and Cuddy Mountain mining districts: Livingston, 4.
 Pend Oreille district: Sampson, 16.
 Rocky Bar quadrangle: Ballard, 4.
 Salmon River Mountains: Ross, C. P., 13.
 Shoshone County: Umpleby, 3.
 Silver City district: Piper, 6.
 Vienna district: Ross, C. P., 12.
 Wardner district: Rickard, 3.
 Massachusetts, Newburyport: Green, F. E., 1.

Silver—Continued.

- Mexico: De Iongh, 1.
 Aguascalientes, Asientos-Tepezala district: Anderson, G. E., 2.
 Arizpe district, Sonora: Montijo, 1.
 Chihuahua, Yoquivo district: Hall, C. W., 1.
 El Oro district: Winchell, H. V., 1.
 Pachuca district, Hidalgo: Winchell, H. V., 1.
 Sonora, Lucky Tiger mine: Mishler, 2.
 Montana: Gerry, 2, 4, 7, 12, 15.
 Native silver, Nonesuch formation, Michigan: Nishio, 1.
 Nevada, Candelaria district: Knopf, A., 5.
 Comstock lode: Bastin, 4.
 Divide district: Knopf, A., 3; Sizer, 1; Young, G. J., 1.
 Jarbidge district: Schrader, 5.
 Mineral County, Cedar Mountain: Knopf, A., 4.
 Pioche district: Westgate, 6.
 Rochester district: Knopf, A., 7.
 Santa Fe district, Mineral County: Clark, C. W., 2.
 Silver Horn district: Crampton, 2.
 Tonopah: Budelman, 1.
 Wonder, halogen salts: Young, J. W., 1.
 New Mexico, Mogollon district: Ferguson, H. G., 3; Scott, D. B., 1.
 Ontario: McGill, 1.
 Blanche River area: Burrows, 9.
 Cobalt district: Bastin, 6, 12; Bateman, G. C., 1; Bell, J. M., 4, 6; Cole, A. A., 1; Knight, C. W., 7; Whitehead, 1.
 Cobalt and South Lorrain areas: Knight, 11.
 Gowganda area: Burrows, 3, 6, 17.
 Porcupine gold area: Burrows, 13.
 Shiningtree silver area, District of Timiskaming: Langford, 1.
 South Lorrain: Bastin, 12; Bell, J. M., 3, 5.
 Thunder Bay district: Parsons, 5.
 Silver Islet, Lake Superior: Channing, 1; Tanton, 4.
 South Dakota, central Black Hills: Darton, 14.
 northern Black Hills: Connolly, 4.
 Utah: Butler, 4.
 East Tintic district: Goodwin, L. H., 2.
 Ophir district: Olmstead, 1.
 Park City district: McKay, G. R., 1.
 Tintic district: Havenor, 1; Lindgren, 2.
 Washington: Gerry, 1, 3, 6, 9, 11.
 Stevens County: Weaver, 2.
 Yukon, Beaver River area: Cockfield, 12, 14.
 Fifteenmile Creek: Cockfield, 21.

Silver—Continued.

Yukon—Continued.

- Galena Hill, Mayo district: Stockwell, 1.
- Keno-Hill district: Cockfield, 4.
- Mayo district: Cockfield, 7, 8, 11, 13, 14, 15; Johnson, G. F., 1.
- Rude Creek: Cockfield, 22.
- Twelvemile area: Cockfield, 2.

Silver City region, Idaho: Piper, 6.

Singing sands: Fairchild, 8; Fippin, 1; Ledoux, A. R., 1; Lake Michigan: Richardson, W. D., 1.

Sink holes.

- Illinois, Alton: Lamar, 12.
- Iowa, Pocahontas County: Cable, 5.
- Kansas, Sharon Springs: Moore, R. C., 33.

Kentucky: Jillson, 66.

- Allen County: Shaw, E. W., 1.
- western: Jillson, 45.

Tennessee, central: Bassler, 14.

Gainesboro quadrangle, pre-Chattanooga: Lusk, 1.

Sketching case, use in geologic work: Waring, 4.

Slate.

General: Bowles, 1; Loughlin, 6, 10, 13, 17, 21, 25, 29.

Pennsylvania, Allentown quadrangle: Miller, B. L., 5.

eastern: Behre, 9.

Northampton County: Behre, 7.

Petrography: Behre, 11.

Vermont, Northfield: Richardson, C. H., 2.

Slide-rule dip chart: Gaby, 3.

Slides. See Landslides.

Slocan area, British Columbia: Bancroft, M. F., 2; Cairnes, 10.

Smackover oil field, Arkansas: Bell H. W., 3; Schneider, H. G., 1.

Snake Creek fauna: Matthew, W. D., 2.

Snug Harbor district, Alaska: Moffit, 7.

Soapstone.

Canada: Spence, 5; Wilson, M. E., 16.

General: Diller, 4, 7; Ladoo, 2; Sampson, E., 1, 4, 9.

Societies. See Associations.

Society of Economic Geologists: its sphere and its future: Penrose, 3.

Soda.

British Columbia, Clinton district: Reinecke, 2.

Lillooet-Prince George region: Reinecke, 3.

Sodium carbonate.

British Columbia: Goudge, 2.

Sodium compounds: Wells, 1, 2, 3, 7.

Sodium salts.

Saskatchewan: Cole, L. H., 10.

Western Canada: Cole, L. H., 9.

Sodium sulphate: Cole, L. H., 11; Wells, 8.

Soil transport through the air: Keyes, 170.

Soils.

Barbados: Harrison, J. B., 2.

Classification: Deatrick, 1; Veatch, J. O., 1.

Depletion by chemical denudation: Whitney, M., 1.

Formation: Muir, 2.

Geology in soil classification: Veatch, J. O., 1.

Indiana, Benton County: Jones, G. B., 1.

Carroll County: Erni, 1.

Cass County: Beales, 1.

Whitley County: Shiltz, 1.

Kentucky, geologic derivation: Jillson, 72.

New Hampshire, Coos County: Crosby, W. O., 3.

Soil surveys, development: Bushnell, 1.

Wisconsin: Whitson, 14.

Adams County: Whitson, 13.

Buffalo County: Whitson, 2.

Dane County: Whitson, 1.

Door County: Whitson, 6.

Jackson County: Whitson, 12.

Milwaukee County: Whitson 7.

north central: Whitson, 3.

northern: Whitson, 10.

Outagamie County: Whitson, 9.

Portage County: Whitson, 5.

Rock County: Whitson, 1.

Waupaca County: Whitson, 8.

Wood County: Whitson, 4.

Soils and geology, inter-relation: Norton, E. A., 1.

Solar cyclonic explanation of glaciation: Huntington, 3.

Solar system, origin: Jeffreys, 1.

Solidfluxion.

California, Coast Ranges: Legraye, 1.

Solitario uplift, Presido-Brewster counties, Texas: Powers, 9.

Sooke formation, Vancouver Island, fauna: Clark, B. L., 13.

"Soot" in coal: Scheffel, 2.

Sorento dome, Illinois: Bell, A. H., 5.

South Carolina.

Economic geology.

Clay: Ries, 5.

Cretaceous white clays: Neumann, F. R., 2.

Mineral resources: Calhoun, 2.

Pyrite, Haile mine, Kershaw; Schrader, 1.

Tin deposits: Haney, 4.

Paleontology.

Capybara: Hay, 18.

Cetacean, Xenoruphus, Berkeley County: Kellogg, R., 5.

Cretaceous invertebrates: Stephenson, 9.

Eutrophoceras, Eocene: Reeside, 9.

Mammalia, phosphate beds: Allen, G. M., 4.

Mollusca. Miocene: Gardner, J. A., 1.

South Carolina—Continued.

Paleontology—Continued.

Oligocene sea turtles: Hay, 19.

Turtle, Eocene marl: Hay, 18.

South Dakota.

Badlands: O'Hara, 2.

Report of State geologist: Ward, 1, 4, 7, 15, 18.

Southern Black Hills: Connolly, 5.

Areas described.

Badlands: Ward, 8.

Central Black Hills: Darton, 14.

Corson County, western: Russell, W. L., 7.

Custer State Park: O'Hara, 5.

Haakon and Pennington counties (parts): Russell, W. L., 8.

Keystone district: Connolly, 1.

Lead region: Paige, 4.

Newell quadrangle: Darton, 1.

Economic geology.

Alunitic gold ore, Black Hills: Grout, 25.

Black Hills: Lincoln, 2.

oil possibilities: Sinclair, E. G., 1.

Chalk: Ward, 3.

Corson County, oil possibilities: Russell, W. L., 7.

Cretaceous shales, analytical examination: Waterman, 1.

Etta lithia mine: Lincoln, 4.

Etta spodumene mine, Black Hills: Schwartz, 13.

Geologic features and oil possibilities: Wilson, R. A., 4.

Gypsum: Stone, 11.

Harding County, oil and gas possibilities: Ward, 2.

Homestake ore bodies: Hosted, 1; Paige, 3, 4; age: Moore, E. S., 14.

Keystone district, Etta mine: Connolly, 2.

Lawrence County, Lead district, Homestake mine: Ross, A. J. M., 1.

Lead, geological methods: Wright, L. B., 1.

Lignite: O'Hara, 1.

Mineral resources: Ward, 13.

Mineralization of Homestake mine: Wright, L. B., 3; Yates, 1.

Oil and gas possibilities in north-eastern Meade County: Wilson, R. A., 6.

Oil and gas prospects, southern Perkins County: Moulton, G. F., 1.

Oil possibilities: Thom, 5; Wilson, R. A., 1.

area west of Missouri River: Lupton, 5.

Dewey County: Ward, 9.

eastern Harding County: Toepelman, 2.

eastern Pennington County: Ward, 6.

South Dakota—Continued.

Economic geology—Continued.

Oil possibilities—Continued.

near Edgemont: U. S. G. S., 12.
northern Dewey County: Wilson, R. A., 2.

southern margin of Black Hills: Morse, R., 1.

Ziebach County: Russell, W. L., 4; Wilson, R. A., 3.

Pegmatites, Black Hills: Lincoln, 3.

Portland cement materials: O'Hara, 4.

Sand and gravel deposits, eastern South Dakota: Rothrock, 1.

Sand and gravel deposits, Minnehaha County: Rothrock, 5.

Yankton County: Rothrock, 3.

Sequence of mineralization, Keystone pegmatites: Landes, K. K., 6.

Tertiary mineralization, Black Hills: Connolly, 4.

Historical geology.

Badlands: Wanless, 1.

Black Hills: Keyes, 31; Wieland, 24.
geologic history: Yates, 1.northern Black Hills: Connolly, 4;
Cenozoic history: Fillman, 3.

pre-Cambrian: Runner, 2; Nemo district: Runner, 6.

Borings: Rothrock, 6.

northern Ziebach County: Russell, W. L., 6.

Conglomerate of Black Hills: Cook, H. J., 4.

Cretaceous-Eocene transition beds: Thom, 8.

Dewey County: Ward, 9; Wilson, R. A., 2.

Fossil desert, western South Dakota: Russell, W. L., 14.

General: Thom, 5.

Geological section: Keyes, 118.

Haakon County: Ward, 16.

southern, field conditions: Ward, 14.

Harding County: Toepelman, 2.

Interior formation, stratigraphic position: Ward, 19.

Lance formation: Ward, 12.

Lance-Fox Hills contact: Dobbin, 2.

Lead area: Hosted, 1; Paige, 3; Wright, L. B., 1.

Meade County, northeastern: Wilson, R. A., 6.

Minnekahta limestone: O'Hara, 4.

Northwestern South Dakota: Rowley, 1.

Oligocene section, Battle Creek Canyon, Washington County: Wood, H. E., 3.

Oreodon beds, Big Badlands: Sinclair, 7, 8.

Pennington County: Ward, 6.

Perkins County, southern part: Moulton, G. F., 1.

Ragged Butte structure, Dewey County: Wilson, R. A., 7.

South Dakota—Continued.

Historical geology—Continued.

- Sand and gravel deposits, Minnehaha County: Rothrock, 5.
 Slim Buttes region, Harding County: Toepelman, 5.
 Turtle-Oreodon layer of White River Oligocene: Sinclair, 3.
 Unconformity in pre-Cambrian of Black Hills: Runner, 3.
 Western South Dakota: Stanton, 3; structure: Ward, 17.
 White River Badlands: O'Harra, 3.
 White River beds, stratigraphy: Wanless, 3.
 Ziebach County: Wilson, R. A., 3; western: Russell, W. L., 4.

Mineralogy.

- Beryl crystal, Black Hills: Waldschmidt, 1.
 Black Hills: Cook, L., 2; Schwartz, 23.
 Columbite crystals, Black Hills: Waldschmidt, 2.
 Custer County, tantalate and columbites: Headden, 3.
 Custer State Park: Waldschmidt, 4.
 Epsomite, Black Hills: Waldschmidt, 3.
 Geode concretions, Black Hills: Schwartz, 14.
 Isomorphous siderite and calcite: Johnson, J. H., 1.
 Keystone district: Connolly, 1.
 Sequence of mineralization, Keystone pegmatites: Landes, K. K., 6.
 Sand calcite: Wanless, 2.
 Spodumene, Etta mine, Black Hills, alteration: Schwartz, 15, 16.
 Uranium minerals: Davis, C. W., 1.
 Water pool calcite, Black Hills: Johnson, J. H., 2.
 White River Badlands: O'Harra, 3.

Paleontology.

- Agriochoerus: Thorpe, 7.
 Badlands: Jepson, 1; Toepelmann, 1.
 Barosaurus, Black Hills: Lull, 2.
 Beetles, Fox Hills strata: Northrop, S. A., 1.
 Boring, northern Ziebach County, fossil content: Stanton, 11.
 Bothriodonts: Troxell, 4.
 Camelidae, Oligocene: Lull, 7.
 Cannonball fauna: Stanton, 3.
 Cycads, Black Hills: Wieland, 24.
 Entelodonts, Badlands: Sinclair, 4, 5; Troxell, 3.
 Eporeodons, White River beds: Thorpe, 23.
 Eusmilus, Oreodon beds, Pennington County: Sinclair, 10.
 Felidae, White River beds: Thorpe, 2.
 Ganoid fish, Lower Cretaceous: Gregory, W. K., 11.
 Hoplophoneus: Jepson, 2; Sinclair, 2.
 Hyracodonts, Big Badlands: Sinclair, 6; Troxell, 8.

South Dakota—Continued.

Paleontology—Continued.

- Ischmomyss, Badlands: Miller, G. S., 1.
 Metamynodon, Pine Ridge Agency: Troxell, 7.
 Oreodon beds faunas: Sinclair, 8.
 Oreodonts: Loomis, 11; Thorpe, 4.
 Palmoxylon cheyennense: Stevens, N. E., 1.
 Perchoerus skulls, White River formation: Pearson, H. S., 1.
 Portheus, Hot Springs: Bump, 1.
 Stylemys nebrascensis: Case, 1.

Petrology.

- Lithology of the White River sediments: Wanless, 8.

Physical geology.

- Caves, Black Hills: Johnson, J. H., 3.
 Chalcedony pseudomorphs, Big Badlands: Honess, A. P., 2.
 Contact action, Etta mine: Schwartz, 22.
 Dome structures: Ward, 10.
 Haakon County: Ward, 16.
 Mud cracks forming over water: Willard, B., 1.
 Missouri River flood plain: Ward, 11.
 Ragged Butte structure, Dewey County: Wilson, R. A., 7.
 Sandstone dikes, Black Hills region, origin: Russell, W. L., 13.
 and chalcedony veins in White River Oligocene: Lawler, 1.
 Slumping in Slim Buttes region: Toepelman, 5.
 Spodumene, Etta mine, Black Hills, alteration: Schwartz, 15, 16.
 Structure, western South Dakota: Ward, 17.

Physiographic geology.

- Badlands: Darton, 9; Anon., 53.
 Fossil desert, western South Dakota: Russell, W. L., 14.
 General: Visser, 1.
 Missouri River channel, age: Todd, J. E., 5.
 Physiographic features: Visser, 7.
 Post-Miocene gravels, western South Dakota: Wanless, 4.
 Southwestern South Dakota: King, 1.

Underground water.

- Artesian pressure, origin: Russell, W. L., 15.
 Black Hills: Darton, 5, 14.
 Newell quadrangle: Darton, 1.
 South Dayton salt dome, Liberty County, Texas: Bowman, 1.
 South Lorrain silver district, Ontario: Bell, J. M., 5.
 South Mountain district, Idaho: Sorenson, 1.
 South Mountain oil field, Ventura County, California: Hudson, F. S., 2.
 Spindletop salt dome, Jefferson County, Texas: Barton, 5.

- Spiral graph of geologic time: White, D. 37.
- Spodumene, South Dakota, Keystone district, Etta mine: Connolly, 2.
- Spokane glaciation, Washington, age: Bretz, 9.
- Spongiae.
- Armstrongia, Devonian glass sponge: Clarke, J. M., 8.
- Cambrian, British Columbia: Walcott, 2.
- Colossal Devonian glass sponge, New York: Clarke, J. M., 25.
- Dictyosponge, Chautauqua County, New York: Clarke, J. M., 22.
- Glass sponges: Clarke, J. M., 10, 18.
- Iowa, glass sponges: Thomas, 13.
- New York, Utica and Lorraine formations: Ruedemann, 17.
- Ordovician sponge fauna, Nevada: Bassler, 22.
- Silicispongiae, Cretaceous: O'Connell, 1.
- Spring Hill-Sarepta gas field, Webster and Bossier parishes, Louisiana: Ponton, 1.
- Springs, classification: Bryan, K., 2.
- Large springs of the United States: Meinzer, 17.
- Missouri, Ozarks, periodic springs: Bridge, 2.
- Tennessee, Rogersville, ebb and flow spring: Hall, G. M., 4.
- Stalactites, copper sulphate, rate of formation: Mitchell, 5.
- Stalagmites and stalactites, growth: Allison, V. C., 1.
- Stanford hematite deposits, Montana: Westgate, 1.
- Stanley mining district, Arizona: Ross, C. P., 5.
- Stanley shale, Oklahoma: Honess, C. W., 3.
- Stikine River area, British Columbia: Kerr, F. A., 2.
- Stone: Loughlin, 5, 8, 12, 15, 19, 23, 26.
- See also Building stone.
- Monumental stones: Dale, T. N., 1.
- Stories in stone: Lee, W. T., 17.
- Strategy of minerals: Smith, G. O., 2.
- Stratification: Udden, 25.
- Determination of thickness and depth of strata: Price, W. A., 8.
- Fraser River delta, British Columbia: Johnston, W. A., 12.
- Strata, thickness, computation: Mertie, 8.
- Structure below an unconformity: Mertie, 10.
- Stratigraphic geology. See Historical geology.
- Stratton Ridge salt dome, Brazoria County, Texas: Applin, P. L., 1.
- Stream capture.
- Alaska, Tolovana and Hess River basins: Mertie, 1.
- California, Coast Ranges: Willis, R., 2.
- General: La Gorce, 1.
- Stream capture—Continued.
- Indiana, Greencastle area: Smith, E. R., 3.
- Monroe County: Malott, 5.
- southern, Knobstone region: Malott, 3.
- Kentucky, Floyd County: Jillson, 10.
- Missouri, Ozarks, subterranean: Dake, 10.
- South Dakota: Visher, 7.
- Planation stream piracy: Malott, 5.
- Wyoming, northeastern: Rubey, 6.
- Stress, strain, and joints: Swanson, C. O., 3.
- Strike, determination: Higgins 1.
- Stromatoporoidea.
- Affinities: Twitchell, G. B., 1.
- Aulacera: Schuchert, 2.
- Beatricea: Schuchert, 2.
- Iowa, Iowa City: Thomas, 17.
- Strontium.
- Canada: Spence, 4.
- General: Stose, 5, 8, 10, 13, 19, 23.
- Structural geology. See Physical geology.
- Structural materials. See Building stone; Clay, etc.
- Study and teaching. See also Educational.
- Education of a geologist: Brock, 2; Lindgren, 8.
- Geology in engineering training: Burt, 4.
- Teaching vertebrate paleontology: Willard, B., 4.
- Stylolites: Dale, T. N., 6; nature and origin: Stockdale, 1-3.
- Submarine denudation: Bucher, 12.
- Subordinate ridges, Pennsylvania: Eaton, H. N., 1.
- Subsidence: Rice, G. S., 2. See also Changes of level.
- By oil extraction: Thom, 18.
- Kansas, Sharon Springs: Moore, R. C., 34.
- Texas, Goose Creek oil field: Snider, 2.
- Subterranean water. See Underground water.
- Sulphate minerals in ore deposits: Butler, B. S., 3.
- Sulphates, natural reduction: Bastin, 15.
- Sulphates in the Salina beds: Newland, 5.
- Sulphur.
- Alaska, Unalaska and Akun islands: Maddren, 1.
- General: Smith, P. S., 1-3.
- Geological aspects of sulphur in coal: Ashley, 6.
- Gulf coast salt domes: Wolf, 1.
- Louisiana, Sulphur salt dome: Kelley, 1.
- Mexico: Cervantes, 1.
- San Luis Potosi, Cerritos: Wittich, 6.
- Tamaulipas, Chapeño salt dome: Belt, 1.
- Origin: Henning, 1.
- Sulphur compounds in coal, origin: Thiessen, 1.

Sulphur—Continued.

- Texas: Barton, 8.
- Big Hill salt dome, Matagorda County: Wolf, 5.
- Bryan Heights salt dome: Kennedy, 1.
- Volcanic sulphur, source: Papish, 1.
- Sulphur salt dome, Calcasieu Parish, Louisiana: Kelley, 1.
- Sunburst oil and gas field, Montana: Hager, D., 5.
- Sunloch copper district, British Columbia: Dolmage, 3.

Surveys.

- Activities in Southern States: Burroughs, W. G., 3.
- Alabama, reports: Smith, E. A., 1, 3, 6.
- Alberta, reports of survey: Allan, 18, 21, 22.
- Arkansas: Branner, J. C., 1.
- State geologist's report: Branner, G. C., 5.
- California, State mineralogist's report: Bradley, 10.
- Canada, reports: Collins, 3, 6, 8, 20; McInnes, 1-3.
- Connecticut: Conn. G. S., 1; Gregory, H. E., 5.
- Economic value: Nelson, W. C., 28.
- Florida, reports: Gunter, 2, 5, 7, 9, 10; Sellards, 1.
- History of State surveys: Merrill, 6.
- Idaho, report: Thomson, F. A., 2.
- Illinois, reports: DeWolf, 2, 5.
- Indiana, reports: Barrett, E., 1, 6, 7; Logan, 6, 7, 13, 16, 20, 26, 28, 29.
- Jamaica, Government geologist's report: Matley, 1.
- Kentucky: Jillson, 34.
- reports: Jillson, 26, 40, 69, 97.
- Mexico: Paredes, 4.
- Michigan, history of surveys: Allen, R. C., 3, 4.
- Mississippi, reports: Lowe, 1, 5, 6, 8.
- Missouri, reports: Buehler, 1, 4, 6, 8.
- National geological survey, functions and ideals: Ransome, 4.
- New Jersey, report of State geologist: Kimmel, 1, 3, 5, 7.
- North Carolina, State geologist, report: Drane, 2; Pratt, J. H., 1, 3, 7.
- Pennsylvania: Ashley, 5, 13.
- Topographic and Geologic Survey, report: Pa. T. G. S., 2.
- South Dakota, reports of State geologist: Ward, 4, 7, 15, 18.
- State geological surveys: Kimmel, 7; Leighton, M. M., 19; Powers, 19.
- Tennessee, reports of State geologist: Nelson, W. A., 1, 2, 11, 22.
- Texas, Bureau of Economic Geology, activities: Sellards, 28.

Surveys—Continued.

- United States Geological Survey:
 - Blackwelder, 2; Inst. Govt. Research, 1.
 - annual reports: Smith, G. O., 1, 6, 9, 13, 16, 17, 21, 22, 23, 28.
 - as a civic institution during the war: Paige, 1.
 - mineral resources work: Bastin, 3.
 - reports: Smith, G. O., 5.
 - war work: Smith, G. O., 12.
 - work of: Ransome, 6; White, D., 5.
- Vermont, State geologist, reports: Perkins, G. H., 1, 7, 11.
- Virginia, reports: Watson, T. L., 1, 8.
- Washington, reports: Washington, G. S., 1, 2; Culver, 12, 13; Shedd, 5.
- Wisconsin, Geological and Natural History Survey, reports: Bean, 3; Hotchkiss, 2, 4.
- Wyoming, report of State geologist: Bartlett, 1, 5; Marzel, 1; Morgan, G. B., 4.
- Susquehanna deeps: Daly, 7.
- Sutton Lake area, District of Patricia, Ontario: Hawley, J. E., 1.
- Swamps.
 - Central America, coastal swamps: MacDonald, D. F., 3.
 - Dismal Swamp: Osbon, 1.
- Sweetland black shales, stratigraphic position: Keyes, 125.
- Symbiosis: Clarke, J. M., 16.
- Symbols for drilling operations: Mehl, 4.
- Syracuse-Lakin folio, Kansas (no. 212): Darton, 2.
- Tables of formations. See Geologic formations, tables.
- Taconic area, southern, New York and New England: Knopf, E. B., 6.
- Taconic folding, Pennsylvania: Miller, B. L., 9.
- Taconic orogeny, significance: Schuchert, 26.
- Taconic question: Keyes, 127, 129, 260.
- Taconic revolution, evidence for, examined: Clark, T. H., 4.
- Taconic system resurrected: Schuchert, 1.
- Tactite: Hess, 1.
- Talc.
 - Canada: Eardley-Wilmot, 2; Spence, 5; Wilson, M. E., 16.
 - General: Diller, 4, 7; Ladoo, 2; Sampson, E., 1, 4, 9.
 - High-grade talc for gas burners: Diller, 5.
 - New York: Newland, 2.
 - North Carolina and Maryland: Diller, 5.
 - Ontario, Hastings County: Wilson, M. E., 8.
 - Origin: Gillson, 7.
 - Vermont: Gillson, 7; Jacobs, 2.
 - Roxbury: Richardson, C. H., 3.
- Talkeetna Mountains, western, Alaska: Capps, 3.

- Talus : LaForge, 2.
 Tampico district, Mexico : Belt, 2.
 Tampsia, Tamaulipas, Mexico : Stephenson, L. W., 1.
 Tantalum : Hess, 7, 12, 13, 16, 19, 21.
 Taonurus, nature : Galloway, J. J., 5.
 Taos Range, New Mexico : Gruner, 1.
 Tar sands, Athabasca region : Ness, 1.
 Tarryall district, Park County, Colorado : Muilenburg, 2.
 Tashota-Onaman gold area, District of Thunder Bay, Ontario : Gledhill, 3.
 Tatla-Bella Coola area, Coast district, British Columbia : Dolmage, 16.
 Taylor-Wegener hypothesis : Daly, 15 ; Lambert, W. D., 3 ; Taylor, 3.
 Teaching. See Educational.
 Technical papers and their presentation : Knapp, A., 2.
 Technique.
 Acetone, use of : Ross, C. S., 23.
 Aerial photography : Matthes, G. H., 1.
 Airplane photographs, use in field work : Campbell, M. R., 8.
 Angularity of sands, measuring : Pentland, 1.
 Apparatus for measurement of temperatures in deep wells : Van Orstrand, 6.
 Apparent-dip protractor : Smith, W. S. T., 3.
 Attitude of concealed bedded formations, determination of : Mead, 2.
 Bakelite for preserving fossil material : Case, 17.
 Barometric surveying in petroleum mapping : Lahee, 3.
 Binocular magnifier for determination of opaque minerals : Treasher, 2.
 Block diagrams : Lobeck, 6.
 Casts of invertebrate fossils : Feiss, 1.
 Clerici solution for mineral separation by gravity : Vassar, 1.
 Color chart : Goldman, 15.
 Color in polished sections, diagnostic value : Talmage, 1.
 Color printing of geological maps : Senécal, 1.
 Compass : Plummer, 3.
 Crystal structure model : Whitlock, 7.
 Determination of thickness and depth of strata : Price, W. A., 8.
 Determinative mineralogy : Putnam, P. C., 3.
 Dip and strike, determination : Higgins, 1 ; Longwell, 2 ; Smith, W. S. T., 2.
 laboratory determination : Turner, H. G., 1.
 graphic determination : Grider, 1.
 Dip chart and protractor : Gaby, 2.
 Dip components, graphic determination : Lahee, 1 ; Palmer, H. S., 2.
 Dip needle : Stearn, 2.
 use : Aldrich, H. R., 1.
 Technique—Continued.
 Disintegrating samples for micro-organic study : Driver, 1.
 Disintegrating shales by freezing and thawing : Hanna, G. D., 37.
 Double dispersion method of mineral determination : Emmons, R. C., 6.
 Electrical conductivity and polished mineral surfaces : Harvey, R. D., 1.
 Electrical prospecting : Leonardon, 1, 2.
 Electro-magnetic survey at Ducktown, Tennessee : Zuschlag, 1.
 Eötvös torsion balance : Heiland, 2 ; Steiner, 1 ; Wagner, E., 1.
 Examination of well borings : Hanna, G. D., 17.
 Examining calcareous well cuttings : Claypool, 1.
 Extraction of fossils from refractory rocks : Hanna, 21.
 Feldspars, plagioclase, determination : Goranson, 2.
 Files of oil geologist : Dreher, 1.
 Formation thicknesses, determination : Ickes, 2.
 Geologic sections with unequal scales : Melhase, 4.
 Geological features illustrated by models : Huntley, L. G., 4.
 Geological hammers : Hart, 1 ; Walker, T. L., 56.
 Geomagnetics : Stearn, 1.
 Geophysical prospecting : Am. Inst. Min. Eng., 1 ; Barton, 15 ; Eve, 1 ; Jakosky, 1, 2 ; Miller, A. H., 3.
 Goniometer, two-circle : Bascom, 3 ; Palache, 1.
 Graphic determination of projection of asymmetrical anticline : Collingwood, 1.
 Graphic study of igneous rock series : Grout, 8.
 Heavy liquids for separation of fossils and sediments : Hanna, M. A., 4.
 Heavy mineral separation : Woodford, 2 ; apparatus : Fraser, F. J., 1.
 methods for heavy mineral investigations : Reed, 4.
 Illustrations : Hudson, G. H., 2.
 Inclination of surface, determination from contour map : Rich, J. L., 1.
 Incompetent beds, use of thicknesses of : Rubey, 4.
 Iron ores, investigation : Osborne, F. F., 2.
 Kodak adapted for detail work in field : Wentworth, 7.
 Labeling glass slides : Shead, 6.
 Lemberg's staining method, modification : Fairbanks, 4.
 Logging rotary-drilled wells : Clark, S. K., 2.
 Logmeter : Burton, G. E., 1.

Technique—Continued.

- Loose-leaf system for field maps and notes: Rich, 4.
- Magnetic field balance: Heiland, 1.
- Manganese minerals, identification: Fairbanks, 2.
- Mapping geologic structure, Eötvös torsion balance method: Barton, 16.
- Maps, a field method of reducing to scale: Armstrong, P., 1.
- Marking of type specimens: Howell, B. F., 10.
- Measuring folded beds: Hewett, 6.
- Mechanical analysis, accuracy: Wentworth, 32.
- Method for checking index of a liquid: Rutherford, 2.
- Microchemical reactions: Lindgren, 13.
- Microscope, binocular: Goldman, 13.
- Microscopy of anthracite: Turner, H. G., 2.
- Mineragraphic technique: Fairbanks, 1.
- Mineral separation in a finely divided state: Emmons, R. C., 7.
- Mining geology methods at Butte, Montana: Billingsley, 1.
- Model for demonstrating crystal structure: Whitlock, 7.
- Model cutting machine: Palache, 24.
- Models for determining structure of bedded rocks: Mehl, 3.
- Notebook and symbols for petroleum geologists: Woodruff, 2.
- Oblique illumination: Buerger, 1; in mineragraphy: Myers, 1.
- Oil-discolored bromoform, clarification: Hanna, M. A., 7.
- Opaque minerals, examination: Thomson, E., 2.
- identification by microchemical tests: McKinstry, 5, 6.
- determination by X-ray diffraction patterns: Kerr, P. F., 1.
- Optic axial angle of minerals, new method for measuring: Johannsen, 7.
- Ores and metals, examination in polarized light: Wright, Fred. E., 2.
- Permeability of oil sands: Melcher, 4.
- Photograph model: Cadman, 1.
- Photographic practice for field geologists: Wentworth, 16.
- Photographing fossils: Mehl, 8.
- Photography for the field geologist: Blackwelder, 12.
- Picking out and sectioning Foraminifera: Hodson, F., 1.
- Plane table: Bateman, A. M., 1.
- Plane-table methods: English, W. A., 2.
- Plane-table survey underground: Moulton, 18.
- Plotting well logs: Weeks, A. W., 2.
- Polarized light in the study of ores and metals: Wright, Fred. E., 1.
- Polished sections of ores: Short, 2.

Technique—Continued.

- Polished surfaces of ores: Thiel, 6.
- Polishing of ores: Vanderwilt, 2.
- Preparing mineral specimens: Levison, 1.
- Projecting structure through an angular unconformity: Corbett, 1.
- Protractor for plotting dips: McKinstry, 4.
- Quantitative methods in applied geology: White, C. H., 1.
- Quantitative microscopic rock analysis: Alling, 12.
- Quartz spectrograph in mineral analysis: Todd, E. W., 2.
- Radio-aeronautic prospecting: Shaw, H., 1.
- Readings on low rock dips: Filmer, 1.
- Reconnaissance mapping: Fuller, M. L., 2.
- Recording machines: Dodge, 1.
- Recording micrometer for rock analysis: Wentworth, 12.
- Recording underground data: Wilson, P. D., 4.
- Reflecting microscope: Davy, 2.
- Refractive indices, determining: Winchell, 18.
- measuring under the microscope: Nakashima, 1.
- Relief models and their construction: Reeves, J. R., 8.
- Rock minerals, comparative losses in crushing and sifting: Johannsen, 10.
- Rock thickness, calculation: Swartz, J. H., 5.
- Rotation apparatus: Kerr, P. F., 3.
- Roundness of sand grains, measuring: Cox, E. P., 1.
- Samplograph: Gardner, J. H., 6, 7.
- Sectioning rocks: Keyes, M. G., 1.
- Sections, making: Weymouth, 1.
- of friable rock: Ross, C. S., 7.
- of ores, preparation: Schwartz, 19.
- Sediment, collecting samples from Mississippi River: Lugin, 2.
- Sedimentary materials, preparation for study: Ross, C. S., 18.
- Sediments, mechanical analysis: Wentworth, 27.
- Seismic prospecting: Heiland, 3.
- Seismograph on a new principle: Morize, 1.
- Seismographic method for underground observations: Udden, 9.
- Sketching case, use in geologic work: Waring, 4.
- Slide for holding Foraminifera: Thomas, E. T., 3.
- Slide-rule dip chart: Gaby, 3.
- Spectroscopy applied to mineral determination: Douglas, G. V., 1.
- Stereoscopic photography in geologic field work: Wright, F. E., 6.

Technique—Continued.

- Strata, thickness, computation: Mertie, 8.
- Subsurface contouring: Bloesch, 2.
- Symbols for dip and strike: Dreher, 2.
- for drilling operations: Mehl, 4.
- Telescopic alidade, manipulation: Mather, 1.
- Thin-section lap: Hanna, M. A., 9.
- Thin sections of friable rock: Leggette, 1.
- Till and stratified clay, microscopic sections: Sayles, 4.
- Torsion seismometer: Anderson, J. A., 1.
- Torsional balance: Gradenwitz, 1.
- Underground photography, depth of focus chart: Wentworth, 34.
- without flash light: Graton, 2.
- Volumes of contoured solids, graphic computation: Wentworth, 25.
- Well logs, correction: Lang, W. B., 4.
- Well samples, care of: Robinson, W. I., 2.
- Wentworth recording micrometer, improved: Hunt, W. F., 3.
- X-ray analysis of crystals, oscillation method: Gruner, 11.
- X-ray studies of fossils: Swartz, J. H., 13.
- Tectonic adjustment of a rotating stratulate spheroid: Keyes, C. R., 1.
- Tectonics. See Physical geology.
- Tellurium, occurrence: Lenher, 1.
- Tennessee.
 - Geological Survey activities: Miser, 23.
 - State geologist, reports: Nelson, W. A., 1, 2, 5, 11, 22.
 - Relief map: U. S. G. S., 18.
- Areas described.*
 - Crossville quadrangle: Butts, 6.
 - Ducktown district: Emmons, W. H., 8.
 - Rutherford County: Galloway, J. J., 1.
 - Waynesboro quadrangle: Miser, 6.
- Economic geology.*
 - Appalachian bauxite deposits: Nelson, 13.
 - Ball clays, western Tennessee: Schroeder, 1.
 - Barite, eastern Tennessee: Gordon, C. H., 1.
 - Bauxite deposits: Adams, G. I., 3.
 - Bentonite: Nelson, 9.
 - Brown iron ores, west-middle Tennessee: Burchard, 25.
- Clay: Ries, 5.
- Coal: Forbes, 1.
- analysis: Fieldner, 5.
- Herbert Domain: Nelson, 21.
- northern Tennessee: Glenn, 6.
- southern Tennessee: Nelson, 20.
- Coal fields: Nelson, 26.
- Coal pyrite: Holbrook, 1.

Tennessee—Continued.

Economic geology—Continued.

- Copper, Ducktown, oxidation and enrichment: Gilbert, G., 1.
 - Ducktown copper district: Emmons, W. H., 8; Nelson, 18.
 - Electro-magnetic survey at Ducktown: Zuschlag, 1.
 - Harpeth River dome, Cheatham County: Jillson, 59.
 - Holston marble: Dale, T. N., 6.
 - Iron ores, east Tennessee: Smith, A. F., 2.
 - Waynesboro quadrangle: Miser, 6.
 - magnetic iron ores, eastern Tennessee: Bayley, 6, 7.
 - Manganese: Crane, W. R., 1; Stose, 4, 7, 17.
 - Marbles, east Tennessee: Gordon, C. H., 3.
 - Mascot zinc area: Nelson, 17.
 - Mineral resources: Nelson, 19, 22.
 - Phosphate rock: Smith, R. W., 2.
 - Oil and gas areas: Nelson, 8.
 - Oil and gas resources, Sumner County: Mather, 3.
 - Oil developments, northern Tennessee: Nelson, 15.
 - Oil exploration, Sumner County: Nelson, W. A., 1.
 - Oil fields: Glenn, 1; northern Tennessee: Nelson, W. A., 1.
 - Oil horizons: Nelson, 16.
 - Oil possibilities, Overton County: Butts, 1.
 - Oil prospects, western Tennessee: Nelson, W. A., 1.
 - Oxidation and enrichment at Ducktown: Gilbert, G., 1.
 - Petroleum: Glenn, 3.
 - Overton County: Butts, 1.
 - structural conditions: Lusk, 2.
 - Phosphates: Rogers, A. F., 31; Smith, R. W., 1, 2.
 - nature and origin: Rogers, A. F., 29.
 - Rutile in titaniferous magnetites: Bayley, 9.
 - Western Tennessee Valley iron region: Burchard, 24.
 - Willow Grove oil field: Jillson, 47.
 - Zinc, east Tennessee: Secrist, 1.
- Historical geology.*
- Benton County: Nelson, 6.
 - Bentonite in Ordovician: Nelson, 10.
 - Big Stone Gap shale, Chattanooga age: Swartz, J. H., 10.
 - Central Tennessee: Bassler, 10.
 - Chattanooga shale, age: Swartz, J. H., 1.
 - eastern Tennessee: Swartz, J. H., 11.
 - Cheatham County: Jillson, 49.
 - Cincinnati anticline, dimensions: Hubbard, G. D., 5.
 - Cove areas, east Tennessee: Gordon, C. H., 2.

Tennessee—Continued.

Historical geology—Continued.

- Cove Creek Reservoir, Tennessee River :
Wentworth, 39.
Cretaceous: Berry, 4.
Dam sites, Tennessee River: Wentworth, 38.
Devonian, western Tennessee: Dunbar, 1, 2.
Devono-Mississippian black shales: Swartz, J. H., 12.
Eastern highland rim, Bassler, 13.
Eastern Tennessee: Secrist, 1.
General: Glenn, 3.
Geologic map: Jenkins, 1; Nelson, 12.
Great Smoky Mountains: Glenn, 9.
Harpeth River dome, Cheatham County: Jillson, 59.
Herbert Domain: Nelson, 21.
Lower Cambrian, southern Appalachians: Barrell, 8.
Mississippian, northern Tennessee: Bassler, 17.
Northern Tennessee coal field: Glenn, 6.
Ordovician: Raymond, 3.
central Tennessee: Bassler, 8.
Overton County: Butts, 1.
Pre-Chattanooga sink hole, Gainesboro quadrangle: Lusk, 1.
Reelfoot Lake district, western Tennessee: Nelson, W. A., 1.
Silurian: Springer, 12.
Stones River group, central Tennessee: Coryell, 2.
Southern Tennessee coal fields: Nelson, 20.
Sumner County: Mather, 3.
Tertiary, western Tennessee: Roberts, J. K., 6, 9.
Trenton: Raymond, 18.
Upper Cretaceous: Wade, B., 1, 3.
Volcanic ash horizons, Stones River group: Nelson, 23.
Bedford County: Nelson, 7.
Western Tennessee: Nelson, W. A., 1; Schroeder, 1.

Mineralogy.

- Meteorite, Savannah, Hardin County: Merrill, 29.
Strain structure in quartz, Ducktown: Kerr, P. F., 6.

Paleontology.

- Brachiopods, Lenoir and Athens formations: Raymond, 37.
Ottoese and Holston formations: Willard, B., 5.
Caddis case, Eocene: Berry, 84.
Conodonts, Mississippian: Ulrich, 13.
Cretaceous flora: Berry, 4, 17, 28.
Carroll County: Berry, 104.
Devonian, western Tennessee: Dunbar, 1, 2.
Hamulus, Cretaceous, McNairy County: Wade, B., 2.
Ostracoda, Trenton limestone, Nashville: Kirk, S. R., 1.

Tennessee—Continued.

Paleontology—Continued.

- Pleistocene plants: Berry, 6, 34, 88.
Pleistocene Vertebrata: Hay, 6.
Potamogeton perryi, Henry County: Berry, 30.
Ripley fauna: Wade, B., 3.
Salvinia, Hardeman and Mandy counties: Berry, 71.
Silurian Crinoidea: Springer, 12.
Stones River group, central Tennessee: Coryell, 2.
Terminalla, lower Eocene: Berry, 76.
Termite, Eocene, Hardeman County: Collins, R. L., 2.
Trilobites, Ordovician: Raymond, 28.

Petrology.

- Bentonite: Ross, C. S., 21.

Physical geology.

- Emory River overthrust, eastern Tennessee: Jillson, 43.
Erosion feature in western clays: Schroeder, 2.
Great Smoky overthrust: Keith, 5.
Isothrustic structure, Wells Creek Basin: Jillson, 48.
Mica peridotite dike, Union County: Gordon, C. H., 4.
Sink holes, central Tennessee: Bassler, 14.

Physiographic geology.

- General: Nelson, 8.
Gravel and terraces, Cumberland Valley: Lusk, 3.
Reelfoot Lake: Nelson, 14.

Underground water.

- Ebb and flow spring, Rogersville: Hall, G. M., 4.

Terminology of mineral deposits: Lindgren, 6.

Terms for clastic sediments: Wentworth, 9.

Terrace plains, middle Atlantic Coastal Plain: Wentworth, 11.

Terraces. See also Beaches; Shore lines
Coastal Plain terraces, origin and age: Hay, 22.

- Connecticut: Flint, 8.
New Haven region: Ward, 5.
Eustatic bench of islands of north Pacific: Wentworth, 21.

Georgia, coastal terraces: Cooke, C. W., 11.

Gulf of St. Lawrence, postglacial: Kindle, 17.

Labrador, Lake Melville district: Kindle, 25, 31.

- Marine terraces: Barrell, 6.
Monongahela River: Brown, S. B., 1.
New York, Cohoes quadrangle: Stoller, 2.

Mechanicsville: Stoller, 1.

Northern Great Plains: Alden, 3.

Ohio River, Indiana and Kentucky: Culbertson, 3.

Ontario, Michipicoten area: Collins, 13.

Terraces—Continued.

Pennsylvania, Piedmont province: Bascom, 4.

Susquehanna River: Stose, 33.

Piedmont terraces, northern Appalachians: Barrell, 6.

Quebec, Anticosti Island, postglacial: Twenhofel, 9.

Stream and ocean terraces in relation to recent earth movements: Holway, 1.

Subaqueous terraces of the Great Lakes and the St. Lawrence embayment: Johnson, D. W., 10.

Tennessee, Cumberland Valley: Lusk, 3.

Vermont, Connecticut Valley: Fairchild, 2.

West Virginia, Mineral and Grant counties: Reger, 7.

Wisconsin, Driftless Area: MacClin tock, 1; pre-Wisconsin: Thwaites, 8.

Tertiary. See also Paleontology, Tertiary.

Alabama: Cooke, C. W., 13; Jones, W. B., 13.

Coastal Plain: Brantley, 1; Jones, W. B., 10.

Alaska: Brooks, 7; Martin, G. C., 8.

Alaska Railroad region: Capps, 6.

Chistochina region: Chapin, 3.

Chulitna region, upper: Capps, 4.

Cold Bay-Chignik district: Smith, W. R., 1.

Kahiltna Valley: Mertie, 2.

Kamishak Bay region: Mather, 7.

Kantisna region: Capps, 1.

Kiwalik-Koyuk region: Harrington, 5.

Knik-Matanuska district: Landes, K. K., 2.

Kodiak Island: Maddren, 2.

Nenana field: Martin, G. C., 1.

northern, Canning River region: Leffingwell, 1.

Pliocene: Dall, 2.

Pribilof Islands: Hanna, G. D., 1.

Ruby-Kuskokwim region: Mertie, 11.

Salmon-Unuk River region: Mertie, 6.

Toklat-Tonzona River region: Capps, 12.

Talkeetna Mountains, western: Capps, 3.

Tolstoi district: Harrington, 2.

upper Matanuska Valley: Capps, 11.

Wrangell district: Buddington, 4.

Alberta, North Saskatchewan and McLeod rivers: Rutherford, 8.

southern and central: Slipper, 1.

southwestern: Stewart, J. S., 1.

Swan Hills, Lesser Slave Lake district: Allan, 1.

Alum Bluff group: Gardner, J. A., 7.

Anguilla: Vaughan, 40.

Antigua: Earle, 1.

Arctic regions, Ellesmere Land: Holtedahl, 1.

Tertiary—Continued.

Arizona: Darton, 17; Keyes, 83.

Aravaipa-Stanley region: Ross, C. P., 6.

lower Gila region: Ross, C. P., 1.

Oatman district: Ransome, 12.

Papago country: Bryan, 7, 15.

Payson district: Lausen, 1.

Saddle Mountain and Banner mining districts: Ross, C. P., 7.

Verde formation: Jenkins, 6.

Arkansas: Miser, 4, 11.

El Dorado oil field: Gilluly, 1.

south central: Rubey, 1.

southern: Schneider, H. G., 1.

southwestern, Midway formation: Hull, 12.

Atlantic and Gulf Coastal Plain: Stephenson, 6.

Barbados, Scotland beds: Trechmann, 6.

Bozeman beds, Rocky Mountain region: Keyes, 19.

Brandon lignite, age: Berry, 8.

Briones formation, middle California: Trask, 2.

British Columbia, Cariboo district, Barkerville area: Johnston, W. A., 22.

Cochihalla area: Cairnes, 4.

Dease Lake area, Cassiar district: Kerr, F. A., 1.

Eutsuk Lake district: Brock, 1.

Fraser River Delta: Johnston, W. A., 17.

Kamloops district, North Thompson Valley: Uglow, 3.

Lillooet-Prince George region: Reinecke, 3.

North Thompson Valley: Uglow, 11.

Skeena River to Stewart: Hanson, 6.

southwestern: Cairnes, 2.

Taseko Valley: MacKenzie, J. D., 1.

Vancouver Island, Sooke formation: Clark, B. L., 8; Cornwall, 1; Sunloch district: Dolmage, 3.

Yale district: Cairnes, 5.

British Honduras: Ower, 2.

Brown's Park formation: Peterson, 8; and Bishop conglomerate: Sears, 4.

Bryn Mawr gravel, Pennsylvania: Bascom, 5.

California: Clark, B. L., 5, 9; Vander Leek, 1.

Amargosa Valley: Noble, 6.

Blackhawk Canyon, San Bernardino Mountains: Woodford, 7.

Briones formation: Trask, 1, 2.

central Coast Ranges, Miocene paleogeography: Reed, 7.

Coalinga district: Reed, 5.

Coyote Mountain: Hanna, 25.

Domengine horizon, middle Eocene: Clark, B. L., 16.

Eocene divisions: Clark, B. L., 1.

Kern County: English, W. A., 1; Godde, 4; Hanna, G. D., 20.

Kreyenhagen shale: Hanna, 22.

Tertiary—Continued.

California—Continued.

- La Jolla quadrangle: Hanna, M. A., 3, 5.
 Los Angeles Basin: Arnold, 3; Eaton, 8; Vickery, 11.
 Los Angeles County, Baldwin Hills: Tieje, 6.
 Los Angeles and Ventura counties: Kew, 6.
 Malaga Cove diatom-bearing shales, age: Hanna, G. D., 39.
 Meganos group: Clark, B. L., 2, 18.
 Monterey County, Pine Canyon: Stalder, 2.
 Monterey shale: Hanna, G. D., 38.
 Mount Diablo: Clark, B. L., 13.
 Petaluma, Point Reyes, and Santa Rosa quadrangles: Dickerson, 2.
 Point Sur quadrangle: Trask, 5.
 Puente Hills region: English, W. A., 3.
 Sacramento Valley: Bryan, 10.
 Salinas Valley: Reed, 6.
 Salton Sea region: Brown, J. S., 3.
 San Benito County: Kerr, P. F., 4.
 San Bernardino Mountains: Vaughan, F. E., 1.
 San Diego County: Ellis, A. J., 1.
 San Joaquin Valley: English, W. A., 5; Taff, 6.
 San Lorenzo group: Wagner, C. M., 1.
 San Onofre breccia: Woodford, 3, 4.
 Santa Barbara County, Santa Ynez River district: Kew, 2; Nelson, R. N., 1.
 Santa Rosa Island: Kew, 10.
 Simi Valley: Kew, 1.
 southern: Jordan, D. S., 2; Kew, 4; Pliocene: Carson, 1.
 Sunset-Midway field: Pack, R. W., 1; and Kern River oil fields: Goudkoff, 1.
 Tejon region: Anderson, F. M., 1.
 Vaqueros and Temblor formations: Wiedey, 1.
 Ventura County: Taliaferro, 1; Matilija overturn: Kerr, 7.
 Ventura quadrangle: Cartwright, L. D., 2.
 Warner Range: Russell, R. J., 6.
 Wheeler Ridge area, Kern County: Hoots, 5.
 Wheeler Ridge oil field: Cunningham, G. M., 1.
 Caribbean region: Vaughan, 3, 21.
 Cayman Islands: Matley, 14.
 Central America and West Indies, correlation: Vaughan, 13.
 Chesapeake group: Mansfield, W. C., 7.
 Colorado: Keyes, 162.
 Axial and Monument Butte quadrangles: Hancock, 7.
 Creede district: Emmons, W. H., 4.
 Crowley and Otero counties (parts): Toepelman, 3.

Tertiary—Continued.

Colorado—Continued.

- Delta and Mesa counties: Weeks, H. J., 1.
 Golden area: Johnson, J. H., 13.
 Grand, Jackson, and Larimer counties (parts): Spock, 1.
 La Junta area: Patton, H. B., 3.
 Las Animas, Otero, and Bent counties (parts): Duce, 1.
 Moffat County: Sears, 3.
 San Juan Basin: Reeside, 8.
 south central: Knowlton, 12.
 southeastern: Coffin, 4.
 Tarryall district: Mullenburg, 2.
 Twin Lakes district: Howell, J. V., 1.
 Conglomerate of Black Hills: Cook, H. J., 4.
 Correlation: Vaughan, T. W., 3, 29.
 Caribbean region: Maury, 3.
 Costa Rica: Branson, 18; MacDonald, D. F., 2; Redfield, 7; northern, Miocene: Olsson, 1.
 Cretaceous-Tertiary boundary: Mathew, 15; Thom, 8.
 Cuba: Rutten, 1.
 Guantanamo Basin: Darton, 18.
 Gulf Coastal Plain: Spooner, 3.
 Dominican Republic: Cooke, C. W., 3; Vaughan, 16.
 Eocene, Cordilleran: Keyes, 195.
 Eocene beds in Mississippi embayment: Berry, 35.
 Eocene formations, correlation, Alabama and Mississippi: Cooke, C. W., 12.
 Florida: Cushman, 2; Mossom, 1, 2; Sellards, 4, 5, 12.
 Everglades section: Sellards, 3.
 General: Vaughan, 34.
 Georgia: McCallie, 1; Teas, 1.
 Coastal Plain: Prettyman, 1.
 Great Basin and Great Plains formations: Troxell, 13.
 Green River formation, origin: Henderson, J., 6.
 sedimentology: Hinds, 5.
 Green River shales: Bradley, W. H., 3.
 Greenland: Böggild, 1.
 Gulf Coastal Plain: Brantly, 2; Rogers, G. S., 6; Shaw, 4.
 Haiti: Woodring, 4, 5.
 central plain: Woodring, 1.
 Miocene: Woodring, 1.
 Honduras: Redfield, 1.
 Idaho, Bingham, Bonneville, and Caribou counties: Kirkham, 3.
 Cassia County, Goose Creek basin: Piper, 1.
 Fort Hall Indian Reservation: Mausfield, G. R., 3.
 granitic rocks: Ross, C. P., 16.
 Mud Lake basin: Stearns, 6.
 Owyhee County, Bruneau River basin: Piper, 2.

Tertiary—Continued.

Idaho—Continued.

Payette formation: Buwalda, 8.
Salmon River Mountains: Ross, C. P., 13.

south central: Umpleby, 2.
southeastern: Mansfield, G. R., 5, 29.

Illinois, southern: Parmelee, 1.

Jamaica: Stockley, 1; Trechmann, 1.
Bowden, Miocene: Woodring, 22.
marine: Woodring, 10.

Richmond formation: Trechmann, 4.

St. Ann Parish: Matley, 11.

Yellow limestone: Trechmann, 3.

Kansas: Moore, R. C., 4.

Syracuse and Lakin quadrangles: Darton, 2.

Kentucky: Miller, A. M., 1.

Lance and Fort Union formations, age: Cross, C. W., 4; Knowlton, 5.

Louisiana: Glenk, 1.

Coastal Plain: Applin, E. R., 1.

Five Islands: Vaughan, F. E., 2.

Monroe gas field: Spooner, 1.

northern: Spooner, 2.

northwestern: Hammill, 1.

Pine Prairie salt dome: Barton, 7.

Sabine uplift: Powers, 2.

Mackenzie, Franklin Mountains: Williams, M. Y., 16.

Mackenzie River region: Camsell, 1; Dowling, 15.

Maryland, Kent County: Miller, B. L., 6.

Queen Anne's County: Miller, B. L., 7.

Talbot County: Miller, B. L., 8.

Meganos group, Eocene, California: Dickerson, 1.

Mesozoic-Cenozoic boundary: Keyes, 202, 203.

Mexico, Chapala region: Palmer, R. H., 1.

Coahuila, northern: Cummings, 2.

Colima (part): Vivar, 4.

eastern: Ver Wiebe, 1; oil fields: Staub, 4.

Hidalgo, Atotonilco el Grande: Wittich, 10.

Hidalgo-Vera Cruz region: Palmer, R. H., 4.

Lower California: Darton, 10; Marland Oil Co., 1; Cedros Island and Turtle Bay: Jordan, E. K., 4;

La Purisima region: Heim, 1; southern Lower California: Heim, 2.

northern: Böse, 8; Tatum, 1.

Salado arch: Jones, R. A., 3.

southern: Ver Wiebe, 2.

Tabasco: Jones, W. F., 3; Ver Wiebe, 4.

Tajo de Andonegui, Tampico: Wittich, 19.

Tertiary—Continued.

Mexico—Continued.

Tampico district: Belt, 2.

Tehuantepec Isthmus: Ver Wiebe, 5.

Vera Cruz, Idolo Island: Dumble, 6.

Midway formation: Plummer, 5; stratigraphic position: Gardner, J. A., 9.

Midway limestone, northeastern Texas: Thompson, W. C., 1.

Miocene: Olsson, 1.

Mississippi: Grim, 1; Lowe, 2, 4, 13; Morse, P. F., 1; Stephenson, 10.

Byram marl: Cooke, C. W., 7.

northeastern: Burchard, 20.

Montana: Keyes, 234.

Beartooth Mountains: Bevan, 2.

Cat Creek oil field: Lupton, 1.

central: Bowen, C. F., 2; Reeves, F., 10; and eastern: Clapp, C. H., 2.

Crow Indian Reservation: Thom, 4.

Ekalaka field: Bauer, 4.

faulted area south of Bearpaw Mountains: Reeves, F., 8.

Garfield County: Thom, 3.

Huntley field: Hancock, 2.

Melrose phosphate field: Richards, R. W., 2.

Musselshell and Golden Valley counties: Ellis, A. J., 5.

Rosebud County: Renick, 3, 5.

Scobey lignite field: Collier, 9.

Townsend Valley: Pardee, 10.

Tullock Creek coal field: Rogers, G. S., 8.

Nebraska, Sioux County, Agate anticline: Schramm, 2.

Nevada: Keyes, 128.

Candelaria district: Knopf, A., 5.

Clark County, Callville Wash: Gale, 3.

Divide district: Knopf, A. 3.

Gilbert district: Ferguson, H. G., 10.

Jarbridge district: Schrader, 5.

Manhattan district: Ferguson, H. G., 2.

Mineral County, Cedar Mountain: Knopf, A., 4.

Muddy Mountains: Longwell, 1, 15; Noble, 2.

Round Mountain district: Ferguson, H. G., 4.

southeastern: Stock, 7.

New Jersey, greensand marls, Eocene age: Cooke, C. W., 17.

New Mexico: Darton, 11, 26; Keyes, 14; Knox, J. K., 2.

Alamosa Creek valley: Winchester, 3.

Gallup-Zuni Basin: Sears, 6.

Mogollon district: Ferguson, H. G., 3, 8.

northeastern: Garrett, 1.

Pecos Valley: Semmes, 4.

Raton coal field: Lee, W. T., 10.

Raton-Brilliant-Koebler area: Lee, W. T., 6.

Tertiary—Continued.

- New Mexico—Continued.
 San Juan County: Bauer, C. M., 1.
 San Juan Basin: Reeside, 8.
 North Atlantic Ocean, Tertiary history: Woodring, 8.
 North Carolina, Castle Hayne and Trent marls: Kellum, 2.
 North Dakota: Leonard, A. G., 1.
 Fort Berthold Indian Reservation: Bauer, C. M., 2.
 Marmarth field: Hares, 5.
 New Salem lignite field: Hancock, 6.
 western: Stanton, 3.
 Oklahoma: Gould, 9.
 Beaver County: Gould, 15.
 Texas County: Gould, 11.
 Oligocene, use of term: Berry, 86.
 Oregon: Smith, W. D., 1.
 Astoria section: Howe, H. V. W., 9.
 Cascade Mountains: Hodge, E. T., 14.
 Coos Bay, Empire formation: Howe, H. V. W., 2.
 eastern: Buwalda, 4.
 Empire formation: Howe, H. V. W., 1.
 John Day region: Buwalda, 18.
 marine: Hertlein, 3.
 marine Oligocene: Schenck, 5.
 Mount Jefferson: Hodge, E. T., 6.
 Mount Multnomah: Hodge, E. T., 5.
 Riddle quadrangle: Diller, 12.
 southeastern: Smith, W. D., 14.
 western: Harrison & Eaton, 1; Oligocene: Schenck, 12.
 Oreadon beds, Big Badlands, South Dakota: Sinclair, 7.
 Pacific region: Clark, B. L., 3; correlation: Vaughan, 28.
 Paleocene, status and limits: Matthew, 8.
 Panama, Canal Zone: MacDonald, D. F., 1, 2, 5; Vaughan, 3.
 Haut Chagres beds, age: Vaughan, 41.
 Pliocene, North Carolina: Mansfield, W. C., 6.
 Pacific Coast and Great Basin regions: Merriam, 21.
 Porto Rico: Berkey, 1; Hubbard, B., 2; Maury, 1.
 Coamo-Guayama district: Hodge, E. T., 1.
 Lares district: Hubbard, B., 3.
 Ponce district: Mitchell, 7.
 San Juan district: Semmes, 1.
 Rattlesnake formation, Oregon: Merriam, 19.
 Santo Domingo, Miocene formations: Maury, 2.
 Saskatchewan, Eastend area: McLearn, 16.
 Snake Creek fossil quarries: Matthew, 24.

Tertiary—Continued.

- Soldado formation, basal Eocene: Maury, 7.
 South Dakota, Badlands: Ward, 8.
 Black Hills: Keyes, 31; O'Harra, 3.
 central Black Hills: Darton, 14.
 Newell quadrangle: Darton, 1.
 Washington County, Battle Creek Canyon: Wood, H. E., 3.
 western: Stanton, 3.
 White River Oligocene, turtle-Oreadon layer: Sinclair, 3.
 Southeastern United States: Vaughan, 3.
 Tennessee, western: Roberts, J. K., 6, 9; Schroeder, 1.
 Texas: Gardner, J., 13; Udden, 3, 12.
 Amarillo region: Gould, 1.
 Bastrop County, Eocene: Price, W. A., 12.
 Bexar County: Sellards, 10.
 Blue Ridge salt dome, Fort Bend County: Hager, D. S., 2.
 Brazoria County, West Columbia field: Barton, 2.
 Butler salt dome: Powers, 3.
 coast deposits: Dumble, 2.
 Coastal Plain: Applin, E. R., 1.
 Colorado County: Bailey, T. L., 1.
 Damon Mound oil field: Bevier, 1.
 eastern: Dumble, 1; Renick, 12.
 Gulf Coastal Plain: Dumble, 3;
 near Rio Grande: Trowbridge, 5.
 Hockley salt dome, Harris County: Deussen, 2.
 McMullen County, Gueydan tuff: Bailey, T. L., 2, 3.
 Medina County: Liddle, 3.
 Palangana salt dome: Barton, 1.
 Panola County: Sellards, 15.
 Potter County: Patton, L. T., 2.
 Reynosa Escarpment: Jones, R. A., 1.
 Reynosa formation: Trowbridge, 9, 10.
 salt domes: Powers, 12.
 San Marcos quadrangle: Brucks, 2.
 Saratoga oil field: Suman, 1.
 southern: Böse, 8; Tatum, 1.
 Stratton Ridge salt dome: Applin, P. L., 1.
 West Point salt dome: DeGolyer, 1.
 Wilcox group: Gardner, J. A., 3.
 Texas section: Dumble, 7.
 Trent marl, age, North Carolina: Kellum, 1.
 Trinidad: Liddle, 4; Macready, 1; Milner, 1; Waring, 6.
 Naparima region: Illing, 1.
 southern: Carlson, 2.
 Utah: Butler, 4; Keyes, 152.
 Castlegate, Wellington, and Sunny-side quadrangles: Clark, F. R., 4.
 Green River valley: Reeside, 7.
 Salina Canyon district, Sevier County: Spieker, 6.

Tertiary—Continued.

Utah—Continued.

- southeastern: Longwell, 6.
- southern: Moore, R. C., 17.
- Uinta Basin: Sur, 2.
- Wasatch Plateau: Spieker, 3.
- Virginia, Nomini Cliffs, Choptank formation: Mansfield, W. C., 3.
- Washington, Hoh formation: Palmer, R. H., 3.
- marine: Hertlein, 3.
- Olympic Peninsula: Palmer, R. H., 5.
- Pasco and Prosser quadrangles: Culver, 10.
- San Juan Islands: McLellan, 2.
- Skagit County: Jenkins, 8.
- southwestern: Culver, 1.
- Stevens County: Weaver, 2.
- Spokane area: Pardee, 11, 12.
- Whatcom County: Jenkins, 7.
- West Coast: Clark, B. L., 4, 5.
- West Indies: Vaughan, 17, 22.
- White River formation, North Dakota: Leonard, A. G., 4.
- Wyoming, Cody region: Hewitt, 4.
- Fremont County, Big Sand Draw: Collier, 5.
- Gillette coal field: Dobbin, 3.
- Grass Creek quadrangle: Hewett, 16.
- Green River valley: Reeside, 7.
- Lance Creek field: Hancock, 5.
- Meeteetse quadrangle: Hewett, 16.
- Oregon Basin quadrangle: Hewett, 16.
- Rock Springs area, Sweetwater County: Schultz, 1.
- Sweetwater County: Sears, 4; Green River formation: Bradley, W. H., 5.
- Wind River Mountains: Condit, 4.
- Yukon, Sixtymile and Ladue rivers area: Cockfield, 5.
- Zeolite beds in the Green River formation: Bradley, W. H., 8.

Texas.

- Bureau of Economic Geology activities: Sellards, 28; Udden, 21.
- Chemical analyses of rocks and minerals: Schoch, 1.
- Geology of dam sites in western Texas: Patton, L. T., 3.
- Identification of geological formations: Udden, 3.
- Red River boundary: Glenn, 8.

Areas described.

- Bexar County: Sellards, 10.
- Coke County: Beede, 6.
- Colorado County: Bailey, T. L., 1.
- Cooke County: Bybee, 3.
- Crockett County: Liddle, 2.
- Dallas County: Shuler, 1.
- Denton County: Winton, 3.
- Foard County: Beede, 11.
- Fort Stockton quadrangle: Adkins, 4.

Texas—Continued.

Areas described—Continued.

- Gulf Coastal Plain near Rio Grande: Trowbridge, 5.
- Johnson County: Winton, 2.
- Lacasa area, Ranger district: Ross, C. S., 3.
- McLennan County: Adkins, 2.
- Madill-Denison area: Hopkins, O. B., 2.
- Potter County: Patton, L. T., 2.
- Ranger oil field: Reeves, F., 2.
- Solitario uplift, Presidio-Brewster Counties: Powers, 9.
- Tarrant County: Winton, W. M., 1.
- Terrell County: Christner, 1.
- Tom Green County: Henderson, G. G., 1.
- Trans-Pecos Texas, southwestern part: Baker, C. L., 6.
- Wiles area, Ranger district: Dobbin, 1.

Economic geology.

- Alkali lakes, western Texas: Meigs, 1.
- Alunite, south central Texas: Braun, 1.
- Amarillo district, oil and gas: Harrison, T. S., 1.
- Asphalt, Anacacho formation: Baker, C. L., 9.
- Austin formation in San Antonio oil fields: Sellards, 14.
- Balcones and Mexia faulting, mechanics: Foley, 2.
- Barbers Hill oil field, Chambers County: Bevier, 2.
- Batson oil field, Hardin County: Sawtelle, 1.
- Bend series, water problems: Fuller, M. L., 1.
- Bethany gas pool: Hull, 5.
- Bexar County oil fields: Sellards, 7.
- Big Hill salt dome, Matagorda County: Wolf, 5.
- Big Lake oil field, Reagan County: Sellards, 21.
- Big Lime, stratigraphic position: Edwards, E. C., 2.
- Blue Ridge salt dome, Fort Bend County: Hager, D. S., 2.
- Borings for potash, Midland County: Sellards, 26.
- Bryan Heights salt dome, Brazoria County: Kennedy, 1.
- Buried ridges, western Texas: Powers, 24.
- Chemical analyses of rocks and minerals: Schoch, 1.
- Clay Creek dome, Washington County: Lahee, 20.
- Currie oil and gas field, Navarro County: Lahee, 10, 19.
- Damon Mound oil field: Bevier, 1.
- Deep Creek oil field: Wade, A., 1.
- Diablo Plateau: Beede, 3.
- Eastern Texas: Dumble, 1.
- Edna, Jackson County, gas and oil: Price, 11.

Texas—Continued.

Economic geology—Continued.

- Faulting and petroleum accumulation at Mexia: Pratt, W. E., 9.
- Gas well, Jim Hogg County: Jones, R. A., 2.
- Goose Creek oil field, Harris County: Minor, 2.
- Gulf Coast oil fields: Barton, 13; Wolf, 2.
- Gulf Coastal Plain salt domes, secondary intrusive origin: Matteson, 2.
- Gypsum: Stone, 11.
- Helium-bearing natural gas: Rogers, G. S., 7.
- Hockley salt dome, Harris County: Chapman, 1; Deussen, 2.
- Interior salt domes: Powers, 17.
- Kerens, Navarro County, drilling near: DeWolf, 7.
- Lignite: Gentry, 1.
- Lost Lake salt dome: Wasson, 1.
- Luling oil field, Caldwell and Guadalupe counties: Brucks, 1, 2; Sellards, 19.
- Lytton Springs oil field, Caldwell County: Brucks, 2; Bybee, 2; Collingwood, 8.
- McLennan County: Pace, 1.
- Medina County: Liddle, 3.
- Mexia oil field: Lahee, 17; Whitney, R. H., 1; Wrather, 2.
- faulting and petroleum accumulation: Pratt, W. E., 7.
- Mid-Continent oil fields: Bosworth, 1.
- Mineral resources: Sellards, 20.
- Minerva oil field, Milan County: Hager, D. S., 1.
- Natural gas: Snider, 1.
- Panhandle: Bauer, C. M., 8.
- Natural gas resources, central north Texas: Shaw, 6.
- New Richland oil field, Navarro County: Lahee, 11.
- Nigger Creek oil pool, Limestone County: Hull, 14.
- North Texas oil fields: Roberts, J. R., 1; Wheeler, H. A., 1, 2.
- Northeast Texas petroleum area: Fohs, 2.
- Oil and gas in Panhandle: Pratt, W. E., 8.
- Oil and gas fields, Webb and Zapata counties: Sellards, 13.
- Oil fields, Archer County: Hubbard, W. E., 1.
- Oil fields, north central Texas: Hager, D., 2.
- Oil fields, southwestern Texas: Owen, W. T., 1.
- Oil possibilities, Diablo Plateau: Beede, 3.
- Oil-bearing formations: Udden, 7.
- Palangana salt dome, Duval County: Barton, 1.

Texas—Continued.

Economic geology—Continued.

- Panhandle: Lockwood, 2.
- Panhandle oil fields: Bauer, 7.
- Petroleum: Snider, 1.
- central Texas: Matteson, 1.
- Coke County: Beede, 1.
- Cooke County: Hawtof, 1.
- Eastland and Stephens counties: Adams, H. H., 1.
- Fort Stockton, Pecos County: Pratt, W. E., 2.
- Luling, Caldwell County: Pratt, W. E., 6.
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- relation to carbon values in north Texas: Fuller, M. L., 3.
- southwestern Texas: Stephenson, 3.
- Zapata County: Wrather, 4.
- Potash: Keyes, 285; Udden, 26.
- Midland County: Sellards, 25.
- western Texas: Hoots, 1; Mansfield, 14; Udden, 14, 15; White, D., 7.
- Potash investigations: Lang, W. B., 2.
- Powell oil field: Hill, H. B., 1.
- Quicksilver deposits, anticlinal theory: Udden, 2, 6.
- Terlingua district: Lewis, F., 1.
- Red Bed ores: Bains, 1.
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- Road-building materials: Nash, 1.
- Salt: Darton, 8.
- Salt deposits: Phalen, 1.
- Salt dome structure: Lucas, A. F., 1.
- Salt domes: Deussen, 1; Renick, 12; Wolf, 1.
- Fort Bend County: Pratt, W. E., 5.
- northeastern Texas: Cheney, C. A., 1.
- southern Texas: Barton, 4; Jones, R. A., 6.
- Sand and gravel, Trinity River district: Shaw, E., 1.
- Saratoga oil field, Hardin County: Suman, 1.
- Seismographic method for underground observations: Udden, 9.
- Sipe Springs oil field: Wade, A., 1.
- South Bend oil field, Young County: Cheney, M. G., 1.
- South Dayton salt dome, Liberty County: Bowman, 1.
- Spindletop salt dome, Jefferson County: Barton, 5.
- Spindletop oil field, Beaumont: Sur, 1.
- Stratton Ridge salt dome, Brazoria County: Applin, P. L., 1.
- Sulphur deposits, Gulf coast: Barton, 8.
- Thrall oil field, Williamson County: Bybee, 1.
- Waskom gas field: Grimm, 1.
- Westbrook oil field, Mitchell County: Edwards, E. C., 1.
- West Columbia oil field, Brazoria County: Barton, 2.

Texas—Continued.

Economic geology—Continued.

White Point gas field, San Patricio County: Wolf, 3.

Wortham and Lake Richland faults: Lahee, 16.

Yates pool, Pecos County: Metcalf, R. J., 1.

Historical geology.

Amarillo region: Gould, 1.

Archer County: Hubbard, W. E., 1.

Austin formation in San Antonio oil fields: Sellards, 14.

Balcones fault region: Udden, 8.

Barbers Hill oil field, Chambers County: Bevier, 2.

Barnett shale, age: Moore, R. C., 16.

Batson oil field, Hardin County: Sawtelle, 1.

Bend formation: Girty, 1.

Bend series, age: Girty, 2.
and contiguous formations: Goldman, 8.

Brown County: Waite, 1.
central Texas: Moore, R. C., 2.

Bexar County, subsurface Cretaceous: Jones, R. A., 7.
oil fields: Sellards, 7.

Big Bend area: Tex., Atty. Gen., 1.

Big Hill salt dome, Jefferson County: Henley, 1.

Big lime, western Texas, stratigraphic position: Edwards, E. C., 2.

Big salt dome, Matagorda County: Wolf, 5.

Big Lake oil field, Reagan County: Sellards, 21.

Bissett formation, Glass Mountains: King, 4.

Blanco and associated formations: Matthew, 30.

Blue Ridge salt dome, Fort Bend County: Hager, D. S., 2.

Borings, Colorado County: Bailey, T. L., 1.

Cooke County: Hawtof, 1.

Lytton Springs oil field: Bybee, 2.

potash, Midland County: Sellards, 26.

Palo Pinto County: Goldman, 8.

Panola County: Sellards, 15.

Potter County: Patton, L. T., 2.

Webb and Zapata counties: Sellards, 13.

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Butler salt dome, Freestone County: Powers, 3.

Canadian River valley: Patton, 6.

Carboniferous, north central Texas: Gould, 13.

Cavern deposits in Permian: Udden, 13.

Central Texas oil fields: Matteson, 1.

Coastal Plain: Applin, E. R., 1.

Coke County: Beede, 1, 2.

Colorado, Mitchell County: Cook, H. J., 12.

Texas—Continued.

Historical geology—Continued.

Coral reefs in Oligocene: Ellisor, 3.
Cretaceous: Hill, R. T., 3, 5; Scott, G., 2; Stanton, 13.

central Texas: Carsey, 1.

correlation: Scott, G., 4.

western Texas: Baker, C. L., 2.

Cretaceous and Tertiary, southern Texas: Böse, 8; Tatum, 1.

Culberson County: Udden, 18.

University Block: Beede, 8.

Currie structure, Navarro County: Lahee, 19.

Damon Mound oil field: Bevier, 1.

Diablo Plateau: Beede, 3.

Eagle Ford formation: Moreman, 2.

Eastern Texas: Dumble, 1; Renick, 12.

Eastland and Stephens counties: Adams, H. H., 1.

Ellenburger formation, north central Texas: Sellards, 9, 11.

Fredericksburg and Washita formations, northern Texas: Adkins, 1.

Gaptank-Wolfcamp problem, Glass Mountains: Keyte, 2.

General: Snider, 1; Udden, 3.

Geologic map: Currier & Company, 1.
western Texas: Anon., 58.

Glass Mountains, west Texas: King, 2, 6.

Glenn formation, north central Texas: Goldston, 2.

Goose Creek oil field, Harris County: Minor, 2.

Guadalupe group: Darton, 19.

Gueydan tuff, McMullen County: Bailey, T. L., 2, 3.

Gulf coast: Schander, 1.

Gulf Coastal Plain: Dumble, 3.

Hockley salt dome, Harris County: Deussen, 2.

Hudspeth County, Carboniferous formations, correlation: Beede, 5.

Igneous rock in wells in Panhandle: Donoghue, 1.

Interior salt domes: Powers, 17.

Lithologic correlation in "Bend" series: Goldman, 5.

Llano-Burnet and Marathon uplifts: Powers, 26.

Llanoria: Miser, 7.

Lower Cretaceous or Comanche series: Bullard, 4; Stanton, 14.

Luling oil field, Caldwell and Guadalupe counties: Brucks, 1.

Lytton Springs oil field, Caldwell County: Bybee, 2; Collingwood, 8.

McLennan County: Pace, 1.

Malone formation: Kitchin, 1.

Marathon basin, trans-Pecos Texas: Baker, C. L., 10.

Marathon fold, northwest Texas: Hassan, 1; Liddle, 1.

Marine Wilcox: Dumble, 4.

Medina County: Liddle, 3.

Texas—Continued.

Historical geology—Continued.

- Midway formation: Plummer, 5; stratigraphic position: Gardner, J. A., 9.
- Midway limestone, northeastern Texas: Thompson, W. C., 1.
- Mississippian, San Saba County: Roundy 3; age and correlation: Girty, 7.
- Moss Bluff and Boggy Creek domes: Pratt, 14.
- Nacatoch formation: Howe, H. V. W., 5.
- North central Texas: Hager, D., 2; Udden, Jon A., 1.
- Northeast Texas, petroleum area: Fohs, 2.
stratigraphy and structure: Fohs, 1.
- Northern Texas petroleum fields: Pratt, W. E., 1.
- Oil-bearing formations: Udden, 7.
- Oil sand outcrop, Coke County: Jones, R. A., 4.
- Palangana salt dome, Duval County: Barton, 1.
- Panhandle: Lockwood, 2.
- Pennsylvanian, Burkburnett: Glen, 2.
north central Texas: Berry, 49; Moore, R. C., 13; Plummer, F. B., 1, 4.
- Pennsylvanian-Permian systems, western Texas: Schuchert, 39.
- Permian: Gould, 8, 14, 27; Anon., 50.
correlation: Gould, 10.
Panhandle: Gould, 16.
- Permo-Carboniferous, Glass Mountains: Böse, 1.
- Potash salts and algae in salt dome: DeGolyer, 14.
- Ranger oil field: Eckes, 1.
- Red River valley: Sellards, 18.
- Reynosa formation, southwestern Texas: Trowbridge, 9.
lower Rio Grande region: Trowbridge, 11.
- Rios well, Caldwell County: Sellards, 16.
- Salt domes: Powers, 12.
southern Texas: Barton, 4.
- San Angelo formation: Beede, 10.
- San Marcos quadrangle: Brucks, 2.
- Saratoga oil fields, Hardin County: Suman, 1.
- Smithville, Bastrop County: Price, W. A., 12.
- South Dayton salt dome, Liberty County: Bowman, 1.
- Southwestern Texas: Blatchley, 1.
- Spindletop salt dome, Jefferson County: Barton, 5.
- Stratton Ridge salt dome, Brazoria County: Applin, P. L., 1.
- Tarrant County, geologic history: Hill, E. A., 1.
- Taylor and Navarro formations in east-central Texas: Dane, 1.

Texas—Continued.

Historical geology—Continued.

- Tertiary: Gardner, J. A., 13.
foraminiferal guides: Dumble, 2.
lower Rio Grande region: Trowbridge, 6.
- Tertiary section: Dumble, 7.
- Trans-Pecos Texas: Keyes, 290.
- Trinity group: Vanderpool, 3.
- Upper Cretaceous: Stephenson, 8.
- Upper Triassic beds: Case, 11.
- Val Verde County: Calvert, 2.
- Vertebrate faunal horizons, Permo-Carboniferous red beds: Romer, 13.
- Weno and Pawpaw formations: Adkins, 2.
- West Columbia oil field, Brazoria County: Barton, 2.
- West Point salt dome, Freestone County: DeGolyer, 1.
- West Texas, geologic map: Beede, 10.
- Western Texas: Edwards, E. C., 2; Hoots, 1.
- White Cliffs chalk, age and correlation: Ellisor, 2.
- Whitehorse sandstone: Clifton, 2.
- Woodbine sand, age: Scott, G., 3.
- Yegua, marine, correlation: Gardner, J. A., 12.

Mineralogy.

- Analcite, Brewster County: Lonsdale, 12.
- Barite pisolites, Batson and Saratoga oil fields: Barton, 10.
- Hauerite, Big Hill salt dome, Matagorda County: Wolf, 6.
- Meteorite, Alpine, Brewster County: Merrill, 19.
Florence, Williamson County: Lonsdale, 9.
- Odessa, Ector County: Merrill, 22.
- Troup meteorite: Merrill, 15; Udden, 10.
- Tulia, Swisher County: Palache, 20.
- Niter and soda niter, Brewster County: Lonsdale, 4.
- Orthoclase crystals, Sierra Blanca: Lonsdale, 8.

Paleontology.

- Ammonites, Cretaceous: Scott, G., 6.
Fredericksburg formation: Scott, G., 5.
- Anancus, Brazos River: Hay, 18.
- Arctotherium: Matthew, 9.
- Bairdia subdeltoidea, Cretaceous: Alexander, C. I., 2.
- Bend series, central Texas: Moore, R. C., 2.
- Bison, Colorado and Dawson County: Hay, 41.
- Bison chaneysi, Pleistocene, Vernon: Cook, H. J., 14.
- Calatoloides, Eocene fruit: Berry, 38.

Texas—Continued.

Paleontology—Continued.

- Calycophysoides, cucurbitaceous fruit, Tertiary, Foard County: Berry, 53.
- Carboniferous foraminifers, Sutton County: Cushman, 45.
- Charophyte fruits: Groves, 1.
- Climacamina, Pennsylvanian: Cushman, 42.
- Coelophysis: Case, 22.
- Colorado artifacts: Cook, H. J., 10.
- Cook Mountain Eocene, Bastrop County: Price, W. A., 12.
- Cotylisaur, Triassic, western Texas: Case, 26, 27.
- Cretaceous: Adkins, 5; Scott, G., 2; Stanton, 13.
- ammonites: Böse, 9.
- Cycad localities: Sellards, 27.
- Cycadeoid, Wise County: Wieland, 10.
- Cycad-like leaves, Permian: Noé, 1.
- Denton County: Winton, 3.
- Desmatosuchia, Triassic: Case, 6, 8, 10.
- Dimetrodon: Romer, 8.
- Dimetrodon gigas: Gilmore, 3.
- Dinosaur tracks, Hamilton County: Wrather, 5.
- Diplocaulis primigenius, Baylor County: Mehl, 7.
- Eagle Ford fossil zones, northern Texas: Moreman, 2.
- Eocene crabs: Rathbun, 6.
- Eocene Mollusca: Gardner, J. A., 11.
- Eocene flora, trans-Pecos Texas: Berry, 12.
- Eocene florule, central Texas: Berry, 56.
- Exogyra, Cretaceous: Böse, 2.
- Fishes, Triassic: Warthin, 1.
- Fistulipora, Canyon formation, Eastland County: Link, 6.
- Flabellamina alexanderi, time range: Alexander, C. I., 3.
- Footprints: Moodie, 27.
- Foraminifera: Cushman, 22.
- Canyon division: Waters, J. A., 2.
- Cretaceous, central Texas: Carsey, 1.
- Midway formation: Plummer, H. J., 1.
- Pennsylvanian: Harlton, 3.
- Foraminifera and Ostracoda, marine Yegua: Stadnichenko, M. M., 1.
- Fort Worth area: Winton, H., 1.
- Fossil footprints near Abilene: Gould, C. N., 28.
- Fredericksburg and Washita formations, northern Texas: Adkins, 1.
- Gastropod trails in Pennsylvanian sandstones: Powers, 10.
- Gerontic ammonites, Duck Creek formation: Scott, G., 1.
- Guembelina, changing character: Thomas, N. L., 3.
- Human artifacts in Pleistocene: Cook, H. J., 6.

Texas—Continued.

Paleontology—Continued.

- Human remains with Pleistocene fossils, Dallas: Shuler, 2.
- Insecta, Eocene: Cockerell, 19.
- Jackson, Foraminifera: Cushman, 24.
- Labryinthodont thoracic shield: Case, 5.
- Lutetia: Harris, G. D., 2.
- Malone formation: Kitchen, 1.
- Mastodons: Hay, 25.
- Micrology, Cretaceous: Alexander, C. I., 1; Carpenter, M. 1; Mahon, 1; Moreman, 1.
- Midway brachiopod, Butler salt dome: Gardner, J. A., 6.
- Miocene vertebrates: Hay, 20.
- Mississippian, San Saba County: Girty, 7.
- micro-fauna: Roundy, 3.
- Mollusca, Eocene, southwestern Texas: Gardner, J. A., 2.
- Ostracoda, Cisco formation: Harlton, 1.
- Pectinidae, Cretaceous: Kniker, 1.
- Pennsylvanian, Burkburnett: Glenn, 2.
- north-central Texas, Plummer, 4.
- northern Texas: Moore, R. C., 15.
- ostracodes: Harlton, 4.
- Permo-Carboniferous ammonoids, Glass Mountains, Texas: Böse, 1.
- Phytosaur, Triassic: Case, 6, 24.
- Pleistocene fresh-water Mollusca, north-central Texas: Hanna, G. D., 9.
- Pleistocene Mammalia, Dallas: Lull, 8.
- Pleistocene mastodons: Hay, 32.
- Pleistocene plants: Berry, 88.
- Pleistocene Vertebrata: Hay, 6; southwestern Texas: Hay, 33.
- Plesippus, Blanco formation: Matthew, 29.
- Quisque bakeri, Miocene herring: Jordan, 8.
- Recurrent brachiopods, Lower Cretaceous, northern Texas: Sandidge, 1.
- Seymouria, Clear Fork beds: Romer, 11.
- Tarrant County: Winton, W. M., 1.
- Tortoises, Brazos River: Hay, 18.
- Triassic reptiles and stegocephalians, western Texas: Case, 11.
- Triassic vertebrates: Case, 16.
- Trinity fauna: Vanderpool, 2.
- Turritella, Buda and Georgetown limestones: Ellisor, 1.
- Unionid pelecypod, Dockum group, Mitchell County: Reeside, 15.
- Vertebrate faunal horizons, Permo-Carboniferous red beds: Romer, 7, 13.
- Vertebrates, collecting: Sternberg, C. H., 4.
- Weichselia, Cretaceous: Berry, 95.
- Weno and Pawpaw formations: Adkins, 2.

Texas—Continued.

Paleontology—Continued.

- Wilcox, marine: Gardner, J. A., 3.
- Woodbine flora, Arthurs Bluff: Berry, 36.

Petrology.

- Bend and Ellenburger limestones, microscopic characters: Udden, 4, 23.
- Contact of Ellenburger and Boone limestones: Goldman, 16.

Igneous rocks of Balcones fault region: Lonsdale, 10.

Ordovician and Mississippian limestones at their contact: Goldman, 14.

Pseudo-igneous rock and baked shale, Freestone County: Lonsdale, 11.

Salt dome cap rock: Goldman, 12.

Sedimentary rocks, characteristics: Udden, 12.

Physical geology.

Asphalt, Anacacho formation: Baker, C. L., 9.

Balcones and Mexia faulting, mechanics: Foley, 2.

Balcones fault zone: Sellards, 8.

Central Texas: Matteson, 1.

Coke County, geologic structure: Beede, 2.

Corrosion and corrasion, Barton Creek, Austin: King, 5.

Crystalline rocks of the plains: Gould, 3.

Desert range tectonics, trans-Pecos Texas: Baker, C. L., 11.

Earthquake, Panhandle, July 30, 1925: Neumann, 3; Pratt, 12.

Eastland and Stephens counties, structure: Adams, H. H., 1.

Etched potholes: Udden, 20.

Glass Mountains, west Texas: King, 2.

Goose Creek oil field subsidence: Johnson, D. W., 16; Pratt, W. E., 10, 11, 13, 15; Snider, 2.

Igneous dikes, Bandera County: Dawson, J. M., 1.

Laminated structure of anhydrite beds: Udden, 17, 18.

Laminated structure of drill cores: Udden, 27.

Marathon fold, northwest Texas: Liddle, 1.

Melikaria: Burt, 5.

North central Texas: Hager, D., 2.

Northeastern Texas fault zones: Lahee, 13.

tectonic features: Fohs, 2; Robinson, H. M., 4.

Pseudo-igneous rock and baked shale, Freestone County: Lonsdale, 11.

Quicksands, Brazos County: Burt, 3.

Red River Valley: Sellards, 18.

Rim rock of High Plains: Udden, 16.

Salt domes: Powers, 12; Renick, 12.

Texas—Continued.

Physical geology—Continued.

Sandstone dikes, Rockwall: Patton, 5; Stephenson, 7.

Southwest earthquake, July 30, 1925: Udden, 22.

Physiographic geology.

Boulders, Brazos River: Reed, L. C., 2.

Butler salt dome, Freestone County: Powers, 3.

Classification and nomenclature of physiographic features: Hill, R. T., 4.

Coast region uplift: Jones, R. A., 11.

Crater, Ector County: Sellards, 23.

Meteor crater: Bibbins, 1.

Palangana salt dome, Duval County: Barton, 1.

Red River valley: Hill, R. T., 7; Tex., Atty. Gen., 1.

Sand rivers: Hill, R. T., 6.

Trans-Pecos Texas: Baker, C. L., 11; Keyes, 290.

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Bexar County: Sellards, 10.

Salt dome waters: Minor, 1.

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Alaska, Valley of Ten Thousand Smokes: Zies, 3.

Alberta, Banff area: Warren, P. S., 4.
 Arkansas, Hot Springs district: Bryan, 9, 14; Purdue, 1.

California, Sonoma County: Day, 12.
 General: Sosman, 8.

Great Basin region: Meinzer, 10.

Haiti: Brown, J. S., 4.

Heat in springs, a physical source of: Adams, L. H., 4.

Hot springs: Sosman, 7.

Relation of crystallization to water content and vapor pressure of water in a cooling magma: Morey, 2.

Southeastern Atlantic States: Watson, 16.

Utah, Wasatch fault: Pack, F. J., 8.

Virginia, Rockbridge County, Irish Creek: Haney, M., 1.

Thomas oil field, Kay County, Oklahoma: Clark, S. K., 1.

Thorium: Schaller, 4.

Thrust faulting: Lawson, 2.

Thunder Bay district, Ontario: Tanton, 5.

Tidal forces in the making of continents and mountains: Taylor, 10.

Tidal waves, prediction: Finch, R. H., 2.

Tin.

Alaska, Hot Springs district: Chapin, 6.

Lost River district: Fearing, F. C., 1.

Ruby district: Chapin, 7.

Seward Peninsula: Harrington, 3.

York region: Steidtmann, 4.

British Honduras: Jones, W. R., 1.

Gel replacement of cassiterite: Wagner, P. A., 2.

General: Johnson, B. L., 4, 5, 7, 8, 9; Knopf, A., 1, 6.

Idaho: Livingston, 2.

Manitoba, West Hawk Lake region: DeLury, 3.

Mexico: Garcia, 2.

placer deposits: Sampson, E. H. S., 1.

New Mexico, Black Range district: Naething, 1.

Taylor Creek district: Hill, J. M., 3.

North Carolina: Haney, 4.

South Carolina: Haney, 4.

Tin—Continued.

South Dakota, central Black Hills: Darton, 14.

Washington, Silver Hill deposits: Anderson, A. L., 5.

Wood tin nodules: Newhouse, 7.

Tintic mining district, Utah: Lindgren, 2.

Titanium.

Canada: Robinson, A. H. A., 1.

General: Hess, 2, 7, 8, 12, 13, 16, 19, 21; Robinson, A. H. A., 1.

Virginia, Amelia County: Watson, 12.

Tomboloes and points, formation: Johnson, R. H., 6.

Tonkawa oil field, Oklahoma: Clark, G. C., 1; Hosterman, 1.

Topographic and geologic mapping in Illinois, relation to engineering: De Wolf, 6.

Torsion seismometer: Anderson, J. A., 2.

Tortugas.

Physical geology.

Coquina, Loggerhead Key, origin: Field, 2.

Trails.

Climacticnites: Raymond, 15.

Formation: Raymond, 15.

Gastropod trails in Pennsylvanian sandstones: Powers, 10.

Rosetted trails of worms: Clarke, J. M., 27.

Travertine: Emig, 1.

Virginia, Augusta County: Collins, R. L., 1.

Tree ancestors: Berry, 46.

Triassic. See also Paleontology, Triassic.

Alaska: Martin, G. C., 15.

northern, Canning River region: Leffingwell, 1.

Chitina Valley: Moffit, 5.

Chulitna region, upper: Capps, 4.

Cold Bay district: Capps, 5; Smith, W. R., 4.

Cold Bay-Chignik district: Smith, W. R., 1.

Cold Bay-Katmai district: Smith, W. R., 3.

Kamishak Bay region: Mather, 7.

Kotsina-Kuskulana district: Moffit, 4.

Arctic regions, Ellesmere Land: Holtedahl, 1.

Arizona: Darton, 17; Keyes, 83.

Grand Canyon district: Moore, R. C., 26.

Hopi Buttes volcanic field: Reagan, 8.

Navajo country: Reagan, 20.

northeastern: Hager, D., 6.

Lees Ferry region: Bryan, 8.

northeastern, Holbrook area: Hager, D., 3.

northwestern: Reeside, 4; Shimer, 2.

Triassic—Continued.

- British Columbia, Bow River section,
Banff: Kindle, 30.
Bridge River area: McCann, 3.
Chilko Lake area: Dolmage, 15.
Coquihalla area: Cairnes, 4.
Dease Lake area, Cassiar district.
Kerr, F. A., 1.
Parson Bay: Crickmay, 9.
Peace River district: Spieker, 1.
Pemberton area, Lillooet district:
Cairnes, 8.
southwestern: Cairnes, 2.
upper Peace River region: Mc-
Learn, 6.
Texada Island: Swanson, C. O., 2.
Vancouver Island: Dolmage, 5.
Yale district: Cairnes, 5.
Colorado: Keyes, 162.
Delta and Mesa counties: Weeks,
H. J., 1.
east-central: Lee, W. T., 19.
Las Animas, Otero, and Bent coun-
ties (parts): Duce, 1.
Moffat County: Sears, 3.
Montezuma County, McElmo anti-
cline: Coffin, 2.
southwestern: Coffin, 3.
Connecticut: Longwell, 18.
Meriden area: Waring, 2.
Middletown area: Rice, W. N., 1.
southern: Longwell, 5; Russell, W.
L., 1.
Southington-Granby area: Palmer, H.
S., 5.
Triassic trough, origin: Foye, 7.
Connecticut basin during the Newark
epoch: Foye, 5.
Continental Triassic beds: Huene, 3.
Greenland: Böggild, 1.
Idaho, Bingham, Bonneville, and Cari-
bou counties: Kirkham, 3.
Fort Hall Indian Reservation:
Mansfield, G. R., 3.
Mineral and Cuddy Mountain mining
districts: Livingston, 4.
southeastern: Mansfield, G. R., 6,
29.
Massachusetts, Connecticut Valley:
Miller, W. J., 10; Triassic scree:
Reynolds, 1.
Mesozoic of North and South America:
Knowlton, 1.
Mexico, Guanajuato mining district:
Wandke, 8.
Montana: Bauer, C. M., 3.
Beartooth Mountains, Bevan, 2.
central and eastern: Clapp, C. H., 2.
Melrose phosphate field: Richards,
R. W., 2.
Nevada: Keyes, 128.
Mineral County, Cedar Mountain:
Knopf, A., 4.
Muddy Mountains region: Longwell,
1, 15.
Rochester district: Knopf, A., 7.

Triassic—Continued.

- Newark system: Dorsey, 1; Hobbs, 16;
Raymond, 34.
New Mexico: Darton, 11, 26; Keyes,
14; Lee, W. T., 2.
eastern: Baker, C. L., 1; Rich, 5.
Gallup-Zuni Basin: Sears, 6.
northeastern: Garrett, 1.
Puertecito district: Wells, E. H.,
2.
North Carolina, Durham Basin:
Prouty, 15, 16.
North America, southern: Stanton, 1.
Oklahoma, Cimarron County: Roth-
rock, 4.
Oregon: Smith, W. D., 1.
central: Packard, 6.
Pacific coast: Goranson, 1.
Pennsylvania, Allentown quadrangle:
Miller, B. L., 5.
Gettysburg area: Stose, 2.
New Holland quadrangle: Jonas, 5.
northwest of Lebanon: Stose, 27.
outlier near Lebanon: Stose, 26.
southeastern: Stose, 21.
York County: Wanner, 1.
Red beds: Branson, 17.
Shinarump conglomerate: Case, 27.
South Dakota, central Black Hills:
Darton, 14.
Texas: Udden, 3, 12.
Amarillo region: Gould, 1.
Big Lake oil field: Sellards, 21.
Crockett County: Liddle, 2.
Fort Stockton quadrangle: Adkins,
4.
Potter County: Patton, L. T., 2.
western: Case, 11, 27; Hoots, 1.
Upper Triassic: Smith, J. P., 3.
Utah: Butler, 4; Keyes, 152; Mat-
thews, 1.
Grand and San Juan counties: Prom-
mel, 1.
La Sal Mountains: Gould, L. M., 4.
Moab region: Baker, A. A., 1.
San Juan Canyon: Miser, 14, 17.
San Rafael Swell: Gilluly, 4.
southeastern: Longwell, 6; Prom-
mel, 4.
southern: Moore, R. C., 17.
southwestern: Reeside, 4.
Washington County: Bassler, H., 2.
Vertebrata, use in correlation: Mehl,
13.
Virginia: Roberts, J. K., 8.
northeastern Piedmont: Lonsdale, 7.
northern basins: Roberts, J. K., 2.
Piedmont: Jonas, 8.
Washington, San Juan Islands: Mc-
Lellan, 2.
Wyoming, Bell Springs district: Dob-
bin, 5.
Chugwater-Sundance contact, Big-
horn district: Brainerd, 1.
central: Lee, W. T., 19.
Maverick Springs: Collier, 6.

Triassic—Continued.

Wyoming—Continued.

Thermopolis district: Collier, 4.

Wind River Mountains: Conduit, 4.

Triassic sandstones, petrographic analysis:
Roberts, J. K., 4.Tri-County oil field, southwestern Indiana:
Esarey, 2.

Trilobita.

Anatomy: Walcott, 6.

and relationships: Raymond, 8.

Appendages: Calman, 1; Clark, T. H.,
7.Arkansas, St. Clair limestone: Foerste,
14.

Calymene, structure: Walcott, 4.

Cambrian: Raymond, 36.

and Ozarkian: Walcott, 10, 15.

earliest: Walcott, 5.

Mohave Desert, California: Resser, 6.

Ceraurus, Iowa: Thomas, A. O., 24.

structure: Walcott, 4.

Color markings: Raymond, 19.

Criteria for discrimination: Raymond,
12.

Cybele: Vogdes, 1.

Dipharus, Boston area, Massachusetts:
Clark, T. H., 10.

Genera and subgenera, list: Vogdes, 1.

General: Raymond, 5.

Habits: Raymond, 17.

Iowa: Walter, 3.

St. Lawrence limestone: Walter, 1.

Lichadidae, Ordovician: Foerste, 5.

Neolenus, structure: Walcott, 4.

ventral appendages: Ulrich, 4.

Newfoundland, Paradoxides faunas,
Manuels Brook: Howell, 4.

Olenellus getzi, antennæ: Dunbar, 9.

Olenellus with antennules: Dunbar, 8.

Ontario, Toronto area: Fritz, 1.

Ontogenies and their significance:
Raw, 1; Raymond, 35.

Ordovician: Raymond, 6.

and Silurian: Foerste, 3.

lower middle: Raymond, 28.

Ordovician "hypoparian" genera: Ul-
rich, 7.

Phylogeny: Raymond, 7.

Pygidium: Raymond, 2.

Quebec, Philipsburg region, Beekman-
town: Bradley, J. H., jr., 3.

Reversion: Ruedemann, R., 3.

Texas, San Saba County, Mississippian:
Girty, 7.

Triarthrus, structure: Walcott, 4.

Triarthrus canadensis, Triarthrus gla-
ber, and Triarthrus spinosus:
Parks, 4.Trinucleidae, distribution and relation-
ships: Stetson, 2.

Vermont, northwestern: Raymond, 23.

Trinidad.

General: Liddle, 4; Waring, 6.

Geology and oil resources: Milner, 1.

Trinidad—Continued.

Economic geology.

Oil resources: Waring, 5.

Petroleum: Macready, 1; Milner, 1.
origin: Carmody, 1.

Historical geology.

Brasso Miocene: Maury, 10.

Central Range: Parkinson, 2.

General: Macready, 1; Waring, 5.

Miocene and Pliocene: Maury, 8.

Naparima region: Illing, 1; Nuttall, 1.

Northern Range: Trechmann, 7.

Southern Trinidad: Carlson, 2.

Paleontology.

Algae, Miocene: Howe, M. A., 2.

Araceae, Miocene: Berry, 69.

Didymotis trinidadensis, Lower Creta-
ceous: Sommermeier, 1.

Echinoids, Tertiary: Jeannet, 1.

Foraminifera: Hodson, H. K., 2.

Naparima region: Nuttall, 1.

General: Harris, G. D., 5.

Lecythidoanthus, fossil flower: Berry,
54.

Miocene corals: Vaughan, 38.

Miocene faunas: Maury, 8.

Miocene gastropods and scaphopods:
Mansfield, W. C., 2.

Mollusca: Palmer, K. V. W., 1.

Northern Range: Trechmann, 7.

Pleistocene flora: Berry, 67.

Rudistids: Harris, G. D., 4.

Tertiary flora: Berry, 64.

Petrology.

Northern Range: Parkinson, 1.

Triceratops: Gilmore, 1.

Trough deeps of island arcs: Hobbs, 23.

Tumefaction: Keyes, 207.

Tungsten.

Alaska, Fairbanks district: Chapin, 4.

British Columbia, Hazelton: Hurst, 3.

California, Randsburg quadrangle:
Hulin, 1, 3.Colorado, Boulder County, Ward re-
gion: Worcester, 1.

Enrichment of ores: Gannett, 1.

General: Hess, 2, 3, 8, 10, 12, 13, 16,
19, 21; Shannon, 15.

Idaho: Livingston, 2.

Manitoba, southeastern: Bruce, 3.

Nevada, Round Mountain district:
Ferguson, H. G., 4.New Brunswick, Burnthill Brook area:
Young, G. A., 1.

Nova Scotia, Halifax County: Piers, 2.

South Dakota, central Black Hills:
Darton, 14.

northern Black Hills, Connolly, 4.

United States, contact-metamorphic
deposits: Hess, 11.

Yukon, Mayo area: Cockfield, 1.

Tullock Creek coal field, Montana: Rogers,
G. S., 8.

Turner Valley oil area, Alberta: Hume, 22.

Turonian ammonite fauna, Mexico: Böse, 3.

- Turquoise, Arizona, Courtland-Gleeson region: Wilson, E. D., 2.
- Turtles. See Reptilia.
- Twentymile Park district of Yampa coal field, Routt County, Colorado: Campbell, M. R., 5.
- Twin Lakes district, Colorado: Howell, J. V., 1.
- Tyrone district, New Mexico, copper deposits: Paige, 2.
- Unconformities.
- Arizona, Grand Canyon: Noble, 3.
- California, Margarita-Monterey contact: Reed, 6.
- Cretaceous-Eocene transition beds: Thom, 8.
- Devonian, Arizona: Keyes, 106.
- Disconformities and diastems: Schuchert, 35.
- Edmonton-Paskapoo disconformity, Alberta: Allan, 16.
- Ellis-Madison unconformity: Collier, 10.
- Glauconite, association with unconformities: Goldman, 7.
- Idaho, southeastern: Mansfield, 11.
- Intraformational phosphate pebbles: Pettijohn, 1.
- Iowa, Mississippian-Pennsylvanian and Pennsylvanian-Pleistocene unconformities, Lucas County: Lugin, 4.
- Massachusetts, Adams, Berkshire schist-Stockbridge limestone: Dale, T. N., 2.
- Mesozoic-Cenozoic boundary: Keyes, 202, 203.
- Nevada, southern, pre-Triassic: Longwell, 11.
- Oklahoma: Bloesch, 1.
- Ordovician-Silurian: Schuchert, 26.
- Paleozoic systems in Wisconsin: Ulrich, 12.
- Petrographic unconformity: Berkeley, 4.
- Pre-Moenkopi unconformity, Colorado Plateau: Dake, 4.
- Silicification of erosion surfaces: Leith, 14; Tarr, 16.
- South Dakota, Black Hills, pre-Cambrian: Runner, 3.
- Structure below an unconformity: Mertie, 10.
- Tennessee, Cheatham County: Jillson, 49.
- Washington, Ringold-Ellensburg formations: Jenkins, 10.
- West Virginia, Mississippian disconformity: Tilton, 11.
- Underdrag of Great Basin ranges: Davis, W. M., 5.
- Underground water (general). For areal see names of States. See also Hot springs; Mineral water; Thermal waters.
- Analyses of natural waters, index: Collins, W. D., 5.
- Underground water (general)—Continued.
- Artesian basins of United States: Imbeaux, 1.
- Artesian flow, effect of earthquakes on: Taber, 17.
- Artesian pressure, origin: Piper, 8; Russell, W. L., 15.
- Artesian water, Honolulu type: Palmer, H. S., 7.
- Artesian water supply of the Dakota sandstone: Meinzer, 15.
- Association with petroleum and natural gas: Mills, R. V. A., 2.
- Basin-and-Range province: Meinzer, 5.**
- Calcium chloride waters, connate and diagenetic: Lane, 27, 28.
- Coastal ground water: Brown, J. S., 5.
- Composition of ocean water: Lane, 16.
- Compressibility and elasticity of artesian aquifers: Meinzer, 20.
- Estimating ground water supplies: White, W. N., 1.
- Fort Caswell: Stearns, N. D., 1.
- General: Meinzer, 2, 13.
- Geology of large springs: Meinzer, 19.
- Ground water, relation to ore deposits: Loughlin, 22.
- western United States: Meinzer, 12.
- Ground-water hydrology, with definitions: Meinzer, 7.
- Hot springs: Allen, E. T., 5; Sosman, 8.
- Hydrated sulphates of magnesia in hot springs: Merwin, 7.
- Hydrologic laboratory: Meinzer, 9.
- Laboratory tests of water-bearing materials: Stearns, N. D., 1.
- Large springs of the United States: Meinzer, 17.
- Mid-Continent oil fields: Neal, 1.
- Northern Great Plains, ground waters, chemical character: Riffenburg, 1.
- Occurrence of ground water: Meinzer, 6.
- Oil-field waters: Ambrose, 3; of Gulf coast: Rogers, G. S., 6.
- Permeability of rocks: Dahlblom, 1; Lahee, 5.
- Plants as indicators of ground water: Meinzer, 18.
- Quantitative estimation: Meinzer, 1.
- Sea water, relation to ground water along coasts: Brown, J. S., 2.
- Springs, origin: Adams, F. D., 2.
- Sulphate-reducing bacteria in oil field waters: Bastin, 13.
- Texas, Brazoria County, West Columbia field: Barton, 2.
- Water analyses, importance: Lane, 16.
- Water prospecting: Simpson, H. E., 5.
- Water table of loess: Keyes, 244.
- Wyoming, Salt Creek field: Ross, J. S., 1.
- Ungulata. See Mammalia.
- Upper Silurian. See Silurian.

- Upton-Thornton oil field, Wyoming: Hancock, 3.
- Uranium. See also Carnotite.
 Colorado, southwestern: Coffin, 3.
 General: Butler, G. M., 2; Hess, 2, 7, 8, 12, 13, 16, 19, 21; Keeney, 1, Penrose, 1.
 New Mexico: Keyes, 107.
 Utah, Temple Mountain: Hess, 14.
 Wyoming, Lusk: Lind, 1.
- Utah.
 Coal resin, Hiawatha: Steele, 1.
 Geology: Pack, F. J., 1; Schneider, H., 1.
 Guldebook, Denver & Rio Grande Western route: Campbell, M. R., 3.
 San Juan Canyon, southeastern Utah: Miser, 14, 17.
- Areas described.*
 Castlegate, Wellington, and Sunnyside quadrangles, Carbon County: Clark, F. R., 4.
 La Sal Mountains: Gould, L. M., 4.
 Promontory Point mining district: Siegfus, 1.
 Salina Canyon district, Sevier County: Spieker, 6.
 Tintic district: Lindgren, 2.
 Weber County: Pack, F. J., 2.
- Economic geology.*
 Alunite, Marysville: Tingley, 1; Varley, 2.
 Bingham ore deposits: Hunt, R. N., 1; Martin, G., 1; Peterson, O. P., 1.
 Carnotite, Gateway district: Farnum, 1.
 Castlegate, Wellington, and Sunnyside quadrangles, Carbon County: Clark, F. R., 4.
 Coal, analyses: Fieldner, 4.
 Salina Canyon district, Sevier County: Spieker, 6.
 Coal fields: Spieker, 2.
 East Tintic district, Utah County: Crane, G. W., 2; Goodwin, L. H., 2.
 Economic minerals: Lewis, R. S., 1.
 Farnham anticline, Carbon County: Clark, F. R., 2.
 Gilsonite: Douglass, 1; Hartzell, 1.
 Gypsum: Stone, 11.
 Hydrocarbons: Bardwell, 1; Clark, A. F., 1.
 Iron, Iron Springs and Pinto districts: MacVichie, 1.
 southern Utah: Rohlfing, 1.
 Jurassic, southeastern Utah: Forrester, J. B., 2.
 Manganese: Pardee, 8.
 Mineral industry: Lewis, R. S., 1.
 Mining districts, structural features: Beeson, 1.
 Mountain Lake contact-metamorphic deposit near Salt Lake City: Rogers, A. F., 4.
 Natural gas, Farnham: Calvert, 1.
- Utah—Continued.
Economic geology—Continued.
 Oil, southeastern Utah: U. S. G. S., 16.
 Oil possibilities, Grand and San Juan counties: Prommel, 1.
 southern Utah: Moore, R. C., 18.
 Oil shales: Alderson, 1; Condit, 2; Jensen, 1; Winchester, 5.
 Ophir district: Olmstead, 1; Wichman, 1.
 Ore deposits: Butler, B. S., 2, 4.
 Wasatch region: Butler, B. S., 1.
 Park City district: Hewitt, 1; McKay, G. R., 1.
 Petroleum, southeastern Utah: Prommel, 3.
 Washington County: Bassler, H., 2.
 Indications, Uinta Basin: Douglass, 1, 2.
 Potash brines, Great Salt Lake Desert: Nolan, 2.
 Radium-bearing silts, southeastern Utah: Williams, G. O., 1.
 Salt deposits: Phalen, 1.
 San Juan oil field: Miser, 17; Watson, E. H., 1.
 Tintic district: Crane, G. W., 1; Havenor, 1; Hunt, S. F., 1; Parsons, A. B., 2.
 Uranium-bearing asphaltite sediments: Hess, 14.
- Historical geology.*
 Abajo Mountains: Thorpe, 1.
 Bingham district: Peterson, O. P., 1.
 Book Cliffs coal field: Forrester, J. B., 1.
 Bozeman beds: Keyes, 19.
 Browns Park formation and Bishop conglomerate: Sears, 4.
 Cambrian, Tintic district: Hunt, S. F., 1.
 Coal fields: Spieker, 2.
 Colorado Plateau, southeastern Utah: Longwell, 6.
 Colorado River: Longwell, 4.
 Colorado River basin: Pack, 5.
 Cretaceous, Book Cliffs region: Fisher, D. J., 4.
 Eastern Utah: Helst, 1.
 East Tintic district, Utah County: Crane, G. W., 2.
 Farnham anticline, Carbon County: Clark, F. R., 2.
 General: Butler, 4; Keyes, 152.
 Geological traverse, Mohave to San Juan River: Gregory, H. E., 9.
 Grand and San Juan counties: Prommel, 1.
 Great Salt Lake basin: Lee, 11.
 Great Salt Lake Desert: Nolan, 1.
 Green River valley: Reeside, 7.
 Jurassic: Dake, 3.
 eastern Utah: Gilluly, 2.
 southeastern Utah: Forrester, J. B., 2.

Utah—Continued.

Historical geology—Continued.

- Kalbab limestone, Kalbab Gulch: Noble, 8.
- Moab region: Baker, A. A., 1.
- Ophir district: Olmstead, 1; Wichman, 1.
- Pre-Moenkopi unconformity, Colorado Plateau: Dake, 4.
- Salt domes, Permian and Pennsylvanian, southeastern Utah: Prommel, 2.
- San Juan area: Watson, E. H., 1.
- San Rafael Swell: Gilluly, 4.
- Southeastern Utah: Hager, D., 6; Harrison, T. S., 3; Prommel, 4; U. S. G. S., 16.
- Southern Utah: Moore, R. C., 17.
- Southwestern Utah: Reeside, 2.
- Tertiary gravels, northern Utah: Keyes, 9.
- Triassic, lower: Matthews, 1.
- Uinta Basin: Douglass, 1, 2; Sur, 2.
- Upper Cretaceous, Colob Plateau: Richardson, G. B., 11.
- Upper Cretaceous shore line: Spleker, 5.
- Wasatch front: Stillman, 1.
- Wasatch Mountains: Blackwelder, 8; Schneider, H., 2.
- Wasatch Plateau, Cretaceous and Tertiary: Spleker, 3.
- Washington County: Bassler, H., 2; Reeside, 4.

Mineralogy.

- Anglesite, Tintic district: Shannon, 17.
- Anmoniojarosite, southern Utah: Shannon, 74.
- Argentofjarosite, Dividend: Schaller, 6; Schempp, 1.
- Carnotite and tyuyamunite: Hillebrand, 2.
- Carnotite region minerals: Hess, 20.
- Crystalline carnotite: Hess, 30.
- Economic minerals: Lewis, R. S., 1.
- Feldspar, Salt Lake County: Field, V. W., 1.
- General: Butler, 4.
- Hydrocarbons: Bardwell, 1.
- Ilsemanite at Ouray: Hess, 17.
- Seligmannite, Bingham: Palache, 33.
- Tintic Standard mine: Schaller, 14.
- Uranium minerals: Davis, C. W., 1.

Paleontology.

- Aetosaurian reptile, Morrison formation: Gilmore, 28.
- Amyodon, White River: Troxell, 7.
- Birds, Green River deposits: Wetmore, 8.
- Camarasaurus, Dinosaur National Monument: Gilmore, 24.
- Camel: Romer, 14.
- Carboniferous and Triassic faunas: Girty, 3.
- Ceratopyge fauna: Raymond, 16.
- Cretaceous mollusks: Reeside, 17.

Utah—Continued.

Paleontology—Continued.

- Crocodylus acer, Manti beds: Mook, 4.
- Cycads, Shinarump conglomerate: Berry, 90.
- Dinosaur footprints: Anon., 51; Cretaceous: Peterson, W., 1.
- Dinosaurs, Dinosaur National Monument: Gilmore, 25.
- Diplodocus, skull: Holland, W. J., 3.
- Dolichorhinus: Peterson, 7.
- Eocene Mammalia, Uinta Basin: Peterson, O. A., 1.
- Hairy mammoth skeleton: Hansen, 1.
- Fishes, Eocene: Tanner, 1.
- Stehlinius, Eocene insectivore: Matthew, 17.
- Uinta Carnivora, White River: Thorpe, 18.
- Uintasaurus, Uinta County: Holland, W. J., 2.

Petrology.

- Analcite diabase and syenite: Gilluly, 3.
- General: Butler, 4.
- Limestone alterations at Bingham: Winchell, 8.
- Sierra la Sal dikes: Gould, L. M., 1.
- Zeolite beds in the Green River formation: Bradley, W. H., 8.

Physical geology.

- Abajo Mountains, structural features: Thorpe, 1.
- Basin Range faults in Oquirrh Range: Gilluly, 5, 6.
- Basin Range structure: Gilbert, G. K., 1.
- Bear River Range fault: Bailey, R. W., 1.
- Bonneville Lake beds, origin: Keyes, 96.
- Bonneville Lake deltas, faulting: Keyes, 76.
- Colorado Plateau, structural features: Moore, R. C., 21.
- Contact metamorphism at Bingham: Lindgren, 12.
- Débris of desert torrents: Pack, 6.
- Elsinore earthquakes: Pack, F. J., 3.
- Erosion, San Juan Canyon: Miser, 20, 25, 26.
- Grand and San Juan counties: Prommel, 1.
- La Sal Mountains, laccoliths: Gould, L. M., 3, 4.
- Meanders, inclosed, significance in the history of the Colorado Plateau country: Moore, R. C., 30, 31.
- Mining districts, structural features: Beeson, 1.
- Nequoa arch, Green River Desert: Prommel, 5.
- Oquirrh Range, faulting: Gilluly, 7.

Utah—Continued.

Physical geology—Continued.

Post-Cretaceous progeny in central Utah: Spieker, 4.

Salt domes, southeastern Utah: Harrison, T. S., 3.

—Sevier Valley, formation: Young, J. W., 2.

Southeastern Utah: Prommel, 2, 4.

Stream pebbles, San Juan County, shapes: Miser, 28.

Thermal springs on Wasatch fault: Pack, F. J., 8.

Thrust faulting, Cottonwood district, Wasatch Mountains: Calkins, F. C., 1.

Wasatch region: Butler, B. S., 1.

Wasatch fault: Pack, 7.

Wasatch front: Stillman, 1.

Wasatch Mountains: Schneider, H., 2.

Physiographic geology.

—Abajo Mountains: Thorpe, 1.

Colorado River basin: Pack, 5.

Extinct hot spring basin, western Utah: Hayes, M. O., 1.

Great Salt Lake basin: Lee, 11.

Great Salt Lake Desert: Nolan, 1.

Green and Yampa rivers, origin: Sears, 4.

Laccolith, La Sal Mountains: Gould, L. M., 3, 4.

Lake Bonneville: Antevs, 12; Moschelles, 1.

origin: Keyes, 116.

physical features: Keyes, 44.

Natural bridges: Pack, 4.

Navajo Twins: Bryan, 28.

Paria River valley, southern Utah: Moore, R. C., 22.

Plateaus, peneplanal affinities: Keyes, 23.

Rainbow natural bridge: Edwards, I., 5; Miser, 13.

San Juan River region: Miser, 20.

Southern Utah: Burden, 1.

Terrepleins of plateaus, geological age: Keyes, 100.

Wasatch area: Pack, 7.

Zion Canyon National Park: Miller, W. J., 20.

Underground water.

Green River shale water, Duchesne: Ball, M. W., 4.

Mineral waters: Fitch, W. E., 1.

Thermal springs: Meinzer, 10.

on Wasatch fault: Pack, F. J., 8.

Valleys.

Development: Branson, 15.

Form and its development: Malott, 11.

Formation, interior plains region: Evans, O. F., 4.

Hanging valleys, origin: Crosby, 5.

Oklahoma stream valley type: Evans, O. F., 5.

Valleys—Continued.

Shapes of valleys, representation: Lane, 13.

Widening by frost action: Culbertson, G., 1.

Vanadium.

Arizona: Allen, M. A., 5.

Colorado, southwestern: Coffin, 3.

Discovery: Wittich, 17.

General: Allen, M. A., 5; Hess, 2, 7, 8, 12, 13, 16, 19, 21; Keeney, 1; Shannon, 15.

New Mexico, Elephant Butte: Keyes, 204.

Varve clay, New England: Antevs, 1.

Varved glacial clay, conditions of formation: Antevs, 9.

Vein quartz, microscopic study: Adams, S. F., 2.

Veins.

Box vein, Lyonsdale, Lewis County: Dale, N. C., 4.

Gashed veins, Queen of Sheba, Arizona: Keyes, 204.

Ladder veins, Minnesota: Grout, 10.

Origin: Taber, 14.

South Dakota, chalcedony veins: Lawler, 1.

Ventura oil field, Ventura County, California: Craddock, 1.

Verden sandstone, Oklahoma: Reed, 3.

Vermes. See also Invertebrates (general). New York, Utica and Lorraine formations: Ruedemann, 17.

Ontario, Toronto area: Parks, 9.

Rosetted trails of worms: Clarke, J. M., 27.

Silurian worm, *Lecthaylus gregarius*: Weller, 9.

Vermont.

Geological work in Vermont, 1810–1923: Perkins, G. H., 7.

State geologist, reports: Perkins, G. H., 1, 11.

Areas described.

Addison, Panton, and Ferrisburg townships: Foyles, 4.

Barnard, Pomfret, and Woodstock townships: Richardson, C. H., 11.

Braintree: Richardson, C. H., 5.

Bristol, Lincoln, and Warren townships: Gordon, C. E., 6.

Essex County: Schroeder, 3.

Hanover district: Merritt, J. W., 3.

Middlebury and Burlington quadrangles: Dale, N. C., 3.

Northfield terranes: Richardson, C. H., 2.

Orange County, Randolph Township: Richardson, C. H., 7.

Orleans County, Westmore, Brownington, and Charleston townships: Jacobs, 4.

Rochester quadrangle: Foye, 1.

Roxbury terranes: Richardson, C. H., 3.

Western Vermont: Gordon, C. E., 2.

Vermont—Continued.

Economic geology.

- Barre, granite: Perkins, G. H., 4.
 Clay deposits: Jacobs, 5.
 Granite: Dale, T. N., 4.
 Mineral resources: Perkins, G. H., 6,
 8, 10, 13.
 Limestone: Jacobs, 1.
 Talc deposits: Jacobs, 2; origin: Gill-
 son, 7.

Historical geology.

- Barre, Mill Stone Hill: Perkins, G. H.,
 4.
 Bethel Township: Richardson, C. H., 8.
 Black shales, Lake Champlain region,
 age: Ruedemann, R., 3.
 Brandon lignite, age: Berry, 8.
 Cambrian succession, northwestern Ver-
 mont: Keith, 1.
 Chazy coral reef: Raymond, 24.
 Cuttingsville, eruptive rocks: Eggleston,
 1.
 Fort Cassin: Foyles, 3.
 Grand Isle County: Perkins, G. H., 9.
 Green Mountain front, geologic history:
 Bain, 24.
 Green Mountains, western flank: Dale,
 N. C., 1.
 Irasburg conglomerate: Richardson, C.
 H., 14.
 Northwestern Vermont: Raymond, 23.
 Ordovician formations: Foyles, 2.
 central Vermont: Richardson, C. H.,
 1.
 Paradoxides beds, northwestern Ver-
 mont: Howell, 7.
 Pleistocene pre-Wisconsin beds: Antevs,
 8.
 Plymouth and Bridgewater townships:
 Perry, E. L., 1.
 Shoreham and Bridport: Foyles, 3.
 Trenton, Grand Isle: Perkins, G. H., 5.
 Western Vermont: Gordon, C. E., 3,
 4, 5.
 Whitingham area: Hubbard, G. D., 4.

Paleontology.

- Fort Cassin: Foyles, 3.
 Eoichthys, St. Albans: Bryant, 6.
 Invertebrate fossil localities: Foyles, 5.
 Northfield terranes: Richardson, C.
 H., 2.
 Ordovician, central Vermont: Richardson,
 C. H., 1.
 Grand Isle: Ruedemann, 5.
 St. Albans "fish-plate": Howell, B.
 F., 9.
 Trilobites, Cambrian and Ordovician:
 Raymond, 23.

Petrology.

- Eruptive rocks, Cuttingsville: Eggleston,
 1.
 Granitic intrusions, Bethel, Barre,
 and Woodbury: Balk, 4.
 Mount Monadnock: Wolff, J. E., 2.
 Orange County, Randolph Township:
 Richardson, C. H., 7.

Vermont—Continued.

Petrology—Continued.

- Orleans phyllite: Jacobs, 4.
 Whitingham area: Hubbard, G. D., 4.

Physical geology.

- Deformation, western Vermont: Gordon,
 C. E., 1, 3.
 Fault systems, northern Champlain
 Valley: Hudson, G. H., 1.
 Faulting, western Vermont: Gordon,
 C. E., 4.
 Flood erosion, Cavendish: Jacobs, 6.
 Granitic intrusions, Bethel, Barre and
 Woodbury: Balk, 4.
 Mineralization along the dikes of
 southern Vermont: Bray, 1.

Physiographic geology.

- General: Perkins, G. H., 2, 3.
 Glacial varves, Connecticut Valley,
 summer deposition: Sayles, 11.
 Lake Willoughby: Jacobs, 3.
 Postglacial sea-level waters, eastern
 Vermont: Fairchild, 2.

Vertebrata (general). See also Amphibia;
Aves; etc.

- Anaspida and origin of vertebrates:
 Raymond, 29.
 Arizona, San Pedro Valley: Gidley, 5.
 California, Kern County, Miocene
 marine vertebrates: Hanna, G. D.,
 20.
 Pleistocene, McKittrick asphalt deposit:
 Merriam, 9.
 Pliocene and Pleistocene: Frick, 1.
 Rancho La Brea: Wyman, 1.
 Chiropterygium, primitive: Gregory,
 W. K., 9.
 Cretaceous, Kansas: Sternberg, C. H.,
 3, 4.
 Cretaceous-Tertiary boundary, verte-
 brate evidence as to: Matthew,
 18.

Exploration for vertebrates: Grinnell,
1.

- General: Lucas, F. A., 1; Osborn, 9;
 Scott, W. B., 5.
 Grand Canyon, footprints: Gilmore, 31.
 Harvard College, Museum of Com-
 parative Zoology, report on verte-
 brate paleontology: Stetson, 3.
 Jaw muscles, phylogeny: Adams, L.
 A., 1.
 Lachrymal bone, evolution: Gregory,
 W. K., 3.
 Land vertebrates, origin: Willey, 1.
 Marsh collection: Schuchert, 9.
 National Museum, collection: Gilmore,
 10.
 Nebraska, western, Agate Spring
 quarries: Peterson, 3.
 Notochord in fossil vertebrates: Romer,
 12.
 Opisthotonos: Dean, 3; Moodie, 6, 9.
 Ordovician: Tieje, 4.
 Oregon, Pleistocene: McCormack, 1.

Vertebrata (general)—Continued.

- Oreodon beds faunas, South Dakota: Sinclair, 8.
- Origin: Raymond, 29, 34; Stetson, 1.
- Outline charts in teaching vertebrate paleontology: Mehl, 1.
- Pennsylvania, Frankstown cave: Peterson, 9.
- Permian, Texas: Sternberg, C. H., 3.
- Pleistocene: Hay, 4, 6, 8, 9, 10.
- vicissitudes: Hay, 28.
- Progress and trends in vertebrate paleontology: Matthew, 26.
- Restorations: Abel, 1.
- Snake Creek fauna: Matthew, W. D., 2.
- Teaching vertebrate paleontology: Willard, B., 4; by outline charts: Mehl, 1.
- South Dakota, badlands: Jepson, 9.
- Texas: Sternberg, C. H., 4.
- southwestern: Hay, 33.
- Triassic: Mehl, 13.
- West Indies: Matthew, 5.
- Wyoming, Como Bluff, Quarry 9: Simpson, G. G., 11.

Vicksburg group, correlation; Cooke, C. W., 7a; Foraminifera: Cushman, 16.

Vieques Island: Vaughan, 22.

Virgin Islands.

Literature: Kemp, 28.

Historical geology.

General: Vaughan, 8, 22.

Physical geology.

Earthquakes: Reld, H. F., 2, 4.

Physiographic geology.

Physiography: Meyerhoff, 1; Vaughan, 11.

Tertiary: Meyerhoff, 2.

Virginia.

- Geological Survey activities: Giles, 7.
- Gravels on the Blue Ridge: Wright, F. J., 3.
- Survey report: Watson, T. L., 1, 8.
- Striated boulders on Coastal Plain: Wentworth, 31.

Areas described.

- Lee County: Giles, 4.
- Giles County: Hubbard, G. D., 6.
- Gold-pyrite belt, northeastern Piedmont: Lonsdale, 7.
- Russell County: Wentworth, 6.
- Tazewell County: Harnsberger, 1.
- Triassic areas: Roberts, J. K., 8.
- Wise and northern Scott counties: Eby, J. B., 1.

Economic geology.

- Clays and shales west of Blue Ridge: Ries, 3.
- Clinton hematite ores, origin: Holden, R. J., 2; Stose, 24.
- Coal, analyses: Fieldner, 6.
- Dickenson County: Giles, 3.
- Lee County: Giles, 4.
- Russell County: Wentworth, 6.

Virginia—Continued.

Economic geology—Continued.

Coal—Continued.

- southwestern Virginia: Davenport, 1.
- Tazewell County: Harnsberger, 1.
- Coal fields: Eby, 5.
- Valley coal fields: Campbell, M. R., 10.

Copper deposits: Watson, 15.

Emery deposits: Watson, 13.

Glass-sand resources: Watson, 4.

Gypsum: Stone, 11.

Manganese: Grasty, 1; Stose, 7.

Blue Ridge, west foot: Stose, 1.

Appalachian Valley: Stose, 4.

western Virginia: Stose, 16.

Mineral resources: Watson, 17.

Oil, Powell Valley, Lee County: Giles, 9.

Oil and gas possibilities: Giles, 11.

Early Grove, Scott County: Butts, 9.

southwestern Virginia: Eby, 2.

Oriskany iron ores: Doak, 1.

Peat, dismal Swamp: Osbon, 1.

Rutile-ilmenite, Amelia County: Watson, 12.

Tin, Irish Creek, Rockbridge County: Haney, M., 1.

Historical geology.

Bentonite, so-called, Rockbridge County: Giles, 10.

Big Stone Gap shale, Chattanooga age: Swartz, J. H., 9, 10.

southwestern Virginia: Swartz, J. H., 4; age: Swartz, J. H., 7.

Black shale, southwestern Virginia: Stose, 22.

Blue Ridge, west foot: Stose, 1.

Chattanooga shale, southwestern Virginia: Swartz, J. H., 6, 11.

Choptank formation in Nomini Cliffs: Mansfield, W. C., 3.

Devono-Mississippian black shales: Swartz, J. H., 12.

Dickenson County: Giles, 3.

Windows, southwestern Virginia: Butts, 10.

General: Giles, 11.

Geologic map: Nelson, W. C., 29.

Jurassic (?) intrusives: Roberts, J. K., 3.

Little North Mountain: Giles, 8.

Ordovician: Raymond, 3.

volcanic ash deposit: Nelson, 27.

Oriskany and Helderberg formations: Holden, R. J., 1.

Piedmont: Jonas, 8.

Pleistocene: Mansfield, W. C., 6.

Post-Cincinnatian granites, northeastern Piedmont region: Lonsdale, 2.

Powell Valley, Lee County: Giles, 9.

Pre-Cambrian: Jonas, 7.

Scott County, Early Grove: Butts, 9.

Triassic: Roberts, J. K., 8.

Virginia—Continued.

Historical geology—Continued.

Triassic basins of northern Virginia: Roberts, J. K., 2.

Valley coal fields: Campbell, M. R., 10.

Western Virginia: Stose, 16.

Mineralogy.

Dufrenite, Midvale, Rockbridge County: Gordon, S. G., 2.

Intrusive Triassic diabase, Goose Creek, Loudoun County: Shannon, 46.

Hoegbomite: Watson, 18.

Manganese garnet, Amelia: Shannon, 70.

Manganese minerals, Blue Ridge, west foot: Stose, 1.

Manganotantalite, Amelia: Lee, O. I., 1.

Meteorite, Dungannon, Scott County: Merrill, 28.

Forksville, Mecklenburg County: Merrill, 47, 50.

Nickelsville, Scott County: Merrill, 23.

Sharps, Richmond County: Watson, 14.

Rutile-ilmenite, Amelia County: Watson, 12.

Rutile-ilmenite intergrowths, Franklin County: Watson, 11.

Rutherford mines, Amelia County: Pegau, 1.

Triassic limestone conglomerate minerals, Leesburg: Shannon, 55.

Xonotlite, Leesburg: Shannon, 51.

Paleontology.

Brachiopods, Lenoir and Athens formations: Raymond, 37.

Ottosee and Holston formations: Willard, B., 5.

Eocene: Van Winkle, K., 1.

Mollusca, New Castle: Van Winkle, 2.

Miocene: Mansfield, W. C., 7.

Pleistocene: Mansfield, W. C., 6.

Turritella, Miocene: Gardner, J. A., 14.

Trilobites, Ordovician: Raymond, 28.

Petrology.

Bentonite: Ross, C. S., 21.

so-called, Rockbridge County: Giles, 9.

Granite, Prince William County: Lonsdale, 2.

Intrusive Triassic diabase, Goose Creek, Loudoun County: Shannon, 46.

Jurassic (?) intrusives: Roberts, J. K., 3.

Lamprophyre dike, Louisa County: Watson, 9.

Magmatic complex, Stafford County: Lonsdale, 3.

Oolite, Hayfield, Frederick County: Furcron, 1.

Virginia—Continued.

Petrology—Continued.

Triassic limestone conglomerate, Leesburg: Shannon, 55.

Triassic sandstones: Roberts, J. K., 4.

Physical geology.

Big Stone Gap area, Wise County, structure: Stose, 12.

Earthquake, Blue Ridge region, September 5, 1919; Watson, 4; Woolard, 1.

Endless Caverns, New Market: Edwards, I., 4.

Faceted sandstone pebbles, North River near Lexington: Steidtmann, 6.

Russell Fork fault, southwestern Virginia: Wentworth, 3.

Shenandoah Caverns: Anon., 21.

Subterranean streams, Endless Caverns: Reeds, 8.

Thrust fault in Appalachians: Campbell, M. R., 7.

Travertine deposits, Augusta County: Collins, R. L., 1.

Physiographic geology.

Blue Ridge: Wright, F. J., 2.

erosional history: Wright, F. J., 5. west foot: Stose, 1.

Dismal Swamp: Osborn, 1.

General: Giles, 11.

Upper James River basin: Wright, F. J., 1.

Underground water.

Thermal springs: Watson, 16.

Woodstock area, in Ordovician rocks: Hall, G. M., 3.

Volcanic activity, causes: Day, 17.

Volcanic ash: Smith, J. E., 1.

Cordilleran region: Wanless, 3.

Iowa: Keyes, 95.

Des Moines: Keyes, 99; interglacial: Keyes, 26.

Kansas: Landes, K. K., 4, 5.

Logan County: Pinkley, 1.

Kilauea: Stone, J. B., 1.

Louisiana, Calcasieu Parish: Hanna: M. A., 2.

northern: Crider, 3.

Mexico, San Luis Potosi: Wittich, 20.

Minnesota, Ordovician: Sardeson, 13.

Oahu: Wentworth, 22.

Oklahoma, central: Hoffman, M. S., 1.

Oklahoma, North Canadian Valley: Gardner, J. H., 2.

Ordovician, Tennessee, Kentucky, and Alabama: Nelson, 10.

Paleozoic: Ross, C. S., 21.

Pennsylvania, Ordovician: Stose, 29.

Saskatchewan, Waldeck: Cole, L. H., 8.

Tennessee, Bedford County: Nelson, 7. Virginia, Ordovician: Nelson, 27.

Volcanic ash beds as key horizons: Ross, C. S., 10.

- Volcanic rocks.** See Igneous and volcanic rocks.
- Volcanic gases:** Butler, B. S., 3.
- Volcanism.** See also Volcanoes.
 American Geophysical Union, section of volcanology, meeting 1925: Sosman, 11.
 Chemical aspects: Allen, E. T., 1.
 Concentration of metallic constituents by volcanic emanations: Zies, 4.
 Engulfment in volcanism: Jaggard, 17.
 Experimental volcanology, program: Jaggard, 3.
 Explosions, nature of: Sosman, 2.
 Gases in volcanic activity: Day, 18.
 of Mt. Pelé lavas: Shepherd, 5.
 General: Daly, 21; Day, A. L., 1; Soley, 1; Sosman, 9.
 Gravity and underground lava: Wright, F. E., 7.
 Lava tide, seasonal tilt, and volcanic cycle: Jaggard, 7.
 Observatories, need for: Jaggard, 5.
 Oxygen and volcanism: Sosman, 12.
 Plus and minus volcanicity: Jaggard, 13.
 Problems of volcanology: Washington, 3.
 Progress: Day, 9; Jaggard, 14.
 Section of volcanology of U. S. Geological Survey: Jaggard, 16.
 Source of heat in volcanic activity: Adams, L. H., 3.
 Tectonic aspect of volcanic eruption: Wood, H. O., 1.
 Tides in lava: Brown, E. W., 3.
 United States Weather Bureau investigations: Marvin, 1.
 Volcanic activity, causes: Day, 17.
 Volcanic research of U. S. Geological Survey: Jaggard, 20.
 Volcanism and mountain-making: Chamberlin, R. T., 5.
 Volcano gas problem: Shepherd, 6.
 Volcano stations of the U. S. Geological Survey: Mendenhall, 5.
 Volcanological publications, current: Day, 25.
- Volcanoes.** See also Volcanism.
 Acatenango, Guatemala: Heim, 4.
 Acid gases contributed to sea during volcanic activity: Zies, 5.
 Alaska, Aleutian region: Griggs, 4.
 Katmai: Griggs, 2, 6; emanations and incrustations: Shipley, 2; eruption: Griggs, 1; Fenner, 2; Tams, 1.
 Katmai region, fumaroles: Allen, E. T., 2.
 Makushin Volcano: Maddren, 1.
 Valley of Ten Thousand Smokes, floor: Cole, G. A. J., 1; Griggs, 5; Shipley, 1; fumarolic incrustations: Zies, 1; moving pictures: Fenner, 6; tuff deposits: Escher, 1; Fenner, 5; Griggs, 7.
- Volcanoes—Continued.**
 Analysis of gases from volcanoes and from rocks: Shepherd, 3.
 Bearing of distribution on origin: Taylor, 16.
 California, Lassen Peak: Day, 15; Loomis, B. F., 1; eruption near: Williams, H., 1; volcanic activity, cause: Day, 5.
 Mt. Lassen: Colburn, 1.
 Central America: Heim, 4; Putnam, P. C., 2; Sapper, 3, 5.
 Costa Rica, Irazu: Tristan, 2.
 Poas Volcano, eruptions: Tristan, 1.
 Distribution and origin: Taylor, F. B., 19.
 Engulfment during explosive eruptions: Jaggard, 24.
 Gases, rôle of: Day, 26.
 General: Muñoz Lumbier, 4; Reeds, 17; Washington, 7.
 Greater Antilles seismic belt: Taber, 7.
 Guatemala: Van de Putte, 1.
 St. Maria Volcano: Waltz, 5.
 activity, 1927: Termer, 1.
 Halemaumau: Finch, R. H., 1; Jaggard, 1.
 tidal oscillation in Halemaumau: Brown, E. W., 2.
 Hawaii: Hawaiian Volcano Observatory, 1; Jaggard, 1, 2, 4, 10; Meinzer, 4.
 Irazu, Costa Rica: Tristán, 3.
 Izalco, Salvador: Heim, 4; Larde, 2, 4; eruption, November, 1926: Bock, 1.
 Keaiwa lava flow: Stearns, 10; Stone, 16.
 Kilauea, Hawaiian Islands: Day, 10; Jaggard, 1.
 activity: Jaggard, 8; MacCaughy, V., 1.
 composition of gases: Shepherd, 1.
 engulfment, chemical significance: Shepherd, 4.
 eruption, May, 1924: Friedlaender, 8; Stearns, 5.
 eruptions: Stearns, 7; May, 1924, and seismic sequences: Finch, R. H., 3; July, 1917: Wilson, R. M., 1.
 explosions: Stearns, 11.
 explosive eruptions: Sherzer, 1; 1924: Jaggard, 9.
 lava tube: Powers, 4.
 volcano observatory: Cross, C. W., 3.
 Masaya, Nicaragua: Heim, 4; Sapper, 4; Schönberg, 1.
 and Momotombo: Sapper, 1.
 Mauna Loa, gases: Shepherd, 2.
 eruption, April, 1926: Friedlaender, 9.
 and Kilauea: Stearns, 8.

Volcanoes—Continued.

- Mexico: Waitz, 3.
 Pedregal de San Ángel: Wittich, 3.
 Popocatepetl: Atl, 1; Camacho, 4; Heim, 4; Waitz, 4; activity 1923-4: Müllerried, 1; eruption: Friedlaender, 4, 5.
 San Martín Tuxtla area: Friedlaender, 7.
 Oahu: Wentworth, 22.
 Pacific volcanoes, chemistry: Washington, 6.
 Salvador, San Salvador, eruption: Friedlaender, 1.
 Temperatures of volcano borings: Jaggard, 18.
 Volcanic activity, present: Washington, 38.

Volcanoes (extinct).

- Aniakchak Crater, Alaska Peninsula: Smith, W. R., 2.
 Idaho, southeastern: Mansfield, 10.
 Mexico, northeastern: Staub, 1.
 New Mexico: Lée, W. T., 4.
 San Quintín area, Lower California: Woodford, 6.

Wainwright-Vermilion area, Alberta: Hume, 19.

Wakomata Lake area, Ontario: Emmons, R. C., 3.

Wapawekka and Deschambault lakes area, Saskatchewan: DeLury, 6.

Wapsipinicon breccias, Iowa: Norton, W. H., 1.

Wasatch Mountains, Utah: Blackwelder, 8.

Washington.

- Geological Survey activities: Shedd, 6.
 History of geology in State of Washington: Landes, H., 1.
 Palouse soil: Bryan, 26.
 Reports of geological survey, 1917-19, 1919-21: Washington G. S., 1, 2.
 Reports of supervisor of geology, 1922-24: Shedd, 5; Culver, 12, 13.
 Stevens County: Weaver, 2.

Areas described.

- Whatcom County, western: Jenkins, 7.
 San Juan Islands: McLellan, 2.

Economic geology.

- Antimony, Okanogan Valley: Keyes, 73.
 Arsenic, Seattle district: Stoess, 1.
 Chewelah and Colville districts, northeastern Washington: Howard, L. D., 1.
 Chromite deposits: Diller, 1; Pardee, 7.
 Clays: Burkhalter, 1.
 geology: Glover, 1.
 and shales: Wilson, H., 2.
 Coal: Evans, G. W., 3; Shedd, 2.
 Skagit County: Jenkins, 8.

Washington—Continued.**Economic geology—Continued.****Coal—Continued.**

- southwestern Washington: Culver, 1.
 western Whatcom County: Jenkins, 7.

Copper, Chewelah district: Armstrong, L. K., 1.

General: Fischer, 1.

Gold, silver, copper, lead, and zinc: Gerry, 1, 3, 6, 9, 11, 14.

Iron ores: Jenkins 5.

Kaolin, Spokane: Goodspeed, 2.
 and feldspar: Wilson, H., 1.

Lead, northeastern Washington, Jenkins, 12.

Pend Oreille and Stevens counties: Jenkins, 9.

Preglacial oxidation of lead deposits: Jenkins, 16.

Limestone: Shedd, 2.

Magnesite: Petrascheck, 1; Phalen, 2; Siegfus, 2; Whitwell, 1; Willis, 26.
 Chewelah, Stevens County: Dolman, 1; Handy, 1.

Manganese: Pardee, 8, 15.

Metal mines: Patty, 3.

Mineral resources: Patty, 2; Shedd, 1, 4.

Oil in basalt, southwestern Washington: Hudson, F. S., 5.

Oil possibilities, Olympic Peninsula: Palmer, R. H., 5.

western Washington: Hager, D., 7.

Ore deposits, geologic features: Patty, 1.

Pasco and Prosser quadrangles: Culver, 10.

Pend Oreille district: Haggen, 1.

Road-building sands and gravels: Leighton, M. M., 1.

Silver Hill tin deposits, genesis: Anderson, A. L., 5.

Stevens County: Weaver, 2.

Historical geology.

- Chehalis Valley: Etherington, 1.
 Columbia River basalt: Shannon, 40.
 Columbia Valley: Bretz, 3.
 Corbaley Canyon: Waters, A., 1.
 Eagle Creek formation: Chaney, 1.
 Geologic history: Weaver, 1.
 Hoh formation: Palmer, R. H., 3.
 Latah formation, Spokane area: Pardee, 12.

Marine Tertiary: Hertlein, 3.

Mesozoic formations: Goranson, 1.

Olympic Peninsula: Palmer, R. H., 5.

Orcas group, Devonian: McLellan, 1.

Pasco and Prosser quadrangles: Culver, 10.

Pleistocene, Big Hope Island: Henderson, J., 9.

"Satsop" and Dalles formations, age: Buwalda, 19.

Skagit County: Jenkins, 8.

Washington—Continued.

Historical geology—Continued.

Spokane region: Pardee, 11; Shannon, 40.

Unconformity between Ringold and Ellensburg formations: Jenkins, 10.

Mineralogy.

Bementite and neotocite: Pardee, 5.
Boulangerite, Stevens County: Shannon, 54.

Columbia River basalt: Shannon, 40.
Columbia River Plateau, chlorophaeite, sideromelane, and palagonite: Peacock, 1.

Cristobalite, Columbia River basalt: Shannon, 36.

Hexahydrite, Oroville: Walker, T. L., 53.

Kaolin deposit near Spokane: Goodspeed, 2.

Paleontology.

Beetle near Spokane: Cockerell, 24.

Caddis case, Miocene: Berry, 97.

Callianassa and Ranina, Oligocene: Withers, 3.

Cassididae: Schenck, 3.

Cretaceous Mollusca: Reagan, 7.

Crustacea, stalk-eyed: Rathbun, 5.

Eagle Creek flora: Chaney, 1, 2.

Echinoidea: Kew, 3.

Elephant remains, Columbia Plateau: Bryan, 26.

Elephas cellsi, Port Williams: Hay, 34.

Eocene fauna: Weaver, 3.

Foraminifera, Eocene, Lewis County: Hanna, G. D., 18.

Fossil remains in loess, eastern Washington: Lapham, 1.

Latah formation, flora: Knowlton, 16.

Mammoth, Cheney: Freeman, O. W., 6.

Mastodon remains, Clallam County: Culver, 11.

Olympic Peninsula: Dall, 6.

Paliurus, Miocene: Berry, 102.

Pelecypoda, marine Oligocene: Clark, B. L., 11.

Pleistocene, Big Hope Island: Henderson, J., 9.

Vertebrata, Wenatchee, Chelan County: Hay, 9.

Rimella-like gastropods: Clark, B. L., 7.

Tertiary Mollusca: Hertlein, 2.

Petrology.

Clastic dikes, southeastern Washington: Jenkins, 11.

Differentiation of lamprophyric magma at Corbaley Canyon: Waters, A., 1.

Silver Hill deposits: Anderson, A. L., 5.

Physical geology.

Asotin craters of Columbia River basalt: Fuller, R. E., 3.

Washington—Continued.

Physical geology—Continued.

Clastic dikes, eastern Washington: Jenkins, 14.

Diatom "epidemics," Copalis Beach: Becking, 1.

Dixie, earth disturbances: Eby, G., 1.

Loess, Palouse region: Treasher, 1, 3.

Pedestal rocks: Bryan, 24.

Preglacial oxidation of lead deposits: Jenkins, 16.

Rate of soil deposition, Palouse area: Peterson, P. P., 1.

Physiographic geology.

Central Washington: MacMacken, 1.

Channeled scabland of Columbia Plateau: Bretz, 6, 10, 16-19.

and Spokane flood: Bretz, 14.

Columbia Valley: Bretz, 10.

Dalles type of river channel: Bretz, 7.

Drainage changes: Large, 3.

Eastern Washington: Shedd, 3.

Glacial drainage on Columbia Plateau: Bretz, 5.

Glaciation, Spokane region: Large, 1; Leverett, 11; Pardee, 9.

Juan de Fuca lobe of Cordilleran ice sheet: Bretz, 2.

Lake Chelan, origin and history: Runner, 4.

Lake Lewis and Okanogan ice sheet: McMacken, 2.

Loess, Palouse region: Treasher, 3.

Mount St. Helens: Jillson, 33.

Okanogan trench and its delta terraces: Keyes, 116.

Palouse soil, Columbia Plateau: Bryan, 27.

Pleistocene submergence, Columbia Valley: Bretz, 1.

Prairies, Olympic Peninsula, origin: Reagan, 23.

Scabland mounds, eastern Washington: Freeman, O. W., 5.

Spokane flood: Jenkins, 15; beyond: channeled scablands: Bretz, 10.

Spokane glaciation, age: Bretz, 9.

Spokane region: Large, 2.

White Bluffs region: Gretz, 15; McKnight, 1.

Underground water.

White Bluffs and Hanford region: Jenkins, 4.

Waskom gas field, Louisiana and Texas: Grimm, 1.

Watabeag area, Ontario: Wright, D. G., II., 2.

Water, underground. See Underground water.

Waves, breaking in shallow water: MacClintock, 2.

Waynesboro quadrangle, Tennessee: Miser, 6.

Weathering.

Agricultural aspects of rock weathering: Hunt, H. A., 1.

Weathering—Continued.

- Alaska : Steldtman, 4.
- Barbados soils : Harrison, J. B., 2.
- Bacteria as agents of chemical denudation : Thiel, 11.
- Collapse of mountain summits : Young, G. J., 2.
- Colloidal products of rock weathering, distribution : Wallace, 9.
- Conditions : Clelland, 4.
- Desert weathering : Blackwelder, 16 ; Hobbs, 1.
- Exfoliation, a phase of rock weathering : Blackwelder, 10.
- Fire as an agency in rock weathering : Blackwelder, 15.
- Gypsum, rate of solution : Lahee, 18.
- Lichens as weathering agents of limestone : Weidman, 6.
- Mountain summits, collapse : Young, G. J., 2.
- Niches in sandstone, Chaco Canyon : Bryan, 33.
- Pedestal rocks, formation : Leonard, R. J., 2.
- Polygonal weathering in igneous and sedimentary rocks : Johnston, C. S., 1.
- Studies : Posnjak, 2.
- Webbwood district, Ontario : Bain, 15.
- Wedge theory of diastrophism : Chamberlin, R. T., 11.
- Wegener hypothesis : Washington, 24.
- Weight of sedimentary rocks : Lane, 10.
- Wekusko Lake area, Manitoba : Alcock, 2.
- Well cuttings, examination : Trager, 1.
- Well records. See Borings.
- Well samples, care of : Robinson, W. I., 2.
- Wellsville quadrangle, Ohio : Hance, 3.
- Welsh oil field, Jefferson Davis Parish, Louisiana : Reed, L. C., 1.
- Weno formation, Texas Comanchean : Adkins, 2.
- Westbrook oil field, Mitchell County, Texas : Edwards, E. C., 1.
- West Indies (general). See also names of islands.
 - Barbados : Wilmore, 1.
 - Caribbees : Hovey, 10.
 - Cayman Islands : Matley, 13.
 - Coral reefs : Vaughan, 32.
 - Geology : Vaughan, T. W., 1, 6.
 - Grenadines : Earle, 7, 10.
 - Martinique : Barrabé, 1.
 - St. Lucia : Earle, 2, 4.
 - St. Vincent : Earle, 7.
 - Tectonic features : Vaughan, 26.
- Areas described.*
 - Anguilla : Earle, 6.
 - Cayman Islands : Matley, 14.
 - Dominica, Island of : Earle, 11.
 - Grenada and the Grenadines : Earle, 8.
 - Nevis : Earle, 6.
 - St. Kitts : Earle, 6.
 - St. Lucia : Earle, 4.

West Indies (general)—Continued.

- Areas described—Continued.*
 - St. Vincent and neighboring Grenadines, geology : Earle, 10.
 - Trinidad : Waring, 6.
- Economic geology.*
 - Petroleum : Milner, 2 ; Redfield, 4, 9.
 - Petroleum developments, British West Indies : Catherall, 1.
- Historical geology.*
 - Anguilla, geology : Vaughan, 40.
 - Barbados, Scotland beds : Trechmann, 6.
 - British Virgin Islands : Earle, 5.
 - Cayman Islands, geological survey : Matley, 7.
 - General : Earle, 9.
 - Geologic history : Ihering, 1.
 - Geologic mapping : Vaughan, 12.
 - Mesozoic history : Stanton, 1.
 - Soldado formation, basal Eocene : Maury, 7.
 - Tertiary, correlation : Vaughan, 13.
 - Windward and Leeward islands : Earle, 3, 7.
- Mineralogy.*
 - Pumpellyite, Haiti : Burbank, 1.
- Paleontology.*
 - Balanocrinus, Tertiary : Springer, 8.
 - Bryozoa : Canu, 1.
 - Echini : Jackson, 2.
 - stratigraphic significance : Vaughan, 17.
 - Flora : Hollick, 4.
 - Foraminifera : Cushman, 3.
 - Lepidocyclus and Carpenteria, Cayman Islands : Vaughan, 42.
 - Mammalia, affinities and origin : Matthew, W. D., 1.
 - Megalomys, Pleistocene, Barbuda : Hopwood, 1.
 - Pectens, Tertiary, new names : Cooke, C. W., 4.
 - Tertiary decapod Crustacea : Rathbun, 1, 2.
 - Vertebrate : Matthew, 5.
- Petrology.*
 - Igneous rock, northeast West Indies : Vaughan, 40.
 - Lesser Antilles : Lacroix, 1.
- Physical geology.*
 - Coral reefs, formation : Vaughan, 4.
 - Detrital constituents in a reef sand, Bahamas : Goldman, 17.
 - Fault troughs of the Antilles : Taber, 6.
 - Fault zones of Greater Antilles : Taber, 11.
 - Greater Antilles, seismic belt : Taber, 7.
 - Igneous activity : Vaughan, 27.
 - Lesser Antilles, origin : Davis, 18, 31.
 - Tectonic features : Woodring, 23.
- Physiographic geology.*
 - Antilles, fault troughs : Taber, 6.
 - Bartlett trough : Taber, 2.

West Indies (general)—Continued.

Physiographic geology—Continued.

Lesser Antilles: Davis, 29.

Virgin Islands, Culebra, and Vieques: Meyerhoff, 1.

West Shiningtree gold area, Ontario: Hopkins, P. E., 2.

West Virginia.

Geology at West Virginia University: Tilton, 16.

Structure and scenery: Tilton, 13.

Areas described.

Fayette County: Hennen, 1.

Hampshire and Hardy counties: Tilton, 15.

Mercer, Monroe, and Summers counties: Reger, 9.

Mineral and Grant counties: Reger, 7.

Nicholas County: Reger, 3.

Pendleton County: Tilton, 14.

Randolph County, Mingo district: Reger, 1.

Tucker County: Reger, 6.

Webster County: Reger, 1.

Economic geology.

Cabin Creek oil field: Wasson, 2.

Carbon ratios of coals in oil fields: Reger, 5.

Cheat Mountain coal field, Randolph County: Reger, 16, 17.

Coal: White, I. C., 8.

Abram Creek-Stony River field: Ashley, 4.

analyses: Fieldner, 8.

Fayette County: Hennen, 1.

conservation: Scheffel, 4.

Pittsburgh bed: White, I. C., 9.

smokeless coals: Reger, 11.

sulphur in: White, I. C., 3.

Thomas bed, Harrison: Campbell, M. R., 1.

Coal formations: Eby, J. B., 6.

Copley oil pool: Reger, 14.

Map, coal, oil, gas, iron ore, and limestone areas: White, I. C., 5.

Marble, Pocahontas County: Price, 2.

Mineral resources: White, I. C., 6.

Natural gas: Reger, 2.

Nicholas County: Reger, 3.

Oil and gas development, 1920: Reger, 4.

Oil and gas problems: Scheffel, 3.

Petroleum: Reger, 2.

Salt deposits: Phalen, 1.

Historical geology.

Boring, Cabell County: Reger, 8.

I. H. Lake No. 1: White, I. C., 1.

Conglomerate rocks: Reger, 12.

Copley oil pool: Reger, 14.

Coproliite horizon, Conemaugh series, Morgantown: Price, P. H., 1.

Devonian: Price, W. A., 9.

Huntington-Pittsburgh Basin: Richardson, G. B., 13.

Little North Mountain: Giles, 8.

Mississippian disconformity: Tilton, 11.

Nicholas County: Price, W. A., 7.

West Virginia—Continued.

Historical geology—Continued.

Permian: Tilton, 8, 12.

Permian coal swamps: Tilton, 6.

Randolph County: Reger, 15.

Paleontology.

Calclified log, Pittsburgh coal, Morgantown: Fettke, 8, 9.

Coproliites, Conemaugh series: Price, P. H., 1.

Derbya crassa, abnormal sculpture: Price, W. A., 5.

Devonian trees, Randolph County: Reger, 15.

Faunas of Pennsylvanian and Mississippian periods: Girty, 8.

Footprints, amphibian: Lull, 16.

Mercer, Monroe, and Summers counties, Devonian, Silurian, and Ordovician faunas: Prouty, 14; fossil localities: Reger, 10.

Mississippian faunas: Girty, 4.

Mississippian floras, Appalachian trough: White, D., 29.

Nicholas County: Price, W. A., 7.

Permian vertebrates: Tilton, 10.

Pocono Brachiopoda, Tucker County: Price, W. A., 2.

Webster County: Price, W. A., 1.

Petrology.

Chert deposits: Price, W. A., 6.

Physical geology.

Arches Fork anticline, Roane and Calhoun counties, subsurface structural features: Cottingham, 2.

Eastern West Virginia: Prouty, 11, 13, Huntington-Pittsburgh Basin: Richardson, G. B., 13.

Illustrations of wind action: Tilton, 18.

Landslides: Ladd, G. E., 1.

Slides in Conemaugh formation near Morgantown: Scheffel, 1.

Physiographic geology.

Morgantown area: Scheffel, 1.

Scenic geology: Tilton, 17.

Terraces on Monongahela River: Brown, S. B., 1.

Wheeler Ridge oil field, California: Cunningham, G. M., 1.

Whiskey Lake area, District of Algoma, Ontario: Douglas, G. V., 2.

White River beds, South Dakota, stratigraphy: Wanless, 3.

White River sediments, lithology: Wanless, 1.

Whitehorse district, Yukon: Cockfield, 16.

Whitesail-Tahasa lakes area, British Columbia: Marshall, J. R., 3.

Whiteleyite: Merrill, 8.

Willow Creek district, Alaska: Chapin, 12.

Wind gaps, northern Appalachians: Barrell, 6.

Wind work.

Atmospheric dust in coal: Glock, 2.

California, San Joaquin and Salinas valleys: Reed, 8.

Connecticut Valley: Beaumont, 1.

Wind work—Continued.

- Denudation of the desert: Keyes, 159.
 Dust fall, March 9, 1918: Winchell, A. N., 1; March 19, 1920: Winchell, 4.
 Eolian abrasion of quartz grains: Knight, S. H., 1.
 General: Bryan, 12; Keyes, 12, 82, 97, 165, 170.
 Indiana, northwestern: Cressey, 3.
 Locus of wind deposition: Keyes, 105.
 Molokai, western: Wentworth, 17.
 Pedestal rocks: Bryan, 16.
 Rate of soil deposition, Palouse area: Peterson, P. P., 1.
 Soil shifting and deposits: Larsen, J. A., 1.
 Southwest: Blackwelder, 22.
 Wind-faceted stones: Mehl, 10.
 Windermere area, Kootenay district, British Columbia: Walker, J. F., 1.
 Windrow formation, upper Mississippi Valley: Thwaites, 2.

Wisconsin.

- General: Hotchkiss, 10.
 Survey, reports: Bean, 3; Hotchkiss, 2, 4; Wis. G. S., 1.
 New geological groups, Milwaukee, Public Museum: Edwards, I., 3.
 Soils: Whitson, 14.
 Adams County: Whitson, 13.
 Buffalo County: Whitson, 2.
 Dane County: Whitson, 1.
 Door County: Whitson, 6.
 Jackson County: Whitson, 12.
 Milwaukee County: Whitson, 7.
 northern Wisconsin: Whitson, 10.
 north central Wisconsin: Whitson, 3.
 Outagamie County: Whitson, 9.
 Portage County: Whitson, 5.
 Rock County: Whitson, 11.
 Waupaca County: Whitson, 8.
 Wood County: Whitson, 4.

Economic geology.

- Baraboo gneiss deposits: Hotchkiss, 6.
 Iron, Gogebic range: Hotchkiss, 1, 3, 7.
 Lake Superior region: Winchell, A. N., 2.
 Lake Superior iron deposits: Royce, 1.
 Lead and zinc ores: Spurr, 12.
 Limestone and marls: Steidtmann, 5.
 Magnetic surveying on copper-bearing rocks: Aldrich, H. R., 3.
 Molding sands: Trainer, 3.
 Road materials: Bean, 2.
 Zinc: Boericke, 1; George, H. C., 4.

Historical geology.

- Borings: Thwaites, 3.
 General: Steidtmann, 5; Twenhofel, 15.
 Geological section: Keyes, 118.
 Glacial gravel seam in limestone, Ripon: Thwaites, 1.
 Gogebic range: Hotchkiss, 1, 3.

Wisconsin—Continued.

Historical geology—Continued.

- Lake Superior geosyncline: Hotchkiss, 8.
 Lake Superior iron deposits: Royce, 1.
 Paleozoic: Ulrich, 3.
 in deep wells: Thwaites, 3.
 Paleozoic systems and breaks between them: Ulrich, 12.
 St. Peter sandstone: Dake, 6; Sardeson, 21.
 Shakopee dolomite: Sardeson, 20.
 Southern Wisconsin: Thurston, 1.
 Tomah-Sparta quadrangles: Twenhofel, 4.

Mineralogy.

- Catlinite and quartzite quarries: Barrett, S. A., 1.
 Lead region: Raasch, 2.
 Marcasite, Racine dolomite: Cook, C. W., 4.
 stalactitic forms: George, H. C., 3.
 Meteorite, Colby: Merrill, 42.

Paleontology.

- Black River Brachiopoda: Fenton, C. L., 5.
 Cephalopods: Foerste, 28.
 Cystids and blastoids, Racine: Foerste, 10.
 Elephas roosevelti, Milwaukee: Hay, 26.
 Galena limestone fauna, Appleton: Ockerman, 1.
 Starfish, Galena limestone: Bagg, 2.

Physical geology.

- Glacial gravel seam in limestone, Ripon: Thwaites, 1.
 Sea caves, Devil's Island: Edwards, I., 2.
 Windrow formation: Thwaites, 2.

Physiographic geology.

- Driftless Area: MacClintock, 1; Martin, L., 1.
 erosional history: Trowbridge, 1.
 Intercision, Pike River, Kenosha: Ball, S. H., 4.
 Pitted outwash: Thwaites, 5.
 Pre-Wisconsin terraces, Driftless Area: Thwaites, 8.
 Southeastern Wisconsin: Whitbeck, 1.
 Southwestern Wisconsin: Blanchard, W. O., 1.

Wisconsin River, Pleistocene history: MacClintock, 1.

Wolframite. See Tungsten.

Wood, replacement by dolomite: Adams, S. F., 1.

Wood tin in Tertiary rhyolites: Boydell, 6.

Wood tin nodules: Newhouse, 7.

World atlas of commercial geology: U. S. G. S., 3.

World view of mineral wealth: Umpleby, 1.

Wyoming.

Report of State geologist: Bartlett, 1, 5; Marzel, 1; Morgan, G. B., 4.

Wyoming—Continued.

Work of State geological survey:
Morgan, G. B., 2.

Areas described.

Baxter Basin gas field, Sweetwater
County: Sears, 7.

Bell Springs district, Carbon County:
Dobbin, 5.

Gillette coal field: Dobbin, 3.

Grass Creek Basin quadrangle: Hew-
ett, 16.

Meeteetse quadrangle: Hewett, 16.

Oregon Basin quadrangle: Hewett,
16.

Osage oil field, Weston County: Col-
lier, 7.

Sweetwater County: Sears, 3.

Economic geology.

Atlantic City-South Pass gold min-
ing district: Bartlett, 4; Run-
ner, 5.

Bell Springs district, Carbon County,
oil and gas possibilities: Dobbin,
5.

Big Sand Draw field, Fremont County:
Rae, 3.

Black Hills, oil possibilities: Sinclair,
E. G., 1.

Black oil: Bartram, 3.

Chromite deposits: Diller, 1.

Coal, Oregon Basin, Meeteetse, and
Grass Creek Basin quadrangles:
Hewett, 16.

Elk Basin oil field, faulting: Esta-
brook, 1.

Gillette coal field: Thom, 19.

Golden Eagle gas field: Binney, 2.

Grass Creek oil field: Hewett, 16.

Green River coal deposits: Van Len-
nep, 1.

Gypsum: Stone, 11.

Lance Creek oil and gas field, Nio-
brara County: Hancock, 5.

Light oils in the Rocky Mountain re-
gion, origin: Geis, 1.

Manganese, Laramie Mountains: Jones,
Edw. L., 5.

Mineral resources: Morgan, G. B., 2, 4.

Natrona County: Hagens, 1.

Minturn district: Thom, 19.

Mule Creek oil field: Hancock, 4.

Oil accumulation: Ball, M. W., 1;
Heald, 6.

Oil and gas, Oregon Basin, Meeteetse,
and Grass Creek Basin quad-
rangles: Hewett, 16.

Oil and gas developments, Laramie and
Medicine Bow districts: Bartlett,
A. B., 2.

Oil and gas fields, map: Morgan, G.
B., 4; Richardson, G. B., 4.

Oil and gas occurrences: Estabrook, 2.

Oil and gas possibilities, Bell Spring
district: Dobbin, 5.

Oil and gas prospects, Sweetwater
County: Sears, 3.

Oil and gas sands, texture: Melcher, 3.

Wyoming—Continued.

Economic geology—Continued.

Oil fields, Rawlins-Lost Soldier dis-
trict: Krampert, 1.

Oil possibilities, Baxter Basin, Sweet-
water County: Schultz, 1.

Oil saturation in certain sandstones:
Ruby, 2.

Oil shale: Condit, 2; Schramm, 1;
Jenson, 1; Morgan, G. B., 3;
Winchester, 5.

Oil-bearing horizons: Heald, 5.

Petroleum: Bartlett, 5; Lupton, 4;
Wegemann, 1.

Hanna Basin and Red Desert:
Krampert, 2.

Maverick Springs: Collier, 6.

Osage field, Weston County: Collier,
7.

possibilities near Osage field:
Anon., 30.

southern Wyoming: Bartram, 2.

Thermopolis district: Collier, 4.

Upton-Thornton field: Hancock, 3.

Phosphate near Lander: Condit, 4.

Platinum: Duparc, 1.

Encampment district: Finch, J.
W., 1.

Centennial: Hess, 24.

Platte County, mineral resources:
Bartlett, 6.

Pumpkin Buttes coal field: Wege-
mann, 2.

Salt deposits: Phalen, 1.

Salt Creek oil field: Estabrook, 4;
Fisher, C. A., 1.

water conditions in First Wall
Creek sand: Nowels, 1.

Teapot dome: Clapp, F. G., 5;
Wheeler, H. A., 6.

Upton-Thornton oil field: Hancock, 3.

Uranium ore, Lusk: Lind, 1.

Historical geology.

Bell Springs district, Carbon County:
Dobbin, 5.

Big Horn Basin: Binney, 2; Bralnerd, 1.

Big Sand Draw field, Fremont County:
Collier, 5; Rae, 3.

Bridger beds, Wind River Basin, flora
and ecology: Berry, 72.

Browns Park formation and Bishop
conglomerate: Sears, 4.

Centennial area: Hess, 24.

Chugwater-Sundance contact: Dob-
bin, 4.

Correlation table: Morgan, G. B., 1.
oil areas: Morgan, G. B., 4.

Dakota group: Lee, 8.

General: Keyes, 190.

Geologic formations, correlations.
Lee, W. T., 19.

Geologic map: Campbell, M. R., 9;
Morgan, G. B., 1.

Green River formation, Sweetwater
County; Bradley, W. H., 5.

and its oil shale, origin: Bradley.
W. H., 3.

Wyoming—Continued.

Historical geology—Continued.

Green River formation—Continued.

southwestern Wyoming: Schramm, 1.

Green River valley: Reeside, 7; Van Lennep, 1.

Lance Creek field, Niobrara County: Hancock, 5.

Lost Soldier-Ferris district: Fath, 3, 5.

Maverick Springs, Fremont County: Collier, 6.

Mule Creek oil field: Hancock, 4.

Northwestern Wyoming: Dake, 5.

Oil-bearing horizons: Heald, 5.

Possible varves in marine Cretaceous shale: Rubey, 10.

Pre-Cambrian, Medicine Bow Mountains: Blackwelder, 14; Runner, 8.

north of Laramie: Kemp, 21.

Pre-Cambrian glaciation: Blackwelder, 6.

Pumpkin Buttes coal field: Wegemann, 2.

Rawlins-Lost Soldier district: Krampert, 1.

Rock Springs area, Sweetwater County: Schultz, 1.

Teapot Dome: Clapp, F. G., 5.

Tensleep formation: Brainerd, 2.

Thermopolis district: Collier, 4.

Upton-Thornton oil field: Hancock, 3.

Wasatch and Green River formations, relations: Sears, 5.

Wind River Mountains: Condit, 4.

Mineralogy.

Chlorite, chromiferous: Shannon, 16.

Euhedral oligoclase, Medicine Bow Mountains: Crawford, A. L., 1.

Tschermitgite: Erickson, 1.

Uranium minerals, Lusk: Larsen, 18.

Paleontology.

Alga, Fuson oil shale: Bradley, W. H., 2.

Allognathosuchus: Abel, 6; Mook, 2.

Allognathus, Big Horn Basin: Case, 19.

Amphibian (Ototriton), Lysite beds, Bridger Creek: Loomis, F. B., 1.

Anchitherium agatense: Romer, 6.

Apatemys, Bridger Basin: Troxell, 22.

Apatodonosaurus, Sundance formation, Fremont County: Mehl, 17.

Arctoid carnivore, Miocene: Romer, 9.

Bridger Carnivora: Thorpe, 17.

Caddice fly cases, Green River formation: Bradley, W. H., 1.

Cephalopods, Cody shale, Oregon Basin: Reeside, 13.

Cardioceratidae: Reeside, 1.

Cornus, Converse County: Knowlton, 10.

Cretaceous Mollusca: Reagan, 7.

southeastern Wyoming: Reeside, 5.

Wyoming—Continued.

Paleontology—Continued.

Crocodiles, Bridger beds: Mook, 3; Troxell, 28.

Wasatch beds: Mook, 6.

Cyclopidius: Loomis, 13.

Echinoid, Sundance formation: Miller, A. K., 1.

Eocene insects: Cockerell, 2.

Eocene didelphids: Simpson, G. G., 24.

Fishes, Eocene: Tanner, 1.

Fulgoridae, Eocene, Green River: Cockerell, 9.

Green River flora: Knowlton, 11.

Helaletes: Troxell, 15.

Herpetotherium marsupium, Bridger Basin: Troxell, 23.

Insecta, Eocene: Cockerell, 8.

Merycochoerus: Thorpe, 22.

Minerva saurodosis, Bridger formation: Wetmore, 2.

Miocene, Van Tassel: Loomis, 6.

Multituberculates, Wasatch formation: Granger, 1.

Nodosaurus textilis: Lull, 6.

Notharctus, Eocene primate: Gregory, W. K., 2.

Omorhamphus, Eocene, Big Horn County: Sinclair, 11.

Ophioglossum, Tertiary, Tipperary: Cockerell, 25.

Ophioglossum hastatifforme: Cockerell, 29; Danaea coloradensis: Berry, 57.

Oreodons of Lower Harrison beds: Loomis, 9.

Oreodontidae: Thorpe, 4.

Palaeocastor, Miocene: Romer, 10.

Paramiatus gurleyi, amiid fish, Eocene: Romer, 15.

Pauromys, Bridger formation: Troxell, 20.

Phytosauria, Triassic: Mehl, 19.

Plants, Triassic: Berry, 59.

Poebrotherium: Loomis, 18.

Quarry 9 fauna, Morrison formation, Como Bluff: Simpson, G. G., 11.

Reithroparamys, Bridger formation: Matthew, 11.

Rhynchocephalia, Como Bluff: Simpson, G. G., 12.

Rodentia, Eocene: Troxell, 21.

Salvinia, Fremont County: Berry, 71.

Saniwa, Bridger beds, Sweetwater County: Gilmore, 13.

Sparganium, Eocene: Berry, 61.

Standing stone forests, Yellowstone Park: Mitchell, G. E., 1.

Stelemys nebrascensis, Niobrara County: Case, 18.

Tensleep formation: Brainerd, 2.

Triassic vertebrates: Branson, 19.

Turtle, Amyda nelsoni, Eocene: Case, 23.

Petrology.

Cambrian sedimentary rocks: Tieje, 2.

Wyoming—Continued.

Physical geology.

- Columns in limestone: Branson, 20.
- Deformation, northwestern Wyoming: Dake, 5.
- Earthquake, Big Horn Mountains, November 17, 1925: Pardee, 17.
- Jackson Hole: Blackwelder, 13.
- Elk Basin oil field, faulting: Estabrook, 1.
- Epiantoclinal faults, Elk Basin: Washburne, 11.
- Faulting, Rocky Mountain region: Irwin, 2.
- Folding, major and minor, relative ages: Ball, M. W., 1.
- Fuson oil shale: Bradley, J. H., jr., 1.
- Gros Ventre landslide: Alden, 6.
- Heart Mountain overthrust, Cody region: Hewett, 4.
- Oil field temperatures: Washburne, 8.
- Lost Soldier-Ferris district, folding, age of: Fath, 3.
- Salt Creek dome, temperature conditions: Thom, 17.
- Variation of temperature with geologic structure in oil districts: Van Orstrand, 7.
- Wind-faceted stones: Mehl, 10.

Physiographic geology.

- Beartooth Plateau, glacial features: Dake, 2.
- Green and Yampa rivers, origin: Sears, 4.
- Laramie Range: Kemp, 25.
- Pre-Wisconsin glaciation, Rocky Mountains: Alden, 4.
- Stream piracy in northeastern Wyoming: Rubey, 6.
- Wind River Mountains: Alden, 5.

Underground water.

- Mineral hot springs: Bartlett, 3.
- Oil field waters, analyses: Estabrook, 3.
- Salt Creek field, analyses of underground waters: Ross, J. S., 1.
- Waters from Poison Spider: Parks, E. M., 2.

Xenohelix, Chesapeake Bay, St. Marys County, Maryland: Mansfield, W. C., 4.

X-raying the earth: Daly, 26.

Yellow Pine cinnabar district, Idaho: Larsen, 3; Schrader, 10.

Yellowstone National Park.

- Cristobalite in obsidian: Rogers, A. F., 6.
- Fossil forests: Knowlton, 18.
- Geysers: Darton, 4.
- Hot areas, classification: Allen, E. T., 7.
- Obsidian Cliff: Foshag, 23.
- Standing stone forests: Mitchell, G. E., 1.
- Temperatures in springs and geysers: Van Orstrand, 6.

Yentna gold placer district, Alaska: Capps, 9.

Yosemite Valley, California: Matthes, 3.
Yucatan.

Petrology.

Obsidian, Chichen Itza: Washington, 13.

Yukon.

- Dezadeash Lake area: Cockfield, 20.
- Geological mapping: Dolmage, 6.
- Mayo area: Cockfield, 1, 4.
- Ogilvie Range: Cockfield, 3.

Areas described.

- Aishihik Lake area: Cockfield, 19.
- Galena Hill, Mayo district: Stockwell, 1.
- Keno Hill, Mayo district: Cockfield, 11.
- Mayo district: Cockfield, 2; Beaver River area: Cockfield, 15.
- Whitehorse district: Cockfield, 16.

Economic geology.

- Copper, Whitehorse belt: Cockfield, 23.
- Iron ores: Young, G. A., 6.
- Mayo district: Cockfield, 10, 13; Williams, C. F., 1.
- Mayo silver area: Johnson, G. F., 1.
- Silver-lead deposits, Beaver River area: Cockfield, 12, 14.
- Davidson Mountains, Mayo district: Cockfield, 8.

Fifteenmile Creek: Cockfield, 21.

Galena Hill: Stockwell, 1.

Keno Hill area, Mayo district: Cockfield, 6, 7.

Rude Creek: Cockfield, 22.

Twelvemile area: Cockfield, 2.

Sixtymile and Ladue rivers area: Cockfield, 5.

Southern Yukon: Cockfield, 9.

Historical geology.

Sixtymile and Ladue rivers area: Cockfield, 5.

Southern Yukon: Cockfield, 9.

Whitehorse district: Bell, A. H., 12.

Mineralogy.

Epidote, White Horse Rapids: Poitevin, 2.

Paleontology.

Bison skull: Clark, T. H., 15.

Equus lambel: Hay, 18.

Physical geology.

Klutlan Glacier: Lambart, 1.

Zeolite beds in the Green River formation: Bradley, W. H., 8.

Zeolites, composition: Winchell, 12.

Zinc.

Appalachian deposits, common features: Freeman, L. 1.

Arizona: Ariz. Bur. Mines, 2.

Arkansas: Sharp and Lawrence counties: U. S. G. S., 14.

British Columbia: Robinson, A. H. A., 2.

Ainsworth district: Schofield, 4.

East Kootenay district: Whittemore, 1.

Slocan area: Cairnes, 10.

Windermere area: Walker, J. F., 1.

Canada: Bingay, 1.
eastern: Alcock, 23; Robinson, A. H. A., 4.

Zinc—Continued.

- Central States: Dunlop, 1, 4, 6, 9, 12, 16.
 Colorado, Red Cliff district: Crawford, R. D., 3.
 Discovery in America: Keyes, 60.
 Eastern States: Dunlop, 3, 7, 11, 15, 18.
 General: Siebenthal, 2, 4, 8, 11, 13, 15, 20, 22, 27, 29.
 Idaho: Gerry, 1, 3, 5, 8, 10, 13.
 Pine Creek district: Jones, Edw. L., 1.
 Shoshone County: Umpleby 3.
 Manitoba: Wallace, 22.
 Missouri: Keyes, 114.
 Montana: Gerry, 2, 4, 7, 12, 15.
 Nevada, Pioche district: Westgate, 6.
 New Jersey, Sussex County: Fitch, A. A., 1; Ries, 8; Salton, 1.
 New York: Newland, 2.
 Edwards: Spurr, 13.
 Gouverneur quadrangle: Cushing, 1.
 St. Lawrence County: Wade, W. R., 2.
 Nova Scotia, Richmond County, Stirling area: Weeks, L. J., 1.
 Oklahoma, Miami district: Netzeband, 1.
 Picher district, lead and zinc: Spurr, 32.
 Oklahoma-Kansas-Missouri field: Naething, 2.
 Ontario: Alcock, 23.
 Sudbury mining division, Genoa township: Moore, E. S., 16.

Zinc—Continued.

- Pennsylvania: Miller, B. L., 3; Pennsylvania G. S., 1.
 Allentown quadrangle: Miller, B. L., 5.
 Quebec: Alcock, 23.
 Gaspé: Alcock, 14, 29; Beidelman, 1, 2; Mailhoit, 5.
 Pontiac County, Calumet Island: Goranson, 3.
 western: Dufresne, 7.
 Smithsonite, formation: Watson, 7.
 Tennessee, east: Secrist, 1.
 Mascot area: Nelson, 17.
 Tri-State district: George, P. W., 1; Weidman, 5.
 Upper Mississippi Valley: Spurr, 12.
 Utah: Butler, 4.
 Ophir district: Olmstead, 1.
 Promontory Point mining district: Siegfus, 1.
 Tintic district: Lindgren, 2.
 Washington: Gerry, 1, 3, 6, 9, 11, 14.
 Wisconsin: George, H. C., 4.
 Wisconsin district: Boericke, 1.
 Zinc pigments and salts: Siebenthal, 17.
 Zircon: Schaller, 4.
 As a criterion of origin of metamorphosed rocks: Armstrong, P., 2.
 Florida, beach deposits: Martens, 9.
 Occurrence: Meyer, 1.
 Zirconium: Ries, 9.
 Zymoetz River area, Coast district, British Columbia: Hanson, 11.