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**UNITED STATES DEPARTMENT OF THE INTERIOR**

**BIBLIOGRAPHY**  
**OF**  
**NORTH AMERICAN GEOLOGY**  
**1942 and 1943**

**GEOLOGICAL SURVEY BULLETIN 949**





**UNITED STATES DEPARTMENT OF THE INTERIOR**

**Harold L. Ickes, Secretary**

**GEOLOGICAL SURVEY**

**W. E. Wrather, Director**

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**Bulletin 949**

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**BIBLIOGRAPHY**  
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**BY**  
**EMMA MERTINS THOM**

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## CONTENTS

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Introduction	-----	<b>Page</b> iii
Abbreviations	-----	v
Serials examined	-----	1
Bibliography	-----	10
Index	-----	218

# **BIBLIOGRAPHY OF NORTH AMERICAN GEOLOGY 1942 and 1943**

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By **EMMA MERTINS THOM**

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## **INTRODUCTION**

The bibliography of North American geology, including paleontology, pétrology, and mineralogy, for the years 1942 and 1943, lists publications on the geology of the Continent of North America and adjacent islands and on Panama, the Hawaiian Islands, and the Island of Guam. It includes textbooks and papers of a general caractère by American authors, but not papers by foreign authors, except those 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 1941 is contained in the following bulletins of the United States Geological Survey: 746 and 747 (1785-1918) and 823 (1919-28), by John M. Nickles; 937 (1929-39) and 938 (1940-41) by Emma Mertins Thom.



## ABBREVIATIONS

A. A. A. S.	American Association for the Advancement of Science	Bull.	Bulletin
A. I. M. E.	American Institute of Mining and Metallurgical Engineers	Bur.	Bureau
Aardrijksk.	Aardrijkskundig	Camb.	Cambrian
aarg.	aargang	Carb.	Carboniferous
Abh.	Abhandlung	Cat.	Catalog
Abt.	Abteilung	cent.	central
Acad.	Academy, etc.	Centralbl.	Centralblatt
Accad.	Accademia	cf.	compare with
Adm.	Administration	Chap.	Chapter
ads.	advertisements	Chem.	Chemical, etc.
Adv.	Advancement	chim.	chimique
Afd.	Afdeeling, Afdeling	Cienc.	Ciencia, Ciencias
Afl.	Aflevering	cient.	cientifica
Agr.	Agricultural, Agriculture	Circ.	Circular
Akad.	Akademie	Cl.	Classe
allg.	allgemeine	classn.	classification
Am.	American	Co.	Company, County
Anal.	Analytic, etc.	Coll.	Collections
angew.	angewandte	Comm.	Committee
Ann.	Annual	Commun.	Communications
anorg.	anorganisch, etc.	Comp.	Comparative
Anthropol.	Anthropological, etc.	con.	consolidated
Anz.	Anzeiger	Conf.	Conference
App.	Appendix	Cong.	Congress, etc.
appl.	applique	conglom.	conglomerate
approx.	approximately	Conserv.	Conservation
Apr.	April	Contr.	Contributions
Arb.	Arbeiten	Coop.	Cooperative
Arb.	Arbok	correl.	correlation
Archeol.	Archeological, etc.	Coun.	Council
Arg.	Ärgang	Cret.	Cretaceous
Arssk.	Arsskrift	Dec.	December
art.	article	Denkschr.	Denkschrift
Assoc.	Association	Dept.	Department, etc.
Astron.	Astronomical, etc.	Dev.	Devonian
Aug.	August	devel.	development
Auth.	Authority	diagr.	diagram
Av.	Avancement	Direc.	Dirección
Avd.	Avdelningen	Dissert.	Dissertation
Bd.	Board	dist.	district
Beitr.	Beitrag, etc.	distrib.	distribution
Ber.	Bericht, etc.	Div.	division
Bibl.	Bibliographic etc.	Doc.	Doctoral, Document
Bienn.	Biennial	Doc. Dissert.	Doctoral Dissertation
Biog.	Biographie, etc.	dol.	dolomite
Biol.	Biologic, etc.	E.	east
Bldg.	Building	Ecol.	Ecological, etc.
Bol.	Boletim, Boletín	Econ.	Economic
Boll.	Bollettino	ed.	edition
Bot.	Botanic, etc.	Educ.	Education, Educational
Br.	Branch	Elec.	Electric, etc.
		Eng.	Engineering, Engineers
		Entomol.	Entomological, etc.

equiv	equivalent	Inv	Investigation, Investiga- tions
Erläut	Erläuterungen	Irr	Irrigation
ex	except	Is	Island, Islands
exam	examination	Ist	Istituto
Exper	Experiment, Experi- mental	Izv	Izvestiya
expl	explanation, explanatory	Jaarb	Jaarboek
explor	exploration, etc.	Jaarg	Jaargang
extr	extract, extracted	Jahrb	Jahrbuch
Fac	Faculty	Jahresber	Jahresbericht
facsim	facsimile	Jahresh	Jahresheft
fasc	fascicle	Jahresvers	Jahresversammlung
Feb	February	Jahrg	Jahrgang
fig	figure	Jan	January
fm	formation	Jour	Journal
Fören	Förening	Juras	Jurassic
Förh	Förhandlingar	K	Kaiserlich, Königlich, etc.
Fortschr	Fortschritte	Kl	Klasse
franc	français	Lab	Laboratory
front	frontispiece	Lief	Lieferung
Ft	Fort	Lit	Literary, Literature
fysiog	fysiografiska	livr	livraison
g	geologic	ls	limestone
G. S	Geological Survey	loc	locality
G. Soc	Geological Society	lvs	leaves
Gazz	Gazzetta	Mag	Magazine
Gen	General	Mar	March
gén	générale	Math	Mathematical, etc.
Geneesk	Geneeskunde	mbr	member
Geochem	Geochemical, etc.	Mech	Mechanical, etc.
Geod	Geodetic	Med	Medical
géod	géodétique	Medd	Meddelanden
Geog	Geographic, etc.	Meddel	Meddelelser
géog	géographique	Mededeel	Mededeelingen
Geol	Geologic, etc.	Mem	Memoir, Memoria
géol	géologique	Mém	Mémoire
Geophys	Geophysical, etc.	Memo	Memorandum
géophys	géophysique	Met	Metallurgical, etc.
Gesell	Gesellschaft	metam	metamorphic, metamor- phosed
Gior	Giornale	Meteorol	Meteorological, etc.
Govt	Government	mier	microscopic, etc.
Grad	Graduate	Mimeo	Mimeographed
Handl	Handlingar	Min	Mineral, Mining
hist	historic, etc.	min. res	mineral resources
hüttenm	hüttenmannisch	Mineralog	Mineralogic, etc.
Hydrog	Hydrographic, etc.	Misc	Miscellaneous
Hydrol	Hydrologic, etc.	Missn	Mississippian
ig	igneous	Mitt	Mitteilungen
illus	illustrated, illustration, illustrations	Mon	Monograph, etc.
Imp	Imperial	Monatsber	Monatsbericht
Inc	Incorporated	Monatsh	Monatsheft
incl	including	Monatsschr	Monatsschrift
Indust	Industrial	ms	manuscript
Inf	Information	Mt	Mount
Ing	Ingenieros, Ingenieurs	Mtg	Meeting
Inst	Institute, Institution, etc.	Mtn	Mountain
internac	internacional	Mts	Mountains
Internat	International, etc.	Mus	Museo, Museum, etc.
intro	introduction	n	new
intrus	intrusive		

N_____	north	quad_____	quadrangle
N. Am_____	North America	Quart_____	Quarterly
n. d_____	no date	Quat_____	Quaternary
n. s_____	new series		
nac_____	nacional	R_____	Reale
Nachr_____	Nachrichten	R. R_____	Railroad
Nat_____	National, Natural	Rap_____	Rapport
naturf_____	naturforscher, naturfor- schende	Rec_____	Record, Records, Recueil
naturh_____	naturhistorisch	reconn_____	reconnaissance
naturwiss_____	naturwissenschaftlich	Rend_____	Rendiconti
natuurk_____	natuurkundig	Rept_____	Report
NE_____	northeast	Res_____	Resources
no_____	number	Rev_____	Review, Revista, Revue
nos_____	numbers	Riv_____	Rivista
nouv_____	nouveau, etc.	Ry_____	Railway
Nov_____	November		
Nr_____	Nummer	s_____	series
NW_____	northwest	S_____	south, Survey
		Sällsk_____	Sällskapet
Occ_____	Occasional	Schr_____	Schrift
Oct_____	October	schweizer_____	schweizerisch
Ord_____	Ordovician	Sci_____	Science, Sciences, Scientific
		SE_____	southeast
p_____	page	Sec_____	Section
palaeont_____	palaeontologisch	Sed_____	Sedimentary
Paleoecol_____	Paleoecological, etc.	Seismog_____	Seismographic, etc.
Paleogeog_____	Paleogeographic, etc.	Seismol_____	Seismologic, etc.
Paleont_____	Paleontologic, etc.	séismol_____	séismologique
Pamph_____	Pamphlet	Selsk_____	Selskab
Pan-Am_____	Pan-American	Sept_____	September
Pen_____	Peninsula	ser_____	series
Penn_____	Pennsylvanian	Serv_____	Service
Perm_____	Permian	Sess_____	Session
Petrog_____	Petrographic, etc.	sh_____	shale
Petrol_____	Petrologic, etc.	Sil_____	Silurian
Philos_____	Philosophical, etc.	Sitzungsber_____	Sitzungsbericht
photo_____	photograph	Skr_____	Skrift
photog_____	photographic	Soc_____	Société, Society
Phys_____	Physical, etc.	sp_____	species
physikal_____	Physikalisch	Spec_____	Special
Physiog_____	Physiographic, etc.	ss_____	sandstone
Pk_____	Peak	St_____	Saint
pl_____	plate	Sta_____	Station
Plann_____	Planning	Ste_____	Sainte
Pleist_____	Pleistocene	Strat_____	Stratigraphic, etc., Stra- tigraphy
pls_____	plates	Summ_____	Summaries, Summarized, Summary
Polytech_____	Polytechnic, etc.	Supp_____	Supplement, Supple- mentary
Pop_____	Popular	SW_____	southwest
port_____	portrait	syn_____	synonym
ports_____	portraits		
poss_____	possibility, possibilities	TVA_____	Tennessee Valley Au- thority
pp_____	pages	tab_____	table
prakt_____	praktisch	Tech_____	Technical, etc.
pre-Camb_____	pre-Cambrian	Technol_____	Technological, etc.
Prelim_____	Preliminary	temp_____	temporary
Proc_____	Proceedings	Terr_____	Territory, Territories, Territorial
Prof_____	Professional	Tert_____	Tertiary
Prog_____	Progress	Tidskr_____	Tidskrift
Proj_____	Project	Tidsskr_____	Tidsskrift
prosp_____	prospecting	Tijdschr_____	Tijdschrift
Prov_____	Province		
Pt_____	Part, Point		
Pts_____	Parts		
Pub_____	Publication, Publica- tions, published		

Topog\_\_\_\_\_Topographic, etc.  
 Tp\_\_\_\_\_Township  
 Tps\_\_\_\_\_Townships  
 Trans\_\_\_\_\_Transactions  
 transl\_\_\_\_\_translate, translation  
 transp\_\_\_\_\_transportation  
 Trav\_\_\_\_\_Travaux  
 Trias\_\_\_\_\_Triassic

U. S.\_\_\_\_\_United States  
 uncon\_\_\_\_\_unconformity, etc.  
 undet\_\_\_\_\_undetermined  
 Univ\_\_\_\_\_University

veg\_\_\_\_\_vegetation  
 Ver\_\_\_\_\_Verein  
 Verh\_\_\_\_\_Verhandlungen, Ver-  
                   handlung, etc.

Vers\_\_\_\_\_Versammlung  
 Vetensk\_\_\_\_\_Vetenskaps  
 Vetenskaps-  
   akad\_\_\_\_\_Vetenskapsakademiens  
 Vidensk\_\_\_\_\_Videnskabernes, Viden-  
                   skaps  
 vol\_\_\_\_\_volume  
 vs\_\_\_\_\_versus

W\_\_\_\_\_west  
 Wetensc\_\_\_\_\_Wetenschappen  
 Wiss\_\_\_\_\_Wissenschaft  
 Wochenschr\_\_\_\_\_Wochenschrift

Zeitschr\_\_\_\_\_Zeitschrift  
 Zentralb\_\_\_\_\_Zentralblatt  
 Zhur\_\_\_\_\_Zhurnal  
 Zool\_\_\_\_\_Zoological, etc.



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# INDEX

[The numbers refer to entries in the bibliography]

- Actinocrinus chloris Hall identified: Kirk E., 6.
- Addresses. See also Miscellaneous.
- American geology, 1850-1900: Willis, B., 1.
- CaSiO<sub>3</sub>-diopside-akermanite relations: Schairer, J. F., 1.
- Cripple Creek dist., Colo.: Koschmann, A. H., 1.
- Deep-focus earthquakes: Lynch, W. A., 1.
- Discovery thinking and oil reserves: Levorse, 8.
- Forty years of Oklahoma geology: Gould, C. N., 2.
- Geographical union now: Croneis, C. G., 5.
- Geologist and the nation: Williams, M. Y., 3.
- Geologist in public works: Berkey, C. P., 2.
- Geologist in the war: Aurin, F. L., 1.
- Geology, role in first World War: Johnson, D. W., 3.
- Geophysics, geochemistry, and petroleum: Blau, L. W., 1.
- Geophysicists' service: Peacock, H. B., 1.
- Glaciation and submarine valleys: Daly, R. A., 3.
- Gold and iron prospects in Canada: Baker, M. B., 1.
- Gravity anomalies in sed. basins: Skeels, D. C., 2.
- Magmas and ores: Bateman, A. M., 4.
- Methods, instruments, in mineralogy: Wright, F. E., 1.
- Microfossils, Tert., Gulf Coast: Howe, H. V., 2.
- Mining geology today: Joralemon, I. B., 2.
- Mountains, origin: Longwell, C. R., 3.
- Nevada, dating diastrophic events: Longwell, C. R., 2.
- North America, Pleist.: Flint, R. F., 5.
- Oil in the earth: Pratt, W. E., 1.
- Outline of military geology: Erdmann, C. E., 3.
- Paleontology, an appraisal: Stephenson, L. W., 1.
- Petroleum explor. and devel. in war: DeGolyer, E. L., 4.
- Petroleum geologist and engineer: Levorse, A. I., 5.
- Petroleum reserves and needs in U. S.: Heroy, W. B., 2.
- Petrology and earth interior: Buddington, A. F., 1.
- Prospecting, development: DeGolyer, E. L., 1.
- Quartz veins, Ouachita Mts., Ark.-Okla.: Miser, H. D., 2.
- Southwestern geology: Baker, C. L., 3.
- Tertiary, continental problems: Wood, H. E., 2d, 1.
- War role of a geological survey: Bevan, A. C., 4.
- Adularia, quartz veins, Ouachita Mts., Ark.-Okla.: Miser, H. D., 2.
- Aegrine, Ear Mtn., Alaska: Coats, R. R., 1.
- Aeolian sand, Gerstle River area, Alaska: Moffit, F. H., 1.
- Aerial photographs, photography, maps, and mapping.
- Aerial photos, in geol. study: Smith, H. T. U., 2.
- Alaska, Chicagof mining dist.: Reed, J. C., 1.
- Pitting on farm lands: Rockie, W. A., 1.
- Prince William Sound area: Cooper, W. S., 1.
- Applications: Smith, H. T. U., 1.
- Arizona, pediment passes: Howard, A. D., 1.
- Avigation and map reading: Field, R. M., 1.
- Avigation vs. navigation: Field, R. M., 2.
- Bibliographies: Cobb, G. C., 1.
- California, Del Valle oil field: Tarbet, L. A., 1.
- Garza and Canoas Creeks area: Cushman, J. A., 3.
- Canada, reconnaissance mapping: Shaw, G., 2.
- Canadian maps and surveys, peace and war: Peters, F. H., 1.
- Canadian Shield structures: Joliffe, A. W., 1.
- Carolina Bays: Prouty, W. F., 1.
- Contouring, elevation measurements, vertical aerial photos.: Desjardins, L. H., 3.
- Illinois, Marseilles, Ottawa, and Streator quads.: Willman, H. B., 2.
- Map interpretation with military application: Putnam, W. C., 2.
- Map reading and avigation: Field, R. M., 1.
- Maps, military, and aerial photos.: MacLean, N. F., 1.
- Massachusetts, Plum Is.: Nichols, R. L., 1.
- Measurement of dip angles on photos.: Desjardins, L. H., 2.
- Military geology from the air: Rich, J. L., 1.
- Ontario, North Bay terraces: Lang, A. H., 4.
- Rowlandson Lake area: Prest, V. K., 1.
- Parícutin volcano, Mex.: De la O. Carreño, A., 1.
- Reconnaissance mapping by photogrammetry: Fitzgerald, G., 1.
- Stereoscope with aerial photos.: Johnson, C. G., 1.
- Texas, N. Quitman Mts.: Huffington, R. M., 1.
- Use and interpretations: Desjardins, L. H., 1.
- Wisconsin, NE.: Thwaites, F. T., 2.
- Agates.
- Montana, rainbow: Murdock, H. E., 1.
- Nebraska: Schram, E. F., 1.
- South Dakota: Connelly, J. P., 1.
- Hell Canyon: Elshire, A. L., 1.
- Texas: Reiner, T. A., 1.
- Washington: Dake, H. C., 2.
- Wisconsin, older drift: Stratton, C. G., 1.
- Wyoming, fm., tube agates: Ridgway, C., 1.

- Age of flowering plants: Berry, E. W., 2.  
 Age of solar system, measurement: Evans, R. D., 2.  
 Agglomerate, Wunnummin Lake area, Ontario: Prest, V. K., 2.  
 Agricolite, bismuth arsenates: Frondel, C., 5.  
 Agricolite identical with eulytite: Frondel, C., 5.  
 Alabama.  
   Report of progress, 1934-38: Jones, W. B., 1; 1938-42, Lloyd, S. J., 1.  
*Economic geology.*  
   Birmingham iron dist.: DeSollar, T. C., 1.  
   Geology and min. res.: Hildreth, E., 1.  
   Hatchetigbee anticline gravity survey: McCollum, E. V., 1.  
   Iron ore, brown, Chulafinnee dist.: Hudde, J. W., 1.  
   North Ala., oil explor.: Payne, W., 1.  
   Northwest Paleozoics: Miss. G. Soc., 1.  
   Talc: McMurray, L., 1.  
   Tennessee Valley region: Harper, R. M., 1.  
   Well logs: Bowles, E. O., 1.  
*Historical geology.*  
   Birmingham area: Poor, R. S., 1.  
   Iron dist.: DeSollar, T. C., 1.  
   Geology and min. res.: Hildreth, E., 1.  
   Northwest Paleozoics: Miss. G. Soc., 1.  
   Paleozoic, Cherokee Co.: Cloud, P. E., Jr., 3.  
   Ripley deposits: Monroe, W. H., 1.  
   Selma deposits: Monroe, W. H., 1.  
*Mineralogy.*  
   Birmingham iron dist.: DeSollar, T. C., 1.  
   Fluoride, Cret. area ground water: Carlston, C. W., 2.  
   Geology and min. res.: Hildreth, E., 1.  
   Oolite, siliceous, Centreville: Pratt, W. L., Jr., 1.  
*Paleontology.*  
   Ampelocrinus, Upper Missn.: Kirk, E., 2.  
   Anthozoa, Missn.: Easton, W. H., 4.  
   Basilosaurus, ancient whale: Palmer, K. E. H. V., 1.  
   Corals, Upper Missn.: Easton, W. H., 7.  
   Fauna, Glendon fm.: Resser, C. E., 3.  
   Maryville fm.: Resser, C. E., 3.  
   Foraminifera, Eocene: Cushman, J. A., 2.  
   Oligocene: Cushman, J. A., 1.  
   Paleozoic, Cherokee Co.: Cloud, P. E., Jr., 3.  
*Petrology.*  
   Birmingham area: Poor, R. S., 1.  
   Intrusion, syntectonic: Gault, H. R., 1.  
   Ripley deposits: Monroe, W. H., 1.  
   Selma deposits: Monroe, W. H., 1.  
*Physical geology.*  
   Birmingham area: Poor, R. S., 1.  
   Hatchetigbee anticline gravity survey: McCollum, E. V., 1.  
   Intrusion, syntectonic: Gault, H. R., 1.  
   Ripley deposits: Monroe, W. H., 1.  
   Selma deposits: Monroe, W. H., 1.

## Alabama—Continued

*Physiographic geology.*

- Ripley deposits: Monroe, W. H., 1.  
 Selma deposits: Monroe, W. H., 1.  
 Tennessee Valley region: Harper, R. M., 1.

*Underground water.*

- Fluoride, Cret. area ground water: Carlston, C. W., 2.  
 Tennessee Valley region: Harper, R. M., 1.

## Alaska.

- Podzol fm. time, Mendenhall Glacier area: Chandler, R. F., Jr., 1.

*Areas described.*

- Chicagof mining dist.: Reed, J. C., 1.  
 Gerstle River dist.: Moffitt, F. H., 1.  
 Nickel area, Bohemia Basin, Yakobi Is.: Reed, J. C., 2.  
 Nutzotin Mts. area: Moffitt, F. H., 2.  
 Portage Pass area: Barnes, F. F., 1.  
 Seward Pen.: Alaska Plann. Coun., 1.

*Economic geology.*

- Antimony, Stampede Creek area: White, D. E., 1.  
 Beatson copper mine: Bateman, A. M., 1.  
 Chicagof mining dist.: Reed, J. C., 1.  
 Chromite, Baranof Is.: Guild, P. W., 2.  
 Kenai Pen.: Guild, P. W., 1.  
 Gerstle River dist.: Moffitt, F. H., 1.  
 Gold near Nabesna: Wayland, R. G., 2.  
 Iron, Kasaan Pen.: Anonymous, 6.  
 Kennecott deposits: Bateman, A. M., 2.  
 Mineral resources: Joesting, H. R., 1; Smith, P. S., 2.  
 Nickel, Yakobi Is.: Kennedy, G. C., 1; Reed, J. C., 2.  
 Nickel-copper deposit, Admiralty Is.: Reed, J. C., 4.  
 Baranof Is.: Reed, J. C., 3.  
 Chicagof Is.: Pecora, W. T., 2.  
 Nutzotin Mts. area: Moffitt, F. H., 2.  
 Seward Pen.: Alaska Plann. Coun., 1.  
 Tertiary, Eagle-Circle dist.: Mertie, J. B., Jr., 1.

*Historical geology.*

- Buried beaches, Nome: MacNeil, F. S., 1.  
 Chicagof mining dist.: Reed, J. C., 1.  
 Chromite deposits, Baranof Is.: Guild, P. W., 2.  
 Kenai Pen.: Guild, P. W., 1.  
 Gerstle River dist.: Moffitt, F. H., 1.  
 Kennecott deposits: Bateman, A. M., 2.  
 Matanuska Valley: Martin, P. F., 1.  
 Nabesna area: Wayland, R. G., 2.  
 Nickel area, Bohemia Basin, Yakobi Is.: Kennedy, G. C., 1; Reed, J. C., 2.  
 Nickel-copper deposits, Admiralty Is.: Reed, J. C., 4.  
 Baranof Is.: Reed, J. C., 3.  
 Chicagof Is.: Pecora, W. T., 2.  
 Nutzotin Mts. area: Moffitt, F. H., 2.  
 Perennially frozen ground: Taber, S., 1.  
 Portage Pass area: Barnes, F. F., 1.  
 Seward Pen.: Alaska Plann. Coun., 1.  
 Stampede Creek area: White, D. E., 1.

## Alaska—Continued.

*Historical geology*—Continued

Tertiary, Eagle-Circle dist.: Mertie, J. B., Jr., 1.

*Mineralogy.*

Antimony, Stampede Creek area: White, D. E., 1.

Beatson copper mine: Bateman, A. M., 1.

Chicagof mining dist.: Reed, J. C., 1.

Chromite, Baranof Is.: Guild, P. W., 2.

Kenai Pen.: Guild, P. W., 1.

Digenite, Kennecott: Buerger, N. W., 1.

Garnets, Fort Wrangell: Pabst, A., 2.

Gillespite crystal structure: Pabst, A., 3.

Gold near Nabesna: Wayland, R. G., 2.

Iron, Kasaan Pen.: Anonymous, 6.

Kennecott deposits: Bateman, A. M., 2.

Mineral resources: Joesting, H. R., 1; Smith, P. S., 2.

Molybdenum minerals: Smith, P. S., 1.

Nickel deposits, Yakobi Is.: Kennedy, G. C., 1; Reed, J. C., 2.

Nickel-copper deposits, Admiralty Is.: Reed, J. C., 4.

Baranof Is.: Reed, J. C., 3.

Chicagof Is.: Pecora, W. T., 2.

*Paleontology.*

Citellus, Pleist.: Hill, J. E., 1.

Faunas, late Paleozoic: Williams, J. S., 1.

Invertebrates, buried beaches, Nome: MacNeil, F. S., 1.

Megalonyx, Quat.: Stock, C., 2.

Prince William Sound area: Cooper, W. S., 1.

Tertiary, Eagle-Circle area: Mertie, J. B., Jr., 1.

*Petrology.*

Aegirine-augite fm.: Coats, R. R., 1.

Arfvedsonite fm.: Coats, R. R., 1.

Chicagof mining dist.: Reed, J. C., 1.

Chromite deposits, Kenai Pen.: Guild, P. W., 1.

Gold deposits near Nabesna: Wayland, R. G., 2.

Nickel deposits, Bohemia Basin, Yakobi Is.: Reed, J. C., 2.

Nutzotin Mts. area: Moffit, F. H., 2.

Podzol fm. time, Mendenhall Glacier area: Chandler, R. F., Jr., 1.

Portage Pass area: Barnes, F. F., 1.

*Physical geology.*

Aegirine-augite fm.: Coats, R. R., 1.

Arfvedsonite fm.: Coats, R. R., 1.

Beatson copper mine: Bateman, A. M., 1.

Buried beaches, Nome: MacNeil, F. S., 1.

Chicagof mining dist.: Reed, J. C., 1.

Gerstle River dist.: Moffit, F. H., 1.

Kenai Pen. chromite dist.: Guild, P. W., 1.

Kennecott deposits: Bateman, A. M., 2.

Matanuska Valley: Martin, P. F., 1.

Nabesna area: Wayland, R. G., 2.

Nickel-copper deposits, Chicagof Is.: Pecora, W. T., 2.

Nutzotin Mts. area: Moffit, F. H., 2.

Perennially frozen ground: Taber, S., 1.

## Alaska—Continued.

*Physical geology*—Continued.

Portage Pass area: Barnes, F. F., 1.

Stampede Creek area: White, D. E., 1.

Tertiary, Eagle-Circle dist.: Mertie, J. B., Jr., 1.

Yakobi Is. nickel deposits: Kennedy, G. C., 1.

*Physiographic geology.*

Buried beaches, Nome: MacNeil, F. S., 1.

Chicagof mining dist.: Reed, J. C., 1.

Gerstle River dist.: Moffit, F. H., 1.

Glaciers: Field, W. O., Jr., 1.

Thinning during deglaciation: Flint, R. F., 2.

Ground-ice mounds in tundras: Sharp, R. P., 3.

Matanuska Valley: Martin, P. F., 1.

Nutzotin Mts. area: Moffit, F. H., 2.

Perennially frozen ground: Taber, S., 1.

Pitting on farm lands: Rockie, W. A., 1.

Podzol fm. time, Mendenhall Glacier area: Chandler, R. F., Jr., 1.

Portage Pass area: Barnes, F. F., 1.

Prince William Sound area: Cooper, W. S., 1.

Alaskite, Spruce Pine dist., N. C.: Kesler, T. L., 1.

## Alberta.

*Areas described.*

Moose Mtn.-Morley area: Beach, H. H., 3.

*Economic geology.*

Athabasca oil sands: Ball, M. W., 2.

Border-Red Coulee oil field: Erdmann, G. E., 1.

East-central Alberta: Hume, G. S., 1.

General: Allan, J. A., 1.

Moose Mtn. field: MacNeil, D. J., 1.

Moose Mtn.-Morley area: Beach, H. H., 3.

Oil sands: Bourne, L., 1.

Petroleum and gas fields: Farmilo, A. W., 1.

*Historical geology.*

Bassano area: Stewart, J. S., 1.

Border-Red Coulee oil field: Erdmann, C. E., 1.

Bragg Creek area: Canada G. S., 1.

Brooks area, g. map: Canada G. S., 1.

East-central Alberta: Hume, G. S., 1.

Fault, folded, Pekisko area: Hume, G. S., 3.

Folded thrust faults, foothills: Hake, B. F., 1.

General: Allan, J. A., 1.

Glaciation: Rutherford, R. L., 1.

Innisfree area, g. map: Canada G. S., 1.

Jumpingpound area: Canada G. S., 1.

Keewatin end moraines: Bretz, J. H., 2.

Kityscoty area, g. map: Canada G. S., 1.

Marble Mtn. area: Beach, H. H., 1.

Moose Mtn. area: MacNeil, D. J., 1.

Moose Mtn.-Morley area: Beach, H. H., 3.

Petroleum and gas fields: Farmilo, A. W., 1.

## Alberta—Continued

*Historical geology*—Continued.

- Redcliff area g. map: Canada G. S., 1.  
 Rocky Mtn. quartzite, age: Wheeler, H. E., 2.

*Mineralogy.*

- General: Allan, J. A., 1.

*Paleontology.*

- Conodonts, Lower Missn.: Cooper, C. L., 4.  
 East-central Alberta: Hume, G. S., 1.  
 Fossil starfish, Cret.: McLearn, F. H., 5.  
 General: Allan, J. A., 1.  
*Leidyosuchus*, Cret.: Mook, C. C., 3.  
 Moose Mtn.-Morley area: Beach, H. H., 3.

*Petrology.*

- Black sh., Lower Missn.: Cooper, C. L., 4.  
 East-central Alberta: Hume, G. S., 1.  
 General: Allan, J. A., 1.

*Physical geology.*

- Bassano area: Stewart, J. S., 1.  
 Fault, folded, Pekisko area: Hume, G. S., 3.  
 Folded thrust faults: Hage, C. O., 1.  
 Folded thrust faults, foothills: Hake, B. F., 1.  
 Landslide at Frank: Vokes, H. E., 1.  
 Marble Mtn. area: Beach, H. H., 1.  
 Moose Mtn. area: MacNeil, D. J., 1.  
 Moose Mtn.-Morley area: Beach, H. H., 2.  
 Petroleum and gas field: Farmilo, A. W., 1.

*Physiographic geology.*

- East-central Alberta: Hume, G. S., 1.  
 General: Allan, J. A., 1.  
 Glacial erratics, large: Rutherford, R. L., 2.  
 Glaciation: Rutherford, R. L., 1.  
 Keewatin end moraines: Bretz, J. H., 2.

*Underground water.*

- General: Allan, J. A., 1.

Albertite, Nova Scotia oil shs.: Douglas, G. V., 6.

Albite, System  $\text{NaAlSi}_3\text{O}_8$ - $\text{CaSiO}_3$ - $\text{NaAlSiO}_4$ : Foster, W. R., 1.

Algae. See also Paleobotany (general).

- Arizona, Perm. consortium: Condra, G. E., 4.  
 California, Eocene, Santa Ynez Mts.: Kelley, F. R., 1.  
 Flora, Camb., Bucks Co., Pa.: Howell, B. F., 14.  
 Geologic importance, calcareous algae: Johnson, J. H., 4.  
 Georgia, Coastal Plain: Cooke, C. W., 5.  
 Girvanella, Ord., Quebec: Lewis, H. P., 1.  
 Limestone formed by plants: Johnson, J. H., 6.  
 Micropaleontology and oil explor.: Croneis, C. G., 1.  
 New Brunswick: Alcock, F. J., 3.  
 New Mexico, Perm. lime-secreting: Johnson, J. H., 2.  
 North America, pre-Camb., Camb., Ord.: Fenton, C. L., 2.

## Algae—Continued.

- Palaeocoryne attached to Fenestella: Elias, M. K., 5.  
 Panama, Tert.: Olsson, A. A., 1.  
 Permian, west Tex.-N. Mex.: King, P. B., 2.  
 Schodackia, Camb., Ord., N. Y.: Ruedemann, R., 2.  
 Stromatolites: Cloud, P. E., Jr., 1.  
 Trinidad: Renz, H. H., 1.  
 Virginia, Tazewell Co.: Cooper, B. N., 1.  
 Algodonite, Mich.: Nichols, J. B., 1.  
 Allanite, rare-element prosp. in pegmatites: Quirke, T. T., 2.  
 Altaite, Dobie area, Ontario: Thomson, J. Ellis, 2.  
 Alumina.  
 Tennessee, Perry, Lewis Cos.: Burchard, E. F., 1.  
 Washington, Cowlitz deposit: Allen, V. T., 1.  
 Aluminum.  
 Minerals in world affairs: Lovering, T. S., 2.  
 United States: Redfield, R. C., 1.  
 Alunite, U. S.: Thoenen, J. R., 1.  
 Amber, Cret., Kans.: Schoewe, W. H., 1.  
 Amblygonite, Maine: Palache, C., 2.  
 American geology, 1850-1900: Willis, B., 1.  
 Ammonites. See Ammonoidea; Cephalopoda.  
 Ammonoidea. See also Cephalopoda.  
 Ammonites, Cuba, Habana Prov.: Broderman, J., 2, 3.  
 Jurassic, Mex.: Imlay, R. W., 4.  
 Mesozoic, morphologic types and cycles: Haas, O. H., 2.  
 Texas, Shafter mining dist.: Ross, C. P., 7.  
 Casinella fauna, Trias., British Columbia: McLearn, F. H., 2.  
 Cuba, Viñales lms. fauna: Imlay, R. W., 2.  
 Fauna, Eo-Trias., Liard River Canyon: British Columbia: McLearn, F. H., 6.  
 Leonard Perm. ser., U. S.: Clifton, R. L., 1.  
 Siphuncles, Late Paleozoic species: Unklesbay, A. G., 1.  
 Texas, Perm. Basin: Roth, R. I., 2.  
 Amphibia. See also Vertebrata (general).  
 Ambystoma, Pleist., Kans.: Tihen, J. A., 1.  
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 South Dakota, Pliocene: Gregory, J. T., 1.

## Amphibia—Continued.

- Texas, Mabelle Draw Perm. area: Read, W. F., 1.  
 Fossil vertebrates: Hesse, C. J., 3.  
 Toads, frogs. Pliocene, Kans.: Taylor, E. H., 1.  
 United States, SW., mounts: Romer, A. S., 3.  
 West Virginia, Dev.: Woodward, H. P., 2.
- Amphibole.  
 Calciferous: Hallimond, A. F., 1.  
 Colorado, Iron Hill area: Larsen, E. S., 1.  
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 New York City, dikes, Manhattan schist: Colony, R. J., 1.

Amphibolites, Lead area, S. Dak.: Dodge, T. A., 1.

Anacostia River, Md.-D. C. drainage basin: Williams, M. T., 1.

Analcite, Terlingua dist., Tex.: Lonsdale, J. T., 1.

Analysis, abnormal reflections: Deacon, L. E., 1.

Analysis of minerals, differential thermal: Grim, R. E., 2.

Ancient man in North America: Wormington, H. M., 1, 2.

## Andalusite.

- Massachusetts: Anonymous, 4.  
 New Hampshire: Bannerman, H. M., 1.  
 Andesine, Quebec, St. Urbain iron deposit: Tuttle, O. F., 1.

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- California, breccia dike, Plumas Co.: Durrell, C., 1.  
 Costa Rica: Dondoli, C., 1.

Angle and pitch determination in field: Ingerson, F. E., 5.

## Anhydrite.

- Manitoba, quartz concretions: Brownell, G. M., 1.  
 Meade Basin, Kans., Okla., deep solution: Frye, J. C., 1.  
 New Mexico, Eddy Co.: West Texas G. Soc., 1.  
 New York, Lockport dolomite: Jensen, D. E., 1.  
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Animal burrows, Perm., Tex.: Ray, C. N., 3.

Annabergite, Dillon complex, Mont.: Sinkler, H., 1.

## Annelida.

- Black River fms. fauna, N. Y., Ontario: Young, F. P., Jr., 1.  
 Cambrian faunas, Newfoundland: Howell, B. F., 8.

## Annelida—Continued

- Catalogue of types, Royal Ontario Mus. Paleontology: Fritz, M. A., 1.  
 Esopus fm., Schoharie, N. Y.: Goldring, W., 2.  
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 West Virginia, Dev.: Woodward, H. P., 2.
- Anomocytheridea beaconsinensis for Cytheridea beaconsinensis: LeRoy, L. W., 2.  
 Anorthite, system  $\text{CaSiO}_3$ : Osborn, E. F., 1, 2.
- Anorthosite.  
 California, San Gabriel Mts.: Williams, J. E., 1.  
 Canada, Laurentian area: Mauffette, P., 1.  
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 New York, Adirondack intrusion: Miller, W. J., 2.  
 Lake Sanford area: Stephenson, R. C., 1.  
 Quebec, Grenville Prov.: Faessler, C., 2.

Anse la Butte dome, La.: Bates, F. W., 1.

Anthozoa. See also Coelenterata; Invertebrata (general).

Alabama, Tenn., Carb.: Easton, W. H., 4, 7.

Alberta, Moose Mtn.-Morley area: Beach, H. H., 3.

Antigua, Tert.: Thomas, H. D., 1.

Appalachians, north middle: Swartz, F. M., 1.

Arizona, Missn.: Gutschick, R. C., 3.

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Aulopora burlingtonensis for A. gracilis: Keyes, 29.

Aulopora gracilis in synonymy: Keyes, 29.

Auloporidae and Hederella, morphology, taxonomy: Elias, M. K., 4.

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Silurian, W. Va.: Woodward, H. P., 1.

Stony Mtn. fm., Manitoba: Okulitch, V. J., 3.

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Georgia, Coastal Plain: Cooke, C. W., 5.

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Gulf region, N., Cent. Am., Cuba: Imlay, R. W., 5.

Halysites, Ord., Manitoba: Leith, E. I., 4.

Anthozoa—Continued.

- Illinois, Carlville quad., Penn.: Ball, J. R., 4.  
 Marseilles quad.: Willman, H. B., 2.  
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 Indiana, Mid. Dev. faunas: Campbell, G., 1.  
 St. Louis and Ste. Genevieve lss.: McGrain, P., 2.  
 Lithostrotiontidae, Paleozoic, N. Am.: Kelly, W. A., 1.  
 Louisiana, Vernon Parish: Welch, R. N., 1.  
 Martinique, Miocene: Wells, J. W., 8.  
 Micropaleontological labs. and oil: Schenck, H. G., 5.  
 Mississippi Valley, Carb.: Easton, W. H., 6.  
 Montana, Three Forks area: Berry, G. W., 1.  
 New York, Esopus grit dev. fauna: Howell, B. F., 5.  
 Hamilton: Busch, D. A., 2.  
 Schoharie, Esopus fms.: Goldring, W., 2.  
 Ohio, Olentangy sh. fauna: Baker, R. C., 1.  
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 Ontario, London area Paleozoics: Caley, J. F., 1.  
 Oregon, Carb., Perm.: Merriam, C. W., 1.  
 Central, late Paleozoic flora and faunas: Merriam, C. W., 3.  
 Pacific Coast, U. S., Cret., Tert.: Durham, J. W., 4.  
 Panama, Tert.: Olsson, A. A., 1.  
 Pendleton fm. fauna, Tex., La.: Wasem, R., 1.  
 Pennsylvanian, Okla., Kans.: Jeffords, R. M., 1.  
 Permian, West Tex.-N. Mex.: King, P. B., 2.  
 Pitkin fm. fauna, Ark.: Easton, W. H., 3.  
 Pre-Cambrian oldest fossil horizon, Calif.: Keyes, 26.  
 Pristatophyllum, Dev., Mich., growth-rate: Faul, H., 1.  
 Redwall ls. fauna, Ariz.: Gutschick, R. C., 2.  
 Reef corals, Eocene, Calif.: Durham, J. W., 3.  
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 Texas, Mabelle Draw Perm. area: Read, W. F., 1.  
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 Utah, Cottonwood-American Fork area: Calkins, F. C., 2.  
 Uinta, Wasatch Mts. Carb. fauna: Williams, J. Stewart, 2.  
 Virginia, Appalachian Valley: Butts, C., 1.  
 Tazewell Co.: Cooper, B. N., 1.  
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 Wyoming, Juras.: Wells, J. W., 2.
- Anthraxylon, coal relations: Marshall, C. E., 1.  
 Anticlines, Watts Bar Dam, Tenn.: Fox, P. P., 1.  
 Antigua.  
*Historical geology.*  
 Tertiary: Thomas, H. D., 1.  
*Paleontology.*  
 Corals, Tert.: Thomas, H. D., 1.  
 Antillesina Galloway & Heminway synonym of Cribropullenia thalmanni: Thalmann, H. E., 9.  
 Antimony.  
 Alaska, Stampede Creek area: White, D. E., 1.  
 British Columbia: Gunning, H. C., 2.  
 California, Stayton dist.: Bailey, E. H., 1.  
 Idaho, Meyers Cove area: Anderson, R. L., 6.  
 Yellow Pine mine, Stibnite: Bradley, J. D., 1.  
 Minerals in world affairs: Lovering, T. S., 3.  
 Utah, Cottonwood-American Fork area: Calkins, F. C., 2.  
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 Antiquity, social insects: Bequaert, J. C., 1; Brown, R. W., 1.  
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 New York City, dikes, Manhattan schist: Colony, R. J., 1.  
 Ontario, Haliburton area: Satterly, J., 4.  
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 Aplite.  
 Idaho batholith: Anderson, A. L., 2.  
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 Appalachian physiography: Ver Steeg, K., 2.  
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 Application of geology to highway engineering: Woods, K. B., 1.  
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 Aragonite.  
 Nebraska minerals: Schramm, E. F., 1.  
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 Arctic America.  
*Historical geology.*  
 Baffin Is., Foxe Basin coasts: Manning, T. H., 1.

## Arctic America—Continued.

*Petrology.*

Baffin Is., Foxe Basin coasts: Manning, T. H., 1.

*Physical geology.*

Baffin Is., Foxe Basin coasts: Manning, T. H., 1.

*Physiographic geology.*

Baffin Is., Foxe Basin coasts: Manning, T. H., 1.

Arfvedsonite, Ear Mtn., Alaska: Coats, R. R., 1.

## Arizona.

*Economic geology.*

Ajo copper dist.: Gilluly, J., 1.  
Bisbee dist.: Rove, O. N., 1.  
Lode gold deposits: Wilson, E. D., 1.  
Oatman-Katherine dists.: Lausen, C., 1.  
Ore deposits, Tombstone dist.: Butler, B. S., 1.  
Vanadium: Argall, G. O., Jr., 2.

*Historical geology.*

Ajo copper dist.: Gilluly, J., 1.  
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Cambrian sequence, W. Grand Canyon: Schenk, E. T., 1.  
Chinli fm.: Keyes, 10.  
Devonian, geosyncline: Keyes, 28.  
Revision: Keyes, C. R., 20.  
Glaciation, multiple, Pleist, San Francisco Mtn.: Sharp, R. P., 4.  
Hopi Buttes area: Hack, J. T., 2.  
Hopi Indians area: Hack, J. T., 1.  
Environment change: McCann, F. T., 1.  
Kaolin deposits, Pike Co.: Herold, P. G., 2.  
Naco ls. vs. Aubreyan: Keyes, C. R., 18.  
Paleoclimatology of Juras.-Cret. interval: Leopold, L. B., 1.  
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Paleozoic paleogeography: Stoyanow, A. A., 1.  
Paleozoic seas, marginal: McKee, E. D., 3.  
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Uinkaret volcanic field: Koons, E. D., 2.

*Mineralogy.*

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Canyon Diablo meteorite, metal structure: Lord, J. O., 1.  
Claudetite: Buerger, M. J., 4.  
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Holbrook fall, aerolite: Leonard, F. C., 4.  
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Mammoth mineral locality: Wisc, F., 1.  
Mass of object forming Meteor Crater: Wylie, C. C., 1, 2.  
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Ore deposits, Tombstone: Butler, B. S., 1.  
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Vanadium: Argall, G. O., Jr., 2.

## Arizona—Continued

*Paleontology.*

Antilocaprine, Pleist.: Skinner, M. F., 1.  
Bryozoan-algal consortium, Perm.: Condra, G. E., 4.  
Corals, Missn.: Gutschick, R. C., 3.  
Faunas, Dev.: Keyes, 28.  
Papago Springs Cave: Skinner, M. F., 1.  
Rampart Cave: Wilson, R. W., 1.  
Fish, Dev.: Hussakof, L., 1.  
Perm., Kaibab fm.: Hussakof, L., 2.  
Petrified Forest: Vokes, H. E., 2.  
Redwall Missn. ls.: Gutschick, R. C., 2.  
Swan, Miocene: Wetmore, A., 2.  
Vertebrata, San Pedro Valley: Gazin, C. L., 1.

*Petrology.*

Ajo copper dist.: Gilluly, J., 1.  
Bombs, cored, from volcanic cones: Brady, L. F., 1.  
Hopi Buttes area: Hack, J. T., 2.  
Lavas, Toroweap, Grand Canyon: McKee, E. D., 1.  
Oatman-Katherine dists.: Lausen, C., 1.  
Paleoclimatology of Juras.-Cret. interval: Leopold, L. B., 1.  
Redwall Missn. ls.: Gutschick, R. C., 2.  
Uinkaret volcanic field: Koons, E. D., 2.

*Physical geology.*

Ajo copper dist.: Gilluly, J., 1.  
Bisbee dist.: Rove, O. N., 1.  
Bombs, cored, from volcanic cones: Brady, L. F., 1.  
Deformation of strata by explosions: Boon, J. D., 1.  
Hopi Buttes area: Hack, J. T., 2.  
Lavas, Toroweap, Grand Canyon: McKee, E. D., 1.  
Natural bridges: Janssen, R. E., 2.  
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Ore deposits, Tombstone: Butler, B. S., 1.  
Pediment passes and problem: Howard, A. D., 1.  
Slate Mtn. volcano-laccolith: Mintz, Y., 1.  
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*Physiographic geology.*

Glaciation, multiple, Pleist., San Francisco Mts.: Sharp, R. P., 4.  
Hopi Indians area: Hack, J. T., 1.  
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Lavas, Toroweap, Grand Canyon: McKee, E. D., 1.  
Pediment passes and problem: Howard, A. D., 1.  
Sub-Aubreyan peneplanation, Grand Canyon: Keyes, 27.

*Underground water.*

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Arkansas—Continued.

*Economic geology.*

- Bauxite explor. by seismic surveying:  
Gillin, J. A., 1.  
Cotton Valley fm. oil poss.: Thigpen,  
C. H., 1.  
Kaolin, Pike Co.: Herold, P. G., 1.  
Limestones: Branner, G. C., 2.  
Magnolia oil field: Carpenter, C. B., 1;  
Winham, H. F., 1.  
Midway oil field: Markley, E. A., 1;  
Nicholson, G. B., 1.  
Mineral resources: Branner, G. C., 3, 4;  
Just, E., 1.  
Montgomery, Garland, Saline, Pulaski  
Cos.: Arkansas G. S., 1.  
Minerals for war: Arkansas G. S., 2.  
Oil and gas field: Anderson, R. J., 1.  
Oil and gas map: Ark. Oil and Gas  
Commission, 1.  
Petroleum and gas, 1941: Blanpied, B.  
W., 1.  
Quartz crystals: Sonnedecker, G., 1.  
Quicksilver: Reed, J. C., 6; Gallagher,  
D., 1.  
Rodessa oil and gas field: Hill, H. B., 1.  
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Smackover lime oil poss.: Ingram, R., 1;  
Thigpen, C. H., 2.

*Historical geology.*

- Comanchean and Jurassic: Weeks, W.  
B., 2.  
Cotton Valley fm. oil poss.: Thigpen,  
C. H., 1.  
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Kaolin deposits, Pike Co.: Herold, P. G., 1.  
Limestones: Branner, G. C., 2.  
Magnolia oil field: Carpenter, C. B., 1;  
Winham, H. F., 1.  
Midway oil field: Markley, E. A., 1; Nich-  
olson, G. B., 1.  
Mineral resources: Branner, G. C., 4.  
Oil and gas fields: Anderson, R. J., 1.  
Oshawanan deposits: Keyes, 12.  
Pitkin ls.: Easton, W. H., 1.  
Quartz veins, Ouachita Mts.: Miser, H.  
D., 2.  
Quicksilver, Pike Co.: Gallagher, D., 1.  
Rodessa oil and gas field: Hill, H. B., 1.  
Schuler oil and gas field: Weeks, W. B., 1.  
Smackover lime oil poss.: Ingram, R., 1;  
Thigpen, C. H., 2.

*Mineralogy.*

- Grossularite: McConnell, D., 1.  
Mineral resources: Branner, G. C., 4;  
Just, E., 1.  
Minerals for war: Ark. G. S., 2.  
Quicksilver deposits: Gallagher, D., 1;  
Reed, J. C., 6.  
Schloromite: McConnell, D., 1.  
Sepiolite, fibrous: Kauffman, A. J., Jr., 1.

*Paleontology.*

- Anthozoa, Juras., Smackover lime: Wells,  
J. W., 1.

Arkansas—Continued.

*Paleontology—Continued.*

- Fauna, Pitkin fm.: Easton, W. H., 1, 3.  
Foraminifera, Cret.: Cushman, J. A., 2.

*Petrology.*

- Alexander quad.: Strahler, A. N., 1.  
Limestones: Branner, G. C., 2.  
Quartz crystals: Sonnedecker, G., 1.  
Quartz veins, Ouachita Mts.: Miser, H.  
D., 2.

*Physical geology.*

- Alexander quad.: Strahler, A. N., 1.  
Cotton Valley fm. oil poss.: Thigpen,  
C. H., 1.  
Midway oil field: Markley, E. A., 1;  
Nicholson, G. B., 1.  
Pitkin ls.: Easton, W. H., 1.  
Quartz veins, Ouachita Mts.: Miser, H.  
D., 2.  
Quicksilver deposits: Gallagher, D., 1;  
Reed, J. C., 6.  
Rodessa oil and gas field: Hill, H. B., 1.  
Smackover lime oil poss.: Thigpen, C.  
H., 2.

*Physiographic geology.*

- Alexander quad.: Strahler, A. N., 1.  
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         mous, 16.  
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         J. L. del, 4.  
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         C., 3.  
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         W. L., 1.  
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         F. E., 1; Lipman, C. B., 1.  
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         M. N., 1.  
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 Frondel, C., 4.
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   M., 1.  
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 Pinchi Lake mercury belt: Armstrong, J. E., 2, 3.  
 Princeton area: Rice, H. M. A., 1.  
 Takla area, geol. map: Armstrong, J. E., 1.  
 Tungsten deposits: Stevenson, J. S., 3.

*Mineralogy.*

- Arsenic, hypogene native, Criss Creek: Stevenson, J. S., 6.  
 Barkerville gold belt: Hanson, G., 2.  
 Bralorne ore bodies: Joralemon, I. B., 1.  
 Britannia mines: Ebbutt, F., 1.  
 Copper Mtn.: Dolmage, V., 1.  
 Dolly Varden mineralization: Warren, H. V., 1.  
 Emerald property: Hedley, M. S., 1.  
 Geology and min. res.: Gunning, H. C., 2.  
 Gold quartz veins, O. K. Mtn.: Stevenson, J. S., 2.  
 Sheep Creek Camp: Walker, J. F., 1.  
 Joseite: Peacock, M. A., 1.  
 Latite, trydimite, Soda Creek: Stevenson, L. S., 1.  
 Metal mining: British Columbia Dept. Mines, 1.  
 Molybdenite, prosp. for: Stevenson, J. S., 5.  
 Molybdenum ores: Stevenson, J. S., 4.  
 Pinchi Lake area: Freeze, A. C., 1.  
 Mercury belt: Armstrong, J. E., 2, 3.  
 Prehnite, Ashcroft: Nuffield, E. W., 2.  
 Red Rose tungsten mine: Stevenson, J. S., 7.  
 Stolzite, Cariboo dist.: Stevenson, J. S., 1.  
 Tin, Sullivan mine: Pentland, A. G., 1.  
 Tungsten: Hedley, M. S., 2; Stevenson, J. S., 4.

*Paleontology.*

- Brown Hill Trias.: McLearn, F. H., 1.  
 Cassinella fauna, Trias.: McLearn, F. H., 2.  
 Eostenopora?, Missn.: Fritz, M. A., 2.  
 Fauna, Eo-Trias., Liard River Canyon: McLearn, F. H., 8.

## British Columbia—Continued.

*Paleontology*—Continued.

- Mammalia, Quat.: Cowan, I. M., 1.  
 Protrachyceras, Trias., variations: McLearn, F. H., 9.

*Petrology.*

- Barkerville gold belt: Hanson, G., 2.  
 Emerald property: Hedley, M. S., 1.  
 Musketeer-Buccaneer area, Vancouver Is.: Joubin, F. R., 1.  
 Pinchi Lake area: Freeze, A. C., 1.  
 Mercury belt: Armstrong, J. E., 3.

*Physical geology.*

- Barkerville gold belt: Hanson, G., 2.  
 Bralorne ore bodies: Joralemon, I. B., 1.  
 Britannia mines: Ebbutt, F., 1.  
 Copper Mtn.: Dolmage, V., 1.  
 Eldorado prospect, Lillooet dist.: Brennan, C. V., 1.  
 Emerald property: Hedley, M. S., 1.  
 Geology and min. res.: Gunning, H. C., 2.  
 Gold-quartz veins, O. K. Mtn.: Stevenson, J. S., 2.  
 Sheep Creek Camp: Walker, J. F., 1.  
 Molybdenite, prosp. for: Stevenson, J. S., 5.  
 Musketeer-Buccaneer area, Vancouver Is.: Joubin, F. R., 1.  
 Natural bridges: Janssen, R. E., 2.  
 Okanagan Valley, origin: Schofield, S. J., 1.  
 Pinchi Lake area: Freeze, A. C., 1.  
 Mercury belt: Armstrong, J. E., 2, 3.  
 Red Rose tungsten mine: Stevenson, J. S., 7.  
 Relief, southern: Davis, N. F. G., 1.

*Physiographic geology.*

- Geology and min. res.: Gunning, H. C., 2.  
 Glacial geol., Alaska Military Highway, Dawson Creek to Whitehorse: Denny, C. S., 1.  
 Metal mining: British Columbia Dept. Mines, 1.  
 Okanagan Valley, origin: Schofield, S. J., 1.  
 Peace River canyon, origin: Beach, H. H., 2.  
 Pinchi Lake mercury belt: Armstrong, J. E., 3.  
 Relief, southern: Davis, N. F. G., 1.

## Brucite.

- Ontario, Wilkinson ls.: Brown, I. C., 1.  
 Quebec, Wakefield area: Ambrose, J. W., 2.

## Bryozoa. See also Invertebrata (general).

- Alabama, Glendon fm. fauna: Howe, H. V., 1.  
 Alaska, Nome buried beaches: MacNeil, F. S., 1.  
 Alberta, Moose Mtn.-Morley area: Beach, H. H., 3.  
 Arizona, Perm. consortium: Condra, G. E., 4.  
 Arkansas, Pitkin ls.: Easton, W. H., 1.  
 Auloporidae and Hederella. morphology, taxonomy: Elias, M. K., 4.  
 Barbados: Renz, H. H., 1.

## Bryozoa—Continued.

- Black River fms. fauna, N. Y., Ontario: Young, F. P., Jr., 1.  
 California, Eocene, Santa Ynez Mts.: Kelley, F. R., 1.  
 Catalogue of types, Royal Ontario Mus. Paleontology: Fritz, M. A., 1.  
 Chester, Ill., Ky.: McFarlan, A. C., 1.  
 Corynotrypa, Penn., Nebr.: Condra, G. E., 3.  
 Ecology of marine organisms: Ladd, H. S., 1.  
 Eostenopora?, Missn., British Columbia: Fritz, M. A., 2.  
 Fauna, Martinsburg fm., Massanutten Mtn., Va.: Secrist, M. H., 2.  
 Niagaran, Ill.: Lowenstam, H. A., 2.  
 North Atlantic deep-sea cores: Henbest, L. G., 1.  
 Stony Mtn. fm., Manitoba: Okulich, V. J., 3.  
 Faunas, Leonard Perm. ser., U. S.: Clifton, R. L., 1.  
 Florida, Holmes Co.: Vernon, R. O., 1.  
 Washington Co.: Vernon, R. O., 1.  
 Georgia, Coastal Plain: Cooke, C. W., 5.  
 Sand-Lookout Mtn. area: Sullivan, J. W., 2.  
 Hederella, Penn., Midwest U. S.: Condra, G. E., 5.  
 Illinois, Marseilles, Ottawa, and Streator quads.: Willman, H. B., 2.  
 Indiana, St. Louis and Ste. Genevieve lss.: McGrain, P., 2.  
 Invertebrata, Miocene, N. J.: Richards, H. G., 1.  
 Koninckopora, algal nature, Canada: Wood, A., 1.  
 Louisiana, Tert.: McGuirt, J. H., 1.  
 Microfauna, Gulf Coast: Howe, H. V., 2.  
 Micropaleontological labs. and oil: Schenck, H. G., 5.  
 Micropaleontology and oil explor.: Croneis, C. G., 1.  
 New Mexico, Dev.: Fritz, M. A., 3.  
 New York, Schoharie, Esopus fms.: Goldring, W., 2.  
 North America, ctenostomatous, Carb., Perm.: Condra, G. E., 2.  
 Ohio, Olentangy sh. fauna: Baker, R. C., 1.  
 Prout ls.-Plum Brook sh.: Stumm, E. C., 1.  
 Oklahoma, Bromide, McLish fms.: Loeblich, A. R., Jr., 1.  
 Ordovician: Loeblich, A. R., Jr., 1.  
 Ontario, London area Paleozoics: Caley, J. F., 1.  
 Paleocoryne attached to Fenestella: Elias, M. K., 5.  
 Panama, Tert.: Olsson, A. A., 1.  
 Pitkin fm. fauna, Ark.: Easton, W. H., 3.  
 Rhombotrypella, Penn., Utah: Condra, G. E., 6.  
 Texas, fossil replacements, Finlay Mts.: Ham, W. O., Jr., 1.

## Bryozoa—Continued.

- United States, Upper Dev.: McNair, A. H., 1.
- Utah, Cottonwood-American Fork area: Calkins, F. C., 2.
- Uinta, Wasatch Mts. Carb. fauna: Williams, J. Stewart, 2.
- Virginia, Appalachian Valley: Butts, C., 1.
- Tazwell Co.: Cooper, B. N., 1.
- West Virginia, Dev.: Woodward, H. P., 2.
- Bryson oil and gas field, Tex.: Hiestand, T. C., 1.
- Buena Vista Hills area, Midway-Sunset oil field, Calif.: McMasters, J. H., 1.
- Building stone. See also Granite; Limestone; Sandstone; Stone.
- California, Santa Cruz Co.: Hubbard, H. G., 1.
- Colorado, Trinidad area: Floyd, E., 1.
- Cretaceous of Calif.: Jenkins, O. P., 3.
- Idaho, metal, coal mining dists.: Ross, C. P., 1.
- Indiana, Salem ls.: Rhoe Chapter, S. G. E., 1.
- Maryland, Patapsco State Park: Mather, L. B., Jr., 1.
- Minnesota: Emmons, W. H., 2.
- Mississippi, Montgomery Co.: Priddy, R. R., 2.
- New Hampshire, Cardigan-Romney area: Fowler-Billings, K. S., 2.
- New York, Ulster Co.: Howell, B. F., 2.
- Wellsville quad.: Woodruff, J. G., 1.
- North Carolina Coastal Plain: Richards, H. G., 2.
- Ohio, Berea ss., Cleveland area: Weidman, P. A., 1.
- Oklahoma, St. Clair ls. near Marble City: Ham, W. E., 3.
- Ontario, Haliburton area: Satterly, J., 4.
- Pennsylvania, Lancaster Co.: Foose, R. M., 2.
- Quebec, Matapédia Lake area: Aubert de la Rue, E., 1.
- St. Jean-Beloeil areas: Clark, T. H., 2.
- South Dakota: Connolly, J. P., 1.
- Texas, Young Co.: Criswell, D. R., 1.
- Washington, Wenatchee-Ellensburg-Yakima area: Glover, S. L., 2.
- Burbank oil pool, Ky.: Jillson, W. R., 3.
- Burbank, South Burbank oil fields, Okla.: Bass, N. W., 2.
- Buried ice, retreating glacier products: Rich, J. L., 2.
- Buried upland channels, Kentucky River: Jillson, W. R., 5.
- Burkeite, crystallography: Ramsdell, L. S., 3.
- Burrows.
- Daimonelix, Nebr.: Schultz, C. B., 1.
- Planolites, Camb., Reading, Pa.: Howell, B. F., 16.
- Skolithos, Camb., Reading, Pa.: Howell, B. F., 16.

## Burrows—Continued.

- Texas, Halymenites: Patterson, J. M., 2.
- Shafter mining dist.: Ross, C. P., 7.
- Bush City oil, field, Kans.: Charles, H. H., 1.
- Buttonwillow gas field, Calif.: Chambers, L. S., 2.
- Cadmium, British Columbia: Gunning, H. C., 2.
- Calaverite, gold deposition, alkali sulphide theory: Smith, F. G., 4.
- Calcareous sediments, diagenetic changes: Trask, P. D., 2.
- Calciferous amphiboles: Hallimond, A. F., 1.
- Calcite.
- Angle table and critical list: Palache, C., 3.
- British Columbia, Eldorado prospect: Brennan, C. V., 1.
- Nebraska minerals: Schramm, E. F., 1.
- Newfoundland, Port au Port pen. colloform sulphide veins: Watson, K. D., 3.
- New Jersey, Upper Montclair quarry: Drake, H. Y., 1.
- New Mexico, octahedra: Schaller, W. T., 1.
- New York, Lockport dolomite: Jensen, D. E., 1.
- Lockport Pekin quarry: Killinger, P. E., 2.
- Quartz veins, Ouachita Mts., Ark.-Okla.: Miser, H. D., 2.
- Texas, Shafter mining dist.: Ross, C. P., 7.
- Utah, crystals: Hayes, J. J., 1.
- Virginia, Riverton: Hawkins, A. C., 5.
- Calcite-dolomite staining tests: Smith, W. S. T., 1.
- Calcium,  $\text{CaSiO}_3$ -diopside-akermanite relations: Schairer, J. F., 1.
- Calculating true thickness of folded bed: Hobson, G. D., 1.
- Calculation, depth magnetic deposit: Sen, J., 1.
- Caliche, Texas, High Plains: Sidwell, R. G., 1.
- Caliente Range area oil field, Calif.: Eaton, J. E., 1.
- California.
- Bibliography of geol. units: Jenkins, O. P., 5.
- Bibliography of Calif. oil and gas fields in Bull. 118: Egenhoff, E. L., 1.
- Biennial rept., State mineralogist: Bradley, W. W., 1.
- History, seismographic stations, activities: Louderback, G. D., 1.
- Stratigraphic studies, progress: Atwill, E. R., 1.
- Areas described.
- Cargo Muchacho Mts.: Henshaw, P. C., 2.
- Confidence dist.: Little, J. M., 1.
- Ghost Canyon tungsten claims, Madera Co.: Little, J. M., 3.
- Twin Lakes area: Chesterman, C. W., 1.
- Welsh tungsten deposits, Madera Co.: Little, J. M., 2.

## California—Continued.

*Economic geology.*

- Arroyo Grande (Edna) oil field: Krueger, M. L., 2.
- Bardsdale oil field: Snedden, L. B., 2.
- Belridge oil field: Wharton, J. B., Jr., 1.
- Beverly Hills oil field: Soper, E. K., 3.
- Bituminous sands, shs., oil sources: Shea, G. B., 1.
- Buena Vista Hills area, Midway-Sunset oil fields: McMasters, J. H., 1.
- Buttonwillow gas field: Chambers, L. S., 2.
- Caliente Range area oil field: Eaton, J. E., 1.
- Canal oil field: Williams, R. N., Jr., 1.
- Canal, Strand oil fields: Walling, R. W., 1.
- Cantua-Vallecitos area: Atwill, E. R., 2.
- Capitan oil field: Kribbs, G. R., 1.
- Cargo Muchacho Mts.: Henshaw, P. C., 2.
- Casmalia oil field: Porter, W. W., II, 2.
- Chino area oil field: Krueger, M. L., 1.
- Chromium: Averill, C. V., 2.
- Coalinga oil field: Birkhauser, M., 1; Chambers, L. S., 1.
- Conejo oil field: May, J. C., 1.
- Confidence dist.: Little, J. M., 1.
- Coso quicksilver dist.: Ross, C. P., 6.
- Cretaceous: Jenkins, O. P., 3.
- Del Puerto area: Hawkes, H. E., Jr., 1.
- Del Valle oil field: Sherman, R. V., 1; Stockman, L. P., 1; Tarbet, L. A., 1.
- Dominguez oil field: Grinsfelder, S., 1.
- Earthquake effect: Bravinder, K. M., 1.
- Devil's Den oil field: Van Couvering, M., 1.
- Dudley Ridge gas field: Henny, G., 1.
- East Cat Canyon oil field: Cross, R. K., 1.
- East Coalinga Extension field: Kaplow, E. J., 1.
- East Coyote Hills oil field: Dudley, P. H., 1.
- Edison oil field: Edwards, E. C., 1, 4; Kasline, F. E., 1.
- Elk Hills oil field: Porter, L. E., 1.
- El Segundo oil field: Reese, R. G., 1.
- Elwood oil field: Hill, M. L., 2.
- Fairfield Knolls gas field: Kirby, J. M., 2.
- Fruitvale oil field: Miller, R. H., 1.
- Gato Ridge area, Cat Canyon oil field: Cross, R. K., 2.
- Gaviota-Concepción area: Porter, W. W., II, 1.
- Ghost Canyon tungsten claims: Little, J. M., 3.
- Gibson area, Midway-Sunset oil field: Woodward, W. T., 2.
- Goleta oil field: Vickery, F. P., 1.
- Greeley oil field: Updike, F. H., 1; Winham, W. P., 1.
- Halfmoon Bay dist.: Crandall, R. R., 1.
- Huasna oil area: Taliaferro, N. L., 3.
- Humboldt Co.: Averill, C. V., 1.
- Huntington Beach oil field: Weaver, D. K., 1.
- Old Field oil field: Carriel, J. T., 1.

## California—Continued.

*Economic geology—Continued.*

- Imperial carbon dioxide gas field: Rook, S. H., 1.
- Inglewood oil field: Driver, H. L., 1.
- Kern Co. oil fields: George, J. P., 1.
- Kern Front oil field: Edwards, E. C., 2, 3.
- Kern River oil field: Stevens, J. B., 2.
- Kern River salient, faulting: Nugent, L. E., Jr., 1.
- Kettleman Hills oil field: Galloway, J., 1; Oil and Gas Jour., 1.
- Kraemer area, Richfield oil field: Reese, R. G., 5.
- La Goleta gas field: Swayze, R. O., 1.
- Lawndale oil field: Reese, R. G., 2.
- Lompoc oil field: Dibblee, T. W., Jr., 1.
- Long Beach oil field: Stolz, H. P., 2.
- Los Angeles City oil field: Soper, E. K., 1.
- Lost Hills oil field: Follansbee, G. S., Jr., 1.
- McDonald Is. gas field: Knox, G. L., 1.
- McKittrick area, McKittrick oil field: Stevens, J. B., 1.
- McKittrick Front oil field, Cymric areas: Atwill, E. R., 3.
- Magnetite mine, Bald Eagle: Perry, J. B., 1.
- Magnesium minerals: Schlocker, J., 1.
- Manganese deposits: Trask, P. D., 5.
- Coast Ranges: Taliaferro, 5.
- Paymaster dist.: Hadley, J. B., 1.
- Sierra Nevada: Taliaferro, 6.
- Marysville (Cutter) Buttes gas field: Johnson, H. R., 1.
- Middle Butte dist. mineralization: Fraser, H. J., 4.
- Mineral deposits, S. Calif.: Elam, J., 1.
- Minerals, commercial: Gary, G. L., 1.
- Montebello oil field: Reese, R. G., 3; Stolz, H. P., 3.
- Moody Gulch oil field: Krueger, M. L., 3.
- Mother Lode, Eldorado, Amador Cos.: Whitehead, W. L., 1.
- Mountain View oil field: Miller, R. H., 2.
- Newhall oil field: Kew, W. S. W., 1.
- Newport oil field: Parker, F. S., 1.
- North Midway area, Midway-Sunset oil field: Woodward, W. T., 1.
- Northwest Wilmington oil field: Cabeen, W. R., 1, 2.
- Oil fields, new and reserves: Kribbs, G. R., 3.
- Paloma oil and gas field: Wood, J. T., Jr., 1.
- Petroleum, 1941: Dorrance, J. R., 1; 1942: Kribbs, G. R., 1.
- Piru oil field: Hobson, H. D., 1.
- Potrero oil field: Willis, R., 2.
- Quicksilver: Eckel, E. B., 1; Schuette, C. N., 1.
- And antimony, Stayton dist.: Bailey, E. H., 1.
- Park dist.: Bailey, E. H., 2.
- Republic area, Midway-Sunset oil field: Young, U., 1.

## California—Continued.

*Economic geology*—Continued.

- Richfield oil field: Gardiner, C. M., 1; Reese, R. G., 5.  
 Rincon oil field: Bailey, W. A., 1.  
 Rio Bravo oil field: Kasline, F. E., 2; Noble, E. B., 2.  
 Rio Vista gas field: Soper, E. K., 4.  
 Round Mtn. oil field: Rogers, R. G., 1.  
 Rumsey Hills area: Kirby, J. M., 3.  
 Salt Lake oil field: Soper, E. K., 2.  
 San Benito quad.: Wilson, I. F., 1.  
 Santa Cruz Co., mines, min. res.: Hubbard, H. G., 1.  
 Santa Fe Springs oil field: Winter, H. E., 1.  
 Santa Maria dist.: Woodring, 2.  
 Santa Maria (Orcutt) oil field: Dreyer, F. E., 1.  
 Santa Maria Valley oil field: Canfield, C. R., 1.  
 Santa Paula oil field: Waterfall, L. N., 1.  
 Sargent oil field: Michelin, J., 1.  
 Seal Beach oil field: Bowes, G. H., 1.  
 Semitropic gas field: Valentine, W. W., 1.  
 Sespe oil field: Clements, T., 1.  
 Shells Canyon area, Bardsdale oil field: Snedden, L. B., 2.  
 Sierra Nevada NE. of Visalia: Durrell, C., 2.  
 Simi oil field: Stipp, T. F., 1.  
 Sites area: Kirby, J. M., 4.  
 South Mtn. oil field: Snedden, L. B., 1.  
 Strand oil field: Cross, C. M., 2; Walling, R. W., 1.  
 Stratigraphic studies, progress: Atwill, E. R., 1.  
 Summerland oil field: Kluth, E., 1.  
 Sutter (Marysville) Buttes field: Stalder, W., 1.  
 Tabulation, tungsten deposits: Jenkins, O. P., 4.  
 Temblor oil field: Simonson, R. R., 2.  
 Ten Section oil field: Gentry, A. W., 1.  
 Tin deposits: Segerstrom, R. J., 1.  
 Torrance oil and gas field: Davis, E. L., 1; Cabeen, W. R., 1.  
 Tracy gas field: Beckwith, H. T., 1.  
 Trico gas field: Doell, E. C., 1.  
 Tungsten: Tucker, W. B., 1.  
 Darwin Hills, Inyo Co.: Wilson, L. K., 1.  
 Northeast of Visalia: Jenkins, W. O., 1.  
 Sierra Nevada near Bishop: Lemmon, D. M., 1.  
 Twin Lakes area: Chesterman, C. W., 1.  
 Ventura Ave. oil field: Thoms, C. C., 1.  
 Wasco oil field: Barnes, R. M., 1.  
 Webster area, Midway-Sunset oil field: Ayars, R. N., 1.  
 Welsh tungsten deposits: Little, J. M., 2.  
 West Cat Canyon oil field: Manlove, C., 1.  
 West Coyote Hills oil field: Reese, R. G., 4.  
 West Montebello oil and gas field: Stolz, H. P., 1.  
 Wheeler Ridge oil field: Gester, S. H., 1.

## California—Continued.

*Economic geology*—Continued.

- Whittier oil field: Holman, W. H., 1.  
 Williams, Twenty-Five Hill areas, Midway-Sunset oil field: Hillis, D. L., 1.  
 Willows gas field: Williams, R. N., Jr., 2.  
 Wilmington oil field: Crown, W. J., 1; Winterburn, R., 1.  
 Yorba Linda part, Coyote Hills oil field: Parker, F. S., 2.

*Historical geology.*

- Arroyo Grande (Edna) oil field: Krueger, M. L., 2.  
 Belridge oil field: Wharton, J. B., Jr., 1.  
 Berryessa Valley: Anderson, F. M., 1.  
 Beverley Hills oil field: Soper, E. K., 3.  
 Bradley-San Miguel dist.: Taliaferro, 4.  
 Buena Vista Hills area, Midway-Sunset oil field: McMasters, J. H., 1.  
 Buttonwillow gas field: Chambers, L. S., 2.  
 Caliente Range area oil field: Eaton, J. E., 1.  
 Canal oil field: Williams, R. N., Jr., 1.  
 Cantua-Vallecitos area: Atwill, E. R., 2.  
 Capitan oil field: Kribbs, G. R., 1.  
 Cargo Muchacho Mts.: Henshaw, P. C., 2.  
 Cascade Range: Williams, H., 1.  
 Charleston School quad.: Schenck, H. G., 4.  
 Chino area oil field: Krueger, M. L., 1.  
 Coalinga oil field: Birkhauser, M., 1; Chambers, L. S., 1.  
 Coast Range orogenesis, late Pleist.: Bailey, T. L., 1.  
 Coast Ranges: Taliaferro, N. L., 5.  
 Confidence dist.: Little, J. M., 1.  
 Coso Mts. Hot Springs deposits: Fraser, H. J., 2.  
 Coso quicksilver dist., Inyo Co.: Ross, C. P., 6.  
 Cretaceous: Jenkins, O. P., 3.  
 North Santa Ana Mts. fms.: Popenoe, W. P., 3.  
 Upper, fms. and faunas, S. Calif.: Popenoe, W. P., 1.  
 Upper, Sacramento Valley: Kirby, J. M., 1; Popenoe, W. P., 2.  
 Crocker Flat landslide area: Simonson, R. R., 1.  
 Darwin Hills tungsten area, Inyo Co.: Wilson, L. K., 1.  
 Death Valley area: Stose, G. W., 2.  
 Del Puerto area: Hawkes, H. E., Jr., 1.  
 Del Valle oil field: Sherman, R. V., 1; Stockman, L. P., 1; Tarbet, L. A., 1.  
 Devil's Den oil field: Van Couvering, M., 1.  
 Dominguez oil field: Grinsfelder, S., 1.  
 Dudley Ridge gas field: Henny, G., 1.  
 Duxbury Point area: Douglas, J. M., 1.  
 East Cat Canyon oil field: Cross, R. K., 1.  
 East Coalinga Extension field: Kaplow, E. J., 1.  
 East Coyote Hills oil field: Dudley, P. H., 2.  
 Edison oil field: Edwards, E. C., 1, 4; Kasline, F. E., 1.

## California—Continued.

*Historical geology—Continued.*

- Elk Hills oil field: Porter, L. E., 1.  
 El Segundo oil field: Reese, R. F., 1.  
 Elwood oil field: Hill, M. L., 2.  
 Eocene, Mt. Diablo area: Clark, B. L., 2.  
 Santa Ynez Mts.: Kelley, F. R., 1.  
 Fairfield Knolls gas field: Kirby, J. M., 2.  
 Foraminifera as index fossils: Adams, B. C., 1.  
 Franciscan-Knoxville problem: Taliaferro, N. L., 2.  
 Franciscan ls., Cret., Mendocino Co.: Thalmann, H. E., 8.  
 Fruitvale oil field: Miller, R. H., 1.  
 Gato Ridge, Cat Canyon oil field: Cross, R. K., 2.  
 Geologic horizons, oil and gas fields: Howard, P. J., 1.  
 Ghost Canyon tungsten claims: Little, J. M., 3.  
 Gibson area, Midway-Sunset oil field: Woodward, W. T., 2.  
 Globotruncana, Franciscan ls.: Thalmann, H. E., 6.  
 Goleta oil field: Vickery, F. P., 1.  
 Greeley oil field: Updike, F. H., 1; Winham, W. P., 1.  
 Halfmoon Bay dist.: Crandall, R. R., 1.  
 Huasna oil area: Taliaferro, 3.  
 Humboldt Co.: MacGinitie, H. D., 1.  
 Huntington Beach oil field: Weaver, D. K., 1.  
 Huntington Beach Old Field oil field: Carriel, J. T., 1.  
 Imperial carbon dioxide gas field: Rook, S. H., 1.  
 Inglewood oil field: Driver, H. L., 1.  
 Jurassic correls.: Taliaferro, 1.  
 Kern Co. oil fields: George, J. P., 1.  
 Kern Front, Kern River oil field: Edwards, E. C., 2, 3.  
 Kern River oil field: Stevens, J. B., 2.  
 Kettleman Hills oil field: Galloway, J., 1;  
 Oil and Gas Jour., 1.  
 La Goleta gas field: Swayze, R. O., 1.  
 Lawndale oil field: Reese, R. G., 2.  
 Lepidocyclina (Lepidocyclina) californica in Vaqueros fm.: Schenck, H. G., 2.  
 Lodo fm. type area, Eocene: Martin, L. T., 1.  
 Lompoc oil field: Dibblee, T. W., Jr., 1.  
 Long Beach oil field: Stolz, H. P., 2.  
 Los Angeles City oil field: Soper, E. K., 1.  
 Lost Hills oil field: Follansbee, G. S., Jr., 1.  
 McDonald Is. gas field: Knox, G. L., 1.  
 McKittrick area, McKittrick oil field: Stevens, J. B., 1.  
 McKittrick Front oil field, Cymric area: Atwill, E. R., 3.  
 Manganese deposits: Trask, P. D., 5.  
 Coast Ranges: Taliaferro, N. L., 5.  
 Martinez Creek area, Eocene: Curran, J. F., 1.

## California—Continued.

*Historical geology—Continued.*

- Martinez fm., age: Watson, E. A., 1.  
 Marysville (Sutter) Buttes gas field: Johnson, H. R., 1.  
 Montebello oil field: Reese, R. G., 3;  
 Stolz, H. P., 3.  
 Moody Gulch oil field: Krueger, M. L., 3.  
 Mother Lode, Eldorado, Amador Cos.: Whitehead, W. L., 1.  
 Mount Diablo region: Cross, C. M., 1.  
 Mountain View oil field: Miller, R. H., 2.  
 Mylonites, E. San Gabriel Mts.: Alf, R. M., 1.  
 Newhall oil field: Kew, W. S. W., 1.  
 Newport oil field: Parker, F. S., 1.  
 North Midway area, Midway-Sunset oil field: Woodward, W. T., 1.  
 Northwest Wilmington oil field: Cabeen, W. R., 1, 2.  
 Oil fields, new and reserves: Kribbs, G. R., 3.  
 Paloma oil and gas field: Wood, J. T., Jr., 1.  
 Paymaster dist.: Hadley, J. B., 1.  
 Paskenta region: Rist, R. L., 1.  
 Petaluma area: Johnson, F. A., 1.  
 Piru oil field: Hobson, H. D., 1.  
 Playa del Rey oil and gas field: Metzner, L. H., 1.  
 Point Arena-Fort Ross area: Weaver, C. E., 2.  
 Potrero Hills gas field: Willis, R., 2.  
 Quicksilver, antimony, Stayton dist.: Bailey, E. H., 1.  
 Park dist.: Bailey, E. H., 2.  
 Republic area, Midway-Sunset oil field: Young, U., 1.  
 Richfield oil field: Gardiner, C. M., 1.  
 Rincon oil field: Bailey, W. C., 1; Stewart, R. E., 1.  
 Rio Bravo oil field: Kasline, F. E., 2;  
 Noble, E. B., 2.  
 Rio Vista gas field: Soper, E. K., 4.  
 Riverside Co., pegmatites, andalusites: Webb, R. W., 1.  
 Round Mtn. oil field: Rogers, R. G., 1.  
 Round Mtn. silt: Keen, A. M., 1.  
 Rumsey Hills area: Kirby, J. M., 3.  
 Sacramento Valley, Cret., west side: Kirby, J. M., 1.  
 Salt Lake oil field: Soper, E. K., 2.  
 San Benito quad.: Wilson, I. F., 1.  
 San Diego Co., SW.: Hertlein, L. G., 1.  
 Santa Clara River drainage area: Loel, W., 1.  
 Santa Fe Springs oil field: Winter, H. E., 1.  
 Santa Maria dist.: Woodring, 2.  
 Santa Maria (Orcutt) oil field: Dreyer, F. E., 1.  
 Santa Maria Valley oil field: Canfield, C. R., 1.  
 Sargent oil field: Michelin, J., 1.  
 Scenery of Calif.: Willard, D. E., 1.

## California—Continued.

*Historical geology*—Continued.

- Seal Beach oil field: Bowes, G. H., 1.  
 Sespe oil field: Clements, T., 1.  
 Sierra Nevada, NE. of Visalia: Durrell, C., 2.  
 Simi oil field: Stipp, T. F., 1.  
 Sites area: Kirby, J. M., 4.  
 Soledad quad.: Schombel, L. F., 1.  
 South Mtn. oil field: Snedden, L. B., 1.  
 Strand oil field: Cross, C. M., 2.  
 Sutter (Marysville) Buttes field: Stalder, W., 1.  
 Tejon fm., type locality: Marks, J. G., 1.  
 Temblor oil field: Simonson, R. R., 2.  
 Ten Section oil field: Gentry, A. W., 1.  
 Tertiary, Morgan Hill area: Gilbert, C. M., 1.  
 Torrance oil field: Cabeen, W. R., 1.  
 Torrance oil and gas field: Davis, E. L., 1.  
 Tracy gas field: Beckwith, H. T., 1.  
 Trico gas field: Doell, E. C., 1.  
 Tungsten area, NE. of Visalia: Jenkins, W. O., 1.  
 Sierra Nevada near Bishop: Lemmon, D. M., 1.  
 Twin Lakes area: Chesterman, C. W., 1.  
 Vaqueros fm. type. locality: Thorup, R., 1.  
 Ventura region: Putnam, W. C., 1.  
 Wasco oil field: Barnes, R. M., 1.  
 Webster area, Midway-Sunset oil field: Ayars, R. N., 1.  
 Welsh tungsten deposits: Little, J. M., 2.  
 West Cat Canyon oil field: Manlove, C., 1.  
 West Coyote Hills oil field: Reese, R. G., 4.  
 West Montebello oil and gas field: Stolz, H. P., 1.  
 Wheeler Ridge oil field: Gester, S. H., 1.  
 Whittier oil field: Holman, W. H., 1.  
 Williams, Twenty-five Hill areas, Midway-Sunset oil field: Hillis, D. L., 1.  
 Willows gas field: Williams, R. N., Jr., 2.  
 Wilmington oil field: Crown, W. J., 1;  
 Winterburn, R., 1.  
 Yorba Linda Pt., Coyote Hills oil field: Parker, F. S., 2.

*Mineralogy*.

- Bismuth, oxides and carbonates: Frondel, C., 4.  
 Blue-green mineral, Lassen quartz basalt: Merriam, R. H., 1.  
 Cargo Muchacho Mts.: Henshaw, P. C., 2.  
 Confidence dist.: Little, J. M., 1.  
 Coso Mts. Hot Springs deposits: Fraser, H. J., 2.  
 Coso quicksilver dist., Inyo Co.: Ross, C. P., 6.  
 Cristobalite: Murdoch, J., 2.  
 Del Puerto area: Hawkes, H. E., Jr., 1.  
 Franciscan-Knoxville problem: Taliaferro, 2.  
 Ghost Canyon tungsten claims: Little, J. M., 3.

## California—Continued.

*Mineralogy*—Continued.

- Gillespite crystal structure: Pabst, A., 3.  
 Hibschie is plazolite: Beliankin, D. S., 1.  
 Humboldt Co.: Averill, C. V., 1.  
 Hureaulite, crystallography: Murdoch, J., 3.  
 Magnesium minerals: Schlocker, J., 1.  
 Manganese deposits: Trask, P. D., 5.  
 Paymaster dist.: Hadley, J. B., 1.  
 Sierra Nevada: Taliaferro, 5.  
 Middle Butte dist. mineralization: Fraser, H. J., 4.  
 Mineral deposits, S. Calif.: Elam, J., 1.  
 Minerals, commercial: Gary, G. L., 1.  
 Mother Lode, Eldorado, Amador Cos.: Whitehead, W. L., 1.  
 Mt. Blanco, Death Valley minerals: Funk, B. G., 1.  
 Natrolite: Murdoch, J., 2.  
 Pegmatites, andalusites, Riverside Co.: Webb, R. W., 1.  
 Phosphorite deposits, sea floor: Dietz, R. S., 2.  
 Quicksilver: Eckel, E. B., 1.  
 Park dist.: Bailey, E. H., 2.  
 Red clay ocean sediments, radioactivity: Urry, W. D., 1.  
 Rosamond Dry Lake aerolite: Whitney, W. T., 1.  
 San Benito quad.: Wilson, I. F., 1.  
 Santa Cruz Co. mines, min. res.: Hubbard, H. G., 1.  
 Scheelite, Greenhorn Mts.: Dale, N. C., 1.  
 Serpentine, metamorphosed, Humphreys: Pabst, A., 1.  
 Stephanite: Murdoch, J., 2.  
 Tabulation, tungsten deposits: Jenkins, O. P., 4.  
 Tin deposits: Segerstrom, R. J., 1.  
 Tungsten: Tucker, W. B., 1.  
 Darwin Hills, Inyo Co.: Wilson, L. K., 1.  
 Northeast of Visalia: Jenkins, W. O., 1.  
 Sierra Nevada near Bishop: Lemmon, D. M., 1.  
 Uvarovite: McConnell, D., 1.  
 Welsh tungsten deposits: Little, J. M., 2.

*Paleontology*.

- Acila princeps, Cret.: Schenck, H. G., 4.  
 Avifauna, Buena Vista Lake: DeMay, I. S., 2.  
 Lower Klamath Lake: DeMay, I. S., 1.  
 Pleistocene: Miller, L. H., 2, 5.  
 Raulites—N. Cret.: Nauss, A. W., 1.  
 Biston, Pleist.: VanderHoof, V. L., 1.  
 Camel, horse, bison bones with ancient man: Hewes, G. H., 1.  
 Cathartine vultures: Miller, L. H., 3.  
 Coast Ranges: Taliaferro, 3.  
 Late Pleist.: Bailey, T. L., 1.  
 Corals, Capay Eocene: Bentson, H., 2.  
 Cretaceous fms., N. Santa Ana Mts.: Popenoe, W. P., 3.  
 Upper, fms. and faunas, S. Calif.: Popenoe, W. P., 1.



## California—Continued.

*Paleontology*—Continued.

- Crocker Flat landslide area: Simonson, R. R., 1.  
 Dictyoconus, Eocene: Cushman, 2.  
 Dinosaur restorations: Ley, W., 1.  
 Eocene, Santa Ynez Mts.: Kelley, F. R., 1.  
 Fish, Miocene: David, L. R., 1.  
 Scales as index fossils: David, L. R., 2.  
 Foraminifera, as index fossils: Adams, B. C., 1.  
 Eocene, type Lodo fm.: Martin, L. T., 1.  
 Kreyenhagen sh.: Cushman, J. A., 3.  
 Tertiary: Rothwell, W. T., Jr., 1.  
 Foraminiferal zones, Cret.: Goudkoff, P. P., 2.  
 Franciscan ls., Cret., Mendocino Co.: Thalmann, H. E., 8.  
 Gastropoda, Eocene: Clark, B. L., 1.  
 Globotruncana, Franciscan ls.: Thalmann, H. E., 6.  
 Grus, Pliocene: Miller, A. H., 2.  
 Gyraulus, Pleist.: Baker, F. C., 1.  
 Ichthyosaurus, Juras.: Camp, C. L., 1.  
 Laticarinina, Pleist.: Cushman, 2.  
 Lepidocyclina (Lepidocyclina) californica in Vaqueros fm.: Schenck, H. G., 2.  
 Martinez Creek area, Eocene: Curran, J. F., 1.  
 Mollusca, Miocene: Woodring, W. P., 1.  
 Round Mtn. silt: Keen, A. M., 1.  
 Mosasaurs, Cret.: Camp, C. L., 3.  
 Oldest fossil horizon: Keyes, 26.  
 Orinda fm. fauna: Richey, K. A., 1.  
 Ostracoda, Pleist., Pliocene, coast: LeRoy, L. W., 1.  
 Peat, pollen, Lower Klamath Lake: Hansen, H. P., 6.  
 Plesiosaur, Cret.: Stock, C., 1.  
 Potrero Hills gas field: Tolman, F. B., 1.  
 Radiolaria, Eocene Kreyenhagen fm., Los Banos: Clark, B. L., 4.  
 Mt. Diablo area: Clark, B. L., 2.  
 San Joaquin Valley: Clark, B. L., 3.  
 Tesla quad., Cret.: Campbell, A. S., 1.  
 Reef corals, Eocene: Durham, J. W., 3.  
 San Benito quad.: Wilson, I. F., 1.  
 San Diego Co., SW.: Hertlein, L. G., 1.  
 Santa Maria dist.: Woodring, 2.  
 Sea Lion, Miocene: Lyon, G. M., 1.  
 Tortoise, Pleist., McKittrick asphalt: Miller, L. H., 4.  
 Ventura region: Putnam, W. C., 1.  
 Vertebrata, Knights Ferry: Stirton, R. A., 1.  
 Wood, petrified: Chandler, W. C., 1.

*Petrology*.

- Ancient soil, dune sand, Santa Maria dist.: Woodring, W. P., 3.  
 Andesite breccia dike, Plumas Co.: Durrell, C., 1.  
 Arroyo Seco flood deposits: Krumbein, W. C., 2.  
 Bombs, cored, from volcanic cones: Brady, L. F., 1.

## California—Continued.

*Petrology*—Continued.

- Cargo Muchacho Mts.: Henshaw, P. C., 2.  
 Coast Ranges: Taliaferro, 5.  
 Conejo oil field: May, J. C., 1.  
 Confidence dist.: Little, J. M., 1.  
 Coso Mts. Hot Springs deposits: Fraser, H. J., 2.  
 Edwin clay, Lone: Bates, T. F., 1.  
 Eocene Santa Ynez Mts.: Kelley, F. R., 1.  
 Foliated dikes and pseudo dikes: Miller, W. J., 3.  
 Fractured sh., Santa Maria Basin, origin: Henny, G., 2.  
 Franciscan-Knoxville problem: Taliaferro, 2.  
 Gabbro, orbicular, Black Butte: Campbell, I., 1.  
 Granite, graphic: Schaller, W. T., 4.  
 Intrusives: Larsen, E. S., 2.  
 Jurassic corals: Taliaferro, N. L., 1.  
 Manganese deposits, Sierra Nevada: Taliaferro, 6.  
 Middle Butte dist. mineralization: Fraser, H. J., 4.  
 Mylonites, E. San Gabriel Mts.: Alf, R. M., 1.  
 Pegmatites, andalusite, Riverside Co.: Webb, R. W., 1.  
 Petaluma area: Johnson, F. A., 1.  
 Point Arena-Fort Ross area: Weaver, C. E., 2.  
 Radiolarites, origin: Henny, G., 2.  
 Sierra Nevada, NE. of Visalia: Durrell, C., 2.  
 Tungsten, Sierra Nevada near Bishop: Lemmon, D. M., 1.  
 Twin Lakes area: Chesterman, C. W., 1.  
 Welsh tungsten deposits: Little, J. M., 2.

*Physical geology*.

- Analysis, abnormal reflections: Deacon, L. E., 1.  
 Andesite breccia dike, Plumas Co.: Durrell, C., 1.  
 Basement volcanology: Locke, A., 1.  
 Belridge oil field: Wharton, J. B., Jr., 1.  
 Berryessa Valley: Anderson, F. M., 1.  
 Bombs, cored, from volcanic cones: Brady, L. F., 1.  
 Bradley-San Miguel dist.: Taliaferro, 4.  
 Buena Vista Hills area, Midway-Sunset oil field: McMasters, J. H., 1.  
 Capitan oil field: Kribbs, G. R., 1.  
 Cargo Muchacho Mts.: Henshaw, P. C., 2.  
 Cascade Range: Williams, H., 1.  
 Casmalia oil field: Porter, W. W., II, 2.  
 Chino area oil field: Krueger, M. L., 1.  
 Classification, lava surfaces: Jones, E. A., 1.  
 Coalinga oil field, E.: Chambers, L. S., 1.  
 Coast Range orogenesis, late Pleist.: Bailey, T. L., 1.  
 Confidence dist.: Little, J. M., 1.  
 Coso Mts. Hot Springs deposits: Fraser, H. J., 2.

## California—Continued.

*Physical geology*—Continued.

- Cretaceous fms., N. Santa Ana Mts.: Popenoe, W. P., 3.  
 Crocker Flat landslide area: Simonson, R. R., 1.  
 Crustal movements in Long Beach: Leyboldt, H., 1.  
 Death Valley area: Stose, G. W., 2.  
 Del Valle oil field: Sherman, R. V., 1; Tarbet, L. A., 1.  
 Devils Den oil field: Van Couvering, M., 1.  
 Dominguez oil field: Grinsfelder, S., 1.  
 Earthquake effect: Bravinder, K. M., 1.  
 Dudley Ridge gas field: Henny, G., 1.  
 Duxbury Point area: Douglas, J. M., 1.  
 Earth motions near fault slip: Heck, N. H., 2.  
 Earthquakes: Byerly, P., 2.  
 Earthquakes and leveling disturbance, Imperial Valley: Wood, H. O., 1.  
 Earthquakes and structure: Gutenberg, 4.  
 Earthquakes study, S. Calif.: Gutenberg, 6.  
 East Coalinga Extension field: Kaplow, E. J., 1.  
 Edison oil field: Edwards, E. C., 4.  
 El Segundo oil field: Reese, R. G., 1.  
 Elwood oil field: Hill, M. L., 2.  
 Eocene, Santa Ynez Mts.: Kelley, F. R., 1.  
 Fairfield Knolls gas field: Kirby, F. R., 1.  
 Foliated dikes and pseudo dikes: Miller, W. J., 3.  
 Fractured sh., Santa Maria Basin, origin: Henny, G., 2.  
 Franciscan-Knoxville problem: Taliaferro, 2.  
 Fruitvale oil field: Miller, R. H., 1.  
 Gaviota-Concepcion area: Porter, W. W., II, 1.  
 Geologic structure effect on radio reception: Howell, B. F., Jr., 1.  
 Ghost Canyon tungsten claims: Little, J. M., 3.  
 Gibson area, Midway-Sunset oil field: Woodward, W. T., 2.  
 Greeley oil field: Winham, W. P., 1.  
 Halfmoon Bay dist.: Crandall, R. R., 1.  
 History, seismographic stations, activities: Louderback, G. D., 1.  
 Huasna oil area: Taliaferro, 3.  
 Humboldt Co.: MacGinitie, H. D., 1.  
 Huntington Beach oil field: Weaver, D. K., 1.  
 Imperial carbon dioxide gas field: Rook, S. H., 1.  
 Inglewood oil field: Driver, H. L., 1.  
 Jurassic correls.: Taliaferro, 1.  
 Kern front, Kern River oil field: Edwards, E. C., 3.  
 Kern River salient, faulting: Nugent, L. E., Jr., 1.  
 Kettleman Hills oil field: Oil and Gas Jour., 1.  
 La Goleta gas field: Swayze, R. O., 1.  
 Lawndale oil field: Reese, R. G., 2.

## California—Continued.

*Physical geology*—Continued.

- Long Beach oil field: Stolz, H. P., 2.  
 Los Angeles Basin earthquake, 10-21-41: Bravinder, K. M., 1.  
 Los Angeles City oil field: Soper, E. K., 1.  
 Lost Hills oil field: Follansbee, G. S., Jr., 1.  
 McKittrick area, McKittrick oil field: Stevens, J. B., 1.  
 McKittrick Front oil field, Cymric areas: Atwill, E. R., 3.  
 Manganese deposits, Sierra Nevada: Taliaferro, 6.  
 Martinez Creek area, Eocene: Curran, J. F., 1.  
 Marysville (Sutter) Buttes gas field: Johnson, H. R., 1.  
 Microseisms at Berkeley, and surf: Byerly, P., 3.  
 Middle Butte dist. mineralization: Fraser, H. J., 4.  
 Montebello oil field: Reese, R. G., 3; Stolz, H. P., 3.  
 Moody Gulch oil field: Krueger, M. L., 3.  
 Mother Lode, Eldorado, Amador Cos.: Whitehead, W. L., 1.  
 Mount Diablo region: Cross, C. M., 1.  
 Mountain sculpture by rolling debris: Blackwelder, 1.  
 Mountain View oil field: Miller, R. H., 2.  
 Newhall oil field: Kew, W. S. W., 1.  
 Newport oil field: Parker, F. S., 1.  
 North Midway area, Midway-Sunset oil field: Woodward, W. T., 1.  
 Paloma oil and gas field: Wood, J. T., Jr., 1.  
 Paskenta region: Rist, R. L., 1.  
 Paymaster dist.: Hadley, J. B., 1.  
 Petaluma area: Johnson, F. A., 1.  
 Playa del Rey oil and gas field: Metzner, L. H., 1.  
 Point Arena-Fort Ross area: Weaver, C. E., 2.  
 Potrero oil field: Willis, R., 2.  
 Quicksilver, antimony, Stayton dist.: Bailey, E. H., 1.  
 Park dist.: Bailey, E. H., 2.  
 Republic area, Midway-Sunset oil field: Young, U., 1.  
 Rincon oil field: Stewart, R. E., 1.  
 Rio Bravo oil field: Noble, E. B., 2.  
 Rio Vista gas field: Soper, E. K., 4.  
 Round Mtn. oil field: Rogers, R. G., 1.  
 Rumsey Hills area: Kirby, J. M., 3.  
 Salt Lake oil field: Soper, E. K., 2.  
 San Andreas fault zone: Shepard, F. P., 2.  
 San Benito quad.: Wilson, I. F., 1.  
 San Diego Co., SW.: Hertlein, L. G., 1.  
 San Gabriel Mts.: Williams, J. E., 1.  
 Santa Clara River drainage area: Loel, W., 1.  
 Santa Maria dist.: Woodring, 2.  
 Santa Paula oil field: Waterfall, L. N., 1.  
 Sargent oil field: Michelin, J., 1.

## California—Continued.

*Physical geology—Continued.*

- Seal Beach oil field: Bowes, G. H., 1.  
 Semitropic gas field: Valentine, W. W., 1.  
 Sespe oil field: Clements, T., 1.  
 Shoreline erosion, La Jolla: Shepard, F. P., 4.  
 Sierra Nevada, NE. of Visalia: Durrell, C., 2.  
 Simi oil field: Stipp, T. F., 1.  
 Sites area: Kirby, J. M., 4.  
 Soil slips, disintegrating: Kesseli, J. E., 1.  
 Soledad quad.: Schombel, L. F., 1.  
 South Mtn. oil field: Snedden, L. B., 1.  
 Submarine topog. off coast: Longwell, C. R., 1.  
 Sutter (Marysville) Buttes field: Stalder, W., 1.  
 Temblor oil field: Simonson, R. R., 2.  
 Tertiary, Morgan Hill area: Gilbert, C. M., 1.  
 Torrance oil and gas field: Cabeen, W. R., 1; Davis, E. L., 1.  
 Tungsten, Darwin Hills, Inyo Co.: Wilson, L. K., 1.  
 NE. of Visalia: Jenkins, W. C., 1.  
 Sierra Nevada near Bishop: Lemmon, D. M., 1.  
 Twin Lakes area: Chesterman, C. W., 1.  
 Ventura Ave. oil field: Thoms, C. C., 1.  
 Ventura region: Putnam, W. C., 1.  
 Welsh tungsten deposits: Little, J. M., 2.  
 West Montebello oil and gas field: Stolz, H. P., 1.  
 Whittier earthquake, 1941: Richter, C. F., 1.  
 Whittier oil field: Holman, W. H., 1.  
 Williams, Twenty-Five Hill areas, Midway-Sunset oil field: Hillis, D. L., 1.  
 Wilmington oil field: Crown, W. J., 1; Winterburn, R., 1.  
 Yorba Linda Pt., Coyote Hills oil field: Parker, F. S., 2.

*Physiographic geology.*

- Arroyo Seco flood deposits: Krumbein, W. C., 2.  
 Drainage changes, Toowa Valley: Webb, R. W., 2.  
 Imperial carbon dioxide gas field: Rook, S. H., 1.  
 Long Beach: Darrow, W. E., 1.  
 Playa del Rey oil and gas field: Metzner, L. H., 1.  
 San Benito quad.: Wilson, I. F., 1.  
 San Gabriel Mts.: Williams, J. E., 1.  
 Scenery of Calif.: Willard, D. E., 1.  
 Sea-level and sand movements: Shepard, F. P., 1.  
 Sierra Nevada, NE. of Visalia: Durrell, C., 2.  
 Stratigraphic studies, progress: Atwill, E. R., 1.  
 Submarine topog. off coast: Longwell, C. R., 1.  
 Ventura region: Putnam, W. C., 1.

## California—Continued.

*Physiographic geology—Continued.*

- Waves, sand-transporting agent: Grant, U. S., IV, 1.  
*Underground water.*  
 Coso Mts. Hot Springs deposits: Fraser, H. J., 2.  
 Los Angeles Basin ground waters: Morse, R. R., 1.  
 Cambrian. See also Paleontology, Cambrian.  
 Alabama, Birmingham area: Poor, R. S., 1.  
 Cherokee Co.: Cloud, P. E., Jr., 3.  
 Alberta: Allan, J. A., 1; Farmilo, A. W., 1.  
 Foothills area: Hake, B. F., 1.  
 Moose Mtn. area: MacNeil, D. J., 1.  
 Moose Mtn.-Morley area: Beach, H. H., 3.  
 Arizona, Grand Canyon deposits: McKee, E. D., 2; Schenk, E. T., 1.  
 Paleogeography: Stoyanow, A. A., 1.  
 Slate Mtn.: Mintz, Y., 1.  
 California, Death Valley area: Stose, G. W., 2.  
 Sierra Nevada near Bishop: Lemmon, D. M., 1.  
 Canada, Laurentian area: Mauffette, P., 1.  
 Sydney coal field: Gray, F. W., 1.  
 Colorado, Aspen dist.: Vanderwilt, J. W., 2.  
 Beaver-Tarryall area, Park Co.: Singewald, Q. D., 2.  
 Cripple Creek dist.: Koschman, A. H., 1.  
 Elk Basin field, Mont.-Wyo.: Hendrickson, V. J., 1.  
 Georgia, Sand-Lookout Mtn. area: Sullivan, J. W., 2.  
 Idaho, Bannock Range: Ludlum, J. C., 2.  
 Illinois, Fox River area: Willman, H. B., 4.  
 Marseilles quad.: Willman, H. B., 2.  
 Ottawa quad.: Willman, H. B., 2.  
 Outlines of geology: Keyes, 25.  
 Streater quad.: Robinson, L. C., 1; Willman, H. B., 2.  
 Iowa, NE.: Schuldt, W. C., 1.  
 Kansas, Chanute field: Dillard, W. R., 1.  
 Ford Co.: Waite, H. A., 1.  
 Forest City Basin: Lee, W., 2.  
 Hamilton Co.: McLaughlin, T. G., 2.  
 Kearny Co.: McLaughlin, T. G., 2.  
 Nikkel field: Bunte, A. S., 1.  
 Oil and gas fields: Moore, R. C., 7.  
 Peace Creek oil field: Kornfeld, J. A., 1.  
 Phillips Co.: Landes, K. K., 2.  
 Kentucky, Big Sinking field: Freeman, L. B., 1.  
 Little North Mountain, Va.-Md.-W. Va.: Giles, A. W., 1.  
 Maine, Mount Desert Is. rocks: Chadwick, G. H., 2, 3.  
 Martic overthrust, Md.-Pa.: Gilluly, J., 2.  
 Massachusetts, Connecticut River Valley: Bain, G. W., 1.  
 Dracut area: Dennen, W. H., 1.  
 Mexico, stratigraphy: King, R. E., 1.

## Cambrian—Continued.

- Michigan, Menominee range, Dickinson Co.: Dutton, C. E., 1.  
 Northern: Thwaites, F. T., 1.  
 Mississippi Embayment, U. S.: Born, K. E., 3.  
 Missouri, Cass and Jackson Cos. oil and gas res.: Clair, J. R., 1.  
 Fire clay dists.: McQueen, H. S., 2.  
 Fredericktown area: McQueen, H. S., 1.  
 Montana, Cedar Creek field: Seager, O. A., 1.  
 Libby quad.: Gibson, R., 1.  
 Sawtooth Range: Deiss, C. F., 2.  
 Saypo quad.: Deiss, C. F., 1.  
 Three Forks area: Berry, G. W., 1.  
 Nebraska, geol. sections: Condra, G. E., 1  
 Pre-Penn., W.: Dillé, G. S., 1.  
 Nevada, dating diastrophic events: Longwell, 2.  
 Roberts Mts.: Merriam, C. W., 2.  
 Ruby Mts., S.: Sharp, R. P., 2.  
 New England-Hudson Valley area: Longwell, 4.  
 Newfoundland, St. Lawrence dist.: Van Alstine, R. E., 1.  
 New Mexico: Bates, R. L., 1.  
 New York, Adirondack-border area: Wheeler, R. R., 2.  
 New York City rocks: Walovnick, S., 1.  
 North America, Great Lakes area: Martin, H. M. M., 1.  
 North Carolina, barite deposits: Stuckey, J. L., 2.  
 Chromite deposits: Hunter, C. E., 2.  
 North Dakota: Kline, V. H., 1; Seager, O. A., 2.  
 Turtle River State Park: Laird, W. M., 3.  
 Ohio, western: Stout, W. E., 1.  
 Oklahoma, Arbuckle fms.: Decker, C. E., 1.  
 Burbank, South Burbank oil fields: Bass, N. W., 1.  
 Ground water: Dott, R. H., 1.  
 Osage Co.: Bass, N. W., 2.  
 Pacific Northwest, U. S.: Smith, W. D., 1.  
 Pennsylvania, Lehigh Co.: Miller, B. L., 1.  
 Hardyston fm.: Miller, B. L., 2.  
 Manganese minerals: Foose, R. M., 3.  
 Quebec, Gaspé Pen.: Alcock, F. J., 2;  
 Jones, I. W., 1.  
 Tennessee, central: Wilson, C. W., Jr., 1.  
 Embreeville dist.: Reichert, S. O., 1.  
 Rome, Rutledge fms., Watts Bar Dam: Fox, P. P., 3.  
 Texas, Ellenburger fm.: Cole, C. T., 3.  
 Fort Worth-Midland area: Scott, G., 1.  
 Llano Uplift: Bridge, J., 1.  
 Quartz sand horizon: Plummer, F. B., 2.  
 Santiago Peak quad.: Eifler, G. K., Jr., 1.  
 Terlingua quicksilver dist.: Ross, C. P., 2.  
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- Tri-State geology, Kans.-Okla.-Mo.: Fowler, G. M., 2.  
 Tri-State lead and zinc dist.: Fowler, G. M., 1.  
 United States, Basin and Range Prov.: Nolan, T. B., 1.  
 Dakota Basin: Ballard, N., 2.  
 Great Basin area: Wheeler, H. E., 1.  
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 Utah, Ashbrook silver dist.: Peterson, V. E., 1.  
 Cottonwood-American Fork area: Calkins, F. C., 2.  
 West Tintic mining dist.: Stringham, B. F., 1.  
 Vermont, west-cent.: Cady, W. M., 1.  
 Virginia, Appalachian geosyncline: Lammers, E. C. H., 1.  
 Appalachian Valley: Butts, C., 1.  
 Buchanan-Cove Mtn.-Jennings Creek field trip: Holden, R. J., 1.  
 Catoclin fm.: Bloomer, R. O., 2.  
 Clarke Co.: Butts, C., 2.  
 Dolomites: Bevan, A. C., 8.  
 Elkton area: King, P. B., 3.  
 Frederick Co.: Butts, C., 3.  
 Tazewell Co.: Cooper, B. N., 1.  
 Walker Mtn., S. end: Butts, C., 2.  
 Washington, Metaline quad.: Park, C. F., Jr., 4.  
 West Virginia, oil and gas fields: Reger, D. B., 2.  
 Wisconsin, NE.: Thwaites, F. T., 2.  
 Wyoming, Cache Creek area, Gros Ventre Mts.: Nelson, V. E., 1.  
 Gros Ventre and N. Hoback Ranges: Nelson, V. E., 2.  
 Rocks, soils, and selenium: Knight, S. H., 1.

Camsellite, N. Am.: Schaller, W. T., 3.

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- St. Lawrence, north bank, Bersimis to Matamec: Faessler, C., 1.

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- Archean sedimentation, Canadian Shield: Pettijohn, F. J., 1.  
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 Minor ig. intrus.: Moorhouse, W. W., 4.  
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 Deep, Lake Superior area: Quirke, T. T., 4.

## Canada—Continued.

*Economic geology—Continued.*

- Laurentian area: Mauffette, P., 1.  
 Magnesia, magnesium: Goudge, M. F., 1.  
 Manganese, occurrence and minerals:  
   Crook, T. H., 1.  
 Oil and gas fields: Hume, G. S., 2.  
 Oil fields, W. Canada: Hunter, C. M., 1.  
 Olivine diabase, Canadian Shield: Lewis,  
   C. R., 1.  
 Petroleum, NW.: Howard, H. V., 1.  
   Possibilities: Stewart, J. S., 2.  
 Rock alterations, hydrothermal solutions:  
   Bruce, E. L., 2.  
 Sydney coal field: Gray, F. W., 1.  
 Tungsten: Eardley-Wilmot, V. L., 1.

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- Archean sedimentation, Canadian Shield:  
   Pettijohn, F. J., 1.  
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   H., 7.  
 Front Ranges of Rocky Mts.: Atwood, W.  
   W., 1.  
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   Stewart, J. S., 2.

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- National Parks, Rockies and Selkirks:  
   MacKay, B. R., 1.  
 Oil and gas fields: Hume, G. S., 2;  
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   Deep, Lake Superior area: Quirke, T.  
   T., 4.  
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   F., 1.  
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   R. H., 5.  
 Archaeoconularia and Eoconularia: Sin-  
   clair, G. W., 7.  
 Folsom Bison in Canada: Eiseley, L. C., 3.  
 Gaudryina, Cret.: Cushman, 2.  
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 Koninckopora, algal nature: Wood, A., 1.  
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 Spirifer argentarius fauna, Rocky Mts.:  
   Warren, P. S., 1.  
 Thyasira, Cret.: Brown, R. A. C., 1.

*Petrology.*

- Archean sedimentation, Canadian Shield:  
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## Canada—Continued.

*Petrology—Continued.*

- Dikes, pebble-bearing, Bryce Tp.: Moor-  
   house, W. W., 6.  
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   C. R., 1.  
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 Canadian Shield structures: Jolliffe, A.  
   W., 1.  
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   house, W. W., 6.  
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   W. W., 1.  
 Hudson Bay area rising?: Cooke, H. C., 2;  
   Gutenberg, 1.  
 Iron deposits, Lake Superior area: Quirke,  
   T. T., 4.  
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   C. R., 1.  
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   Matamec: Faessler, C., 1.  
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- Buried channel, old St. Lawrence River:  
   Wilson, A. E., 3.  
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   A. H., 2.  
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   MacKay, B. R., 1.  
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 Cantua-Vallecitos area, Calif.: Atwill, E. R., 2.  
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- Alabama, Birmingham area: Poor, R. S., 1.  
 Cherokee Co.: Cloud, P. E., Jr., 3.  
 Northwest, Paleozoics: Miss G. Soc., 1.  
 Alaska, Eagle-Circle dist.: Mertie, J. B.,  
   Jr., 1.  
 Alberta: Allan, J. A., 1; Farmilo, A.  
   W., 1.  
 East-central: Hume, G. S., 1.  
 Foothills: Hage, C. O., 1; Hake, B. F., 1.  
 Marble Mtn. area: Beach, H. H., 1.  
 Moose Mtn. area: MacNeil, D. J., 1.  
 Moose Mtn.-Morley area: Beach, H.  
   H., 3.

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- Arizona, Bisbee dist.: Rove, O. N., 1.  
 Paleogeography: Stoyanow, A. A., 1.  
 Redwall ls., Missn.: Gutschick, R. C., 2.  
 Slate Mtn.: Mintz, Y., 1.  
 Arkansas, lss.: Branner, G. C., 2.  
 Oil and gas fields: Anderson, R. J., 1.  
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 Pitkin ls.: Easton, W. H., 1.  
 Border-Red Coulee field, Mont.-Alberta: Erdmann, C. E., 1.  
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 Sierra Nevada manganese deposits: Taliaferro, 6.  
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 Coal, origin and composition: Mott, R. A., 1.  
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 Gore area: Brill, K. G., Jr., 1.  
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 Elk Basin field, Mont.-Wyo.: Hendrickson, V. J., 1.  
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 Sand-Lookout Mtn. area: Sullivan, J. W., 2.  
 Greenland, Traill ls.: Schaub, H. P., 1.  
 Illinois Basin geologic distribution: Hake, E. F., 2.  
 Oil fields, U. S.: Hake, E. F., 2.  
 Illinois, Bethel ss.: Pye, W. D., 3.  
 Crude oils, geol. occurrence: Rees, O. W., 1.  
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 Kinderhook strata: Workman, L. E., 1.  
 Levias fm., Hardin Co.: Tippie, F. E., 2.  
 Marseilles quad.: Willman, H. B., 2.  
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 Oil devels., recent: Millison, C., 1.  
 Oil fields: Bell, A. H., 4.  
 Oil sands: Squires, F., 1.  
 Ottawa quad.: Willman, H. B., 2.  
 Outlines of geology: Keyes, 25.  
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## Carboniferous—Continued.

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 Renault fm., Hardin Co.: Tippie, F. E., 2.  
 Rhythms, Penn. cyclothems: Weller, J. M., 4.  
 Southeastern oil poss.: Easton, W. H., 5.  
 Southern: Bell, A. H., 6; Krause, A., 1.  
 Streator quad.: Robinson, L. C., 1; Willman, H. B., 2.  
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 Indiana, geology and highway engineering: Woods, K. B., 1.  
 Indianapolis area: McGuinness, C. L., 1.  
 St. Louis and Ste. Genevieve lss.: McGrain, P., 2.  
 St. Louis-lower Chester sec., Putnam Co.: Smith, E. R., 2.  
 Salem ls.: Rhoe Chapter, S. G. E., 1.  
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 Greene County: Tapper, W. B., 1.  
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 Kansas, Bush City field: Charles, H. H., 1.  
 Chanute field: Dillard, W. R., 1.  
 Deep water well, Cherokee Co.: Abernathy, G. E., 1.  
 Des Moines-Missouri rocks: Oakes, M. C., 1.  
 Ford Co.: Waite, H. A., 1.  
 Forest City Basin: Lee, W., 2.  
 Hamilton Co.: McLaughlin, T. G., 2.  
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 McLouth field: Lee, W., 1.  
 Nikkel field: Bunte, A. S., 1.  
 Oil and gas fields: Moore, R. C., 7.  
 Patterson pool: Hubley, M. D., 1.  
 Peace Creek oil field: Kornfeld, J. A., 1.  
 Phillips Co.: Landes, K. K., 2.  
 Southeast, coal lands: Hall, H. H., 1.  
 Stream channels in Arbuckle fm.: Mull, J. A., Jr., 1.  
 Wherry pool: McNeil, H. E., 1.  
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 Big Sinking field: Freeman, L. B., 1.  
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 Western: Freeman, L. B., 2.  
 Laramie River Valley, Colo.-Wyo.: Beckwith, R. H., 1.  
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 Stratigraphy: King, E. R., 1.  
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 Missouri, Cass Co., oil and gas res.: Clair, J. R., 1.  
 Chouteau cf. Louisiana lss.: Keyes, 21.  
 Fire clay dists.: McQueen, H. S., 2.  
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 Joplin area: Smith, W. S. T., 2.  
 Mary Arnold mines: Clark, E. L., 1.  
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 Polo gas field: Seager, O. A., 1.  
 Montana, Cedar Creek field: Seager, O. A., 1.  
 Madison group: Sloss, L. L., 1.  
 Sawtooth Range: Deiss, C., 2.  
 Saypo quad.: Deiss, C., 1.  
 Three Forks area: Berry, G. W., 1.  
 Nebraska, geol. sections: Condra, G. E., 1.  
 Western, pre-Penn.: Dillé, G. S., 1.  
 Nevada, Nevada dist.: Roberts, R. J., 1.  
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 Ruby Mts., S.: Sharp, R. P., 2.  
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 Winnepesaukee quad.: Quinn, A. W., 1.  
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 Carlsbad area: Lang, W. T. B., 1.  
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 Los Pinos Mts.: Stark, J. T., 1.  
 Magdalena group: Bisbee, W. A., 1.  
 Magdalena mining dist.: Loughlin, G. F., 2.  
 Pennsylvanian: Thompson, M. L., 2.  
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 New York, Lake George area: Newland, D. H., 1.  
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 Rock City: Davis, W. C., Jr., 1.  
 Shawangunk Mts.: Glenby, K. L., 2.  
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## Carboniferous—Continued.

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 Oil and gas fields: Cottingham, K., 1.  
 Southeastern: Miller, E. W., 1.  
 Oklahoma, Burbank, South Burbank oil fields: Bass, N. W., 1.  
 Cimarron Co.: Schoff, S. L., 1.  
 Davenport field: White, S. B., 1.  
 Des Moines-Missouri rocks: Oakes, M. C., 1.  
 Dora pool: Ingham, W. L., 1.  
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 Pennsylvania, Brush Creek ls.: Seaman, D. M., 1.  
 Harrisburg area: Cloos, E., 2.  
 Manganese minerals: Foose, R. M., 3.  
 Music Mtn. pool: Fetteke, C. R., 1.  
 Oil and gas fields: Fetteke, C. R., 2.  
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## Carboniferous—Continued.

- Quartz veins, Ouachita Mts., Ark.-Okla.: Miser, H. D., 2.
- Quebec, Gaspé Pen.: Alcock, F. J., 2; Jones, I. W., 1.
- South Dakota, Rapid City area: Gries, J. P., 3.
- Tennessee, middle, oil and gas: Born, K. E., 2.
- Texas: Evans, G. L., 1.
- Barnhart field: Cole, C. T., 2.
- Bowers field: Brown, A. B., 1.
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- Fort Worth-Midland area: Scott, G., 1.
- Hull-Silk field: Thompson, E. I., 1.
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- Seymour pool: Murphy, J. K., 1.
- Shafter mining dist.: Ross, C. P., 7.
- Terlingua quicksilver dist.: Ross, C. P., 2.
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- Cottonwood-American Fork area: Calkins, F. C., 2.
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- Virginia, Appalachian Valley: Butts, C., 1.
- Clarke Co.: Butts, C., 3.
- Deep well, Russell Co.: Martens, J. H. C., 2.
- Early Grove field: Averitt, P., 1.
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## Carboniferous—Continued.

- West Virginia: Woodward, H. P., 1.
- Gay-Spencer-Richardson trend: Heck, E. T., 2.
- Limestone structures: Price, P. H., 3.
- Oil and gas fields: Reger, D. B., 2.
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- Yukon, Wolf Creek area, St. Elias Range: Sharp, R. P., 7.
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- Carborundum, morphology of: Donnay, 8.
- Carnegie Mus. min. coll.: Seaman, D. M., 2.
- Carolina Bays, origin: Cooke, C. W., 2; Ferguson, J. L., 1; Johnson, D. W., 1, 4; Jones, O. T., 2; Mackin, J. H., 2; Prouty, W. F., 1.
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- Aerial photographs and their application: Smith, H. T. U., 1.
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- British Columbia: Gunning, H. C., 2.
- Sullivan mine: Pentland, A. G., 1.



## Cassiterite—Continued.

- Carolina tin-spodumene belt: Kesler, T. L., 2.  
 Nevada, Lander Co.: Fries, C. Jr., 1.  
 Majuba Hill area: Smith, Ward C., 1.  
 Nova Scotia, New Ross area: Douglas, G. V., 5.  
 Virginia, Irish Creek area: Koschmann, A. H., 2.

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- Invertebrate collections, Paleozoic: Weller, J. M., 3.  
 Oklahoma, 100 minerals, rocks, fossils Ham, W. E., 1.  
 Types, Royal Ontario Mus. Paleontology, Fritz, M. A., 1.

## Caves.

- Georgia, Sand-Lookout Mtn. area: Sullivan, J. W., 2.  
 Hydrology, ls. terranes: Swinnerton, A. C., 2.  
 Idaho, Shoshone area: Harrington, E. R., 2.  
 Indiana, Wyandotte Cave: McGrain, P., 1.  
 Kentucky: McFarlan, A. C., 2.  
 Massachusetts, Connecticut River Valley: Bain, G. W., 1.  
 Mexico, Río Nazas Valley, Coahuila: Waitz, P., 2.  
 Missouri, fire clay dists.: McQueen, H. S., 2.  
 New York: Thurston, A. W., 1.  
 Pennsylvania: Stone, R. W., 1, 2.  
 Lehigh Co.: Miller, B. L., 1.  
 South Dakota, surface: Rothrock, E. P., 5.  
 Tennessee, core from Chicamanga Dam: McGavock, C. B., Jr., 1.  
 United States limestone: Bretz, J. H., 1.  
 Utah, American Fork Canyon: Hansen, G. H., 1.  
 Washington, Metaline quad.: Park, C. F., Jr., 4.

## Celestite.

- Mexico, Tula dist.: Robles Ramos, R., 2.  
 New York, Lockport dolomite: Jensen, D. E., 1.  
 Texas, strontium minerals: Evans, G. L., 2.

Central America. See also Costa Rica, Guatemala, etc.

## Economic geology.

Geophysics in petroleum industry: DeGolyer, E. L., 2.

## Historical geology.

- Mesozoic: Mullerried, F. K. G., 4;  
 Weaver, C. E., 1.  
 Northwestern Cent. Am.: Mullerried, 5.

## Central America—Continued.

## Paleontology.

- Northwestern Cent. Am.: Mullerried, 5.  
 Plants, Mesozoic, Cenozoic: Berry, E. W., 1.  
 Turtles, and origin of Latin Am. fauna: Simpson, G. G., 8.

## Petrology.

Cordilleras: Deger, E. C., 1.

## Physical geology.

- Cordilleras: Deger, E. C., 1.  
 Mesozoic: Weaver, C. E., 1.  
 Northwestern Cent. Am.: Mullerried, 5.  
 Seismic region: Sánchez, P. C., 2.  
 Seismology: Gutenberg, B., 5.  
 Volcanic systems: Sánchez, P. C., 1.  
 Volcanoes, active: Zies, E. G., 1.

## Physiographic geology.

Northwestern Cent. Am.: Mullerried, 5.

## Cephalopoda. See also Invertebrata (general);

## Mollusca.

- Ammonites, Cret., N. Mex.: Haas, O. H., 3.  
 Jurassic, Mex.: Imlay, R. W., 4.  
 Mesozoic, morphologic types and cycles: Haas, O. H., 2.  
 Ammonoid zones, Perm., Tex.-N. Mex.: Miller, A. K., 1.  
 Late Paleozoic, siphuncle: Miller, A. K., 5.  
 Apsidoceras, Ord., Montreal, Canada: Flower, R. H., 5.  
 Arkansas, Pitkin ls.: Easton, W. H., 1.  
 Aspidoceras, Puebla, Mex.: Mullerried, 8.  
 Baculites—N., Cret., Calif.: Nauss, A. W., 1.  
 Belemnites, Cret., E. Greenland: Swinnerton, H. H., 1.  
 Black River fms. fauna, N. Y., Ontario: Young, F. P. Jr., 1.  
 Brevicones, Canadian, Ozarkian, N. Am.: Ulrich, E. O., 4.  
 Cuba, Mesozoic: Torre Mandrazo, R. de la., 1.  
 Pinar del Río Prov.: Vermunt, L. W. J., 1.  
 Vinales ls. fauna: Imlay, R. W., 2.  
 Cyrtocerina, Ord., Ind.: Flower, R. H., 7.  
 Fauna, Asphalt Ridge, Utah: Tolmachoff, I. P., 1.  
 Eagle Ford group, Tex.: Moreman, W. L., 1.  
 Eocene, La.: Barry, J. O., 1.  
 Helderberg, Quebec: Clark, T. H., 1.  
 Leonard Perm. ser., U. S.: Clifton, R. L., 1.  
 Martinsburg fm., Massanutten Mtn., Va.: Secrist, M. H., 2.  
 Niagaran, Ill.: Lowenstam, H. A., 2.  
 Silurian, W. Va.: Woodward, H. P., 1.  
 Stony Mtn. fm., Manitoba: Okulitch, V. J., 3.  
 Gulf region, N., Cent. Am., Cuba: Imlay, R. W., 5.  
 Illinois, Marseilles quad.: Willman, H. B., 2.  
 Imioceras, Carb., Ill.: Miller, A. K., 2.

## Cephalopoda—Continued.

- Kentucky, Cynthiana fm.: Flower, R. H., 1.  
 Lambeoceras, Ord., Manitoba: Leith, E. I., 2.  
 Mississippi, Clay Co.: Bergquist, H. R., 2.  
 Pontotoc Co.: Priddy, R. R., 3.  
 Nautilicones, Canadian, Ozarkian, N. Am.: Ulrich, E. O., 1.  
 New Mexico, Penn.: Young, J. A., Jr., 1.  
 New York, Schoharie, Esopus fms.: Goldring, W., 2.  
 North America, Camb., Ord.: Miller, A. K., 7.  
 Eocene, Paleocene: Stenzel, H. B., 5.  
 Pre-Cambrian longicones: Ulrich, E. O., 3.  
 Nova Scotia, Sil.: Flower, R. H., 4.  
 Ohio, Allegheny ser., coals, ls. below Lower Kittanning: Sturgeon, M. T., 1.  
 Cincinnati area, Ord.: Flower, R. H., 9.  
 Olentangy sh. fauna: Baker, R. C., 1.  
 Prout ls.-Plum Brook sh.: Stumm, E. C., 1.  
 Pendleton fm. fauna, Tex., La.: Wasem, R., 1.  
 Pennsylvania, Brush Creek ls. fauna: Seaman, D. M., 1.  
 Martinsburg fm., Lehigh Co.: Willard, B., 1.  
 Pitkin fm. fauna, Ark.: Easton, W. H., 3.  
 Protrachyceras, Trias., variations, British Columbia: McLearn, F. H., 9.  
 Silurian, N. Y.: Flower, R. H., 2.  
 Siphuncles, Late Paleozoic ammonoids: Unklesbay, A. G., 1.  
 Texas, Mabelle Draw Perm. area: Read, W. F., 1.  
 Thaynes fm. fauna, Bear Lake Valley, Idaho: Kummel, B., Jr., 2.  
 Utah, Asphalt Ridge fauna: Tolmachoff, I. P., 1.  
 Virginia, Appalachian Valley: Butts, C., 1.  
 Tazewell Co.: Cooper, B. N., 1.  
 West Virginia, Dev.: Woodward, H. P., 2.  
 Wyoming, Ord.: Miller, A. K., 3.  
 Wyoming-Idaho Eo-Trias. correl.: Newell, N. D., 1.  
 Cerium, N. Am., pyrometasomatic ore deposits: Knopf, A., 1.  
 Cerussite, Newfoundland, Port au Port Pen. colloform sulphide veins: Watson K. D., 3.  
 Cesium.  
 New England, rare alkalis: Hess, F. L., 1.  
 North America, rare alkalis in micas: Stevens, R. E., 1.  
 Rare element prospecting in pegmatites: Quirke, T. T., 2.  
 Chabazite, Upper Montclair quarry, N. J.: Drake, H. Y., 1.  
 Chalcedony.  
 Colorado: Pearl, R. M., 2.  
 Nebraska minerals: Schramm, E. F., 1.  
 Oregon, filled spherulites: Ross, C. S., 2.

## Chalcedony—Continued.

- Texas, origin Dockum congloms.: Roth, R. I., 3.  
 Chalcocite, Kennecott, Alaska: Bateman, A. M., 2.  
 Chalcopyrite.  
 Arizona, Bisbee dist.: Rove, O. N., 1.  
 New Hampshire, Franconia mine: Verrow, H. J., 1.  
 Ontario, Dobie area quantitative relations: Thomson, J. Ellis, 2.  
 Quebec, Lake Forges to Johan Beetz on St. Lawrence: Claveau, J. L., 1.  
 Chalk.  
 Kansas: Moore, R. C., 1.  
 Mississippi, Clay Co.: Bergquist, H. R., 2.  
 South Dakota, Medicine Butte anticline: Petsch, B. C., 1.  
 Changes of level. See also Beaches; Shore lines; Terraces.  
 Alaska, Nome buried beaches: MacNeil, F. S., 1.  
 British Columbia, S.: Davis, N. F. G., 1.  
 California, crustal movements in Long Beach: Leyboldt, H., 1.  
 Imperial Valley: Wood, H. O., 1.  
 Sea-level, and sand movements: Shepard, F. P., 1.  
 Canada, Hudson Bay area: Cooke, H. C., 2; Gutenberg, 1.  
 Florida, tributary valley lakes: Vernon, R. O., 2.  
 Massachusetts, Boston area: Johnson, F., 2.  
 Boylston St., Boston, fish weir: Johnson, F., 1.  
 Mexico, orogenesis and relief: Robles Ramos, R., 1.  
 New Jersey, Cape May fm. marine topog.: MacClintock, P., 1.  
 North America, Atlantic coast: Flint, R. F., 4.  
 North Carolina, Blythe Bay: Wells, B. W., 1.  
 Oregon, SW. coast: Twenhofel, 7.  
 Pacific Northwest, U. S.: Smith, W. D., 1.  
 Pennsylvania, Eagles Mere Lake origin: Ashley, G. H., 3.  
 Texas, Mabelle Draw Perm. area: Read, W. F., 1.  
 Chanute oil pool, Kans.: Dillard, W. R., 1.  
 Chara, lss. formed by plants: Johnson, J. H., 6.  
 Oklahoma, Cimarron Co. Mesozoic: Stovall, J. W., 1.  
 Charophyta, micropaleontology and oil explor.: Croncis, C. G., 1.  
 Chelonia. See also Reptilia.  
 Central American fauna: Simpson, G. G., 8.  
 Emys, Pleist., Kans.: Taylor, E. H., 3.  
 Gopherus, Pleist., Calif.: Miller, L. H., 4.  
 Restorations: Hoaglund, C., 1.  
 Vertebrata, Miocene, SE. Tex.: Hesse, C. J., 4.

- Chemical analysis and petroleum geology: Barr, K. W., 1.
- Chemical and physical changes in sediments: Krumbein, W. C., 3.
- Chert. See also Flint.
- Alabama, Tenn. Valley region: Harper, R. M., 1.
- California, Coast Ranges: Taliaferro, 5.
- Franciscan-Knoxville problem: Taliaferro, 2.
- Sierra Nevada manganese deposits: Taliaferro, 6.
- Illinois, Fox River area: Willman, H. B., 4.
- Niagarán: Lowenstam, H. A., 3.
- New York, Oriskany ss. chert nodules: Apssouri, C. N., 1.
- Ontario: Hawley, J. E., 4.
- London area Paleozoics: Caley, J. F., 1.
- Sudbury dist., older rocks: Cooke, H. C., 3.
- Tennessee, Perry, Lewis Cos.: Burchard, E. F., 1.
- Texas, Ellenberger fm.: Cole, C. T., 3.
- Origin Dockum congloms.: Roth, R. I., 3.
- Tri-State geol. Kans.-Okla.-Mo.: Fowler, G. M., 2.
- Chink-faceted pebbles, fluvatile vs. marine: Wentworth, C. K., 3.
- Chino oil field, Calif.: Krueger, M. L., 1.
- Chlorites.
- Jamaica, palagonite tuffs: Raw, F., 2.
- Quartz veins, Ouachita Mts., Ark.-Okla.: Miser, H. D., 2.
- Chromite.
- Alaska, Baranof Is.: Guild, P. W., 2.
- Kenai Pen.: Guild, P. W., 1.
- California, Del Puerto area: Hawkes, H. E., Jr., 1.
- Economic minerals maps: Jenkins, O. P., 1.
- San Benito quad.: Wilson, I. F., 1.
- Composition of: Stevens, R. E., 2.
- Cuba: Thayer, T. P., 1.
- Gravimeter survey for: Cumings, W. L., 2.
- Manitoba: Brownell, G. M., 3; Wet, J. P. de, 1.
- Bird River area: Bateman, J. D., 2.
- Newfoundland, war minerals: Shelgrove, A. K., 1.
- North America: Sampson, E., 1; Stevens, R. E., 2.
- Deposit types: Peoples, J. W., 1.
- North Carolina: Hunter, C. E., 2.
- Quebec, Matapédia Lake area: Aubert de la Rue, E., 1.
- Chromium.
- Alaska: Joesting, H. R., 1.
- British Columbia: Gunnig, H. C., 2.
- California: Averill, C. V., 2.
- Minerals in world affairs: Lovering, T. S., 3.
- Cinnabar.
- British Columbia, Pinchi Lake area: Freeze, A. C., 1.
- Cinnabar—Continued.
- California, Coso quicksilver dist.: Ross, C. P., 6.
- Quicksilver: Johnson, J. H., 5.
- Cirques.
- Montana, Glacier Nat. Park: Alden, W. C., 1.
- Sawtooth Range: Deiss, C. F., 2.
- New Brunswick, central: Rose, B., 3.
- Quebec, Gaspé Pen.: Alcock, F. J., 2.
- Shickshock Mts.: Flint, R. F., 3.
- Wyoming, Noir Valley: Miner, N. A., 1.
- Cirrepedia. See also Crustacea.
- Alaska, Nome buried beaches: MacNeil, F. S., 1.
- Balanus, Mass., Boston fish weir: Lindquist, R. L., 1.
- California, San Benito quad.: Wilson, I. F., 1.
- Classification.
- Coal, physical constitution: Cady, G. H., 1; Lowry, H. H., 1.
- Connecticut, nickel sulphides, Mt. Prospect: Cameron, E. N., 1.
- Conodonts, origin: Du Bois, P., 2.
- Criteria for: Simpson, G. G., 7.
- Crystals: Donnay, J. D. H., 9.
- Epigenetic ore dists.: Anonymous, 2.
- Eruptive rocks: Shand, S. J., 3.
- Faults: Clark, S. K., 1; Longwell, C. R., 6.
- Geophysical explor., decimal: Heiland, C. A., 1.
- Lava surfaces: Jones, A. E., 1.
- Meteorites, distrib. by: Leonard, F. C., 5.
- Symbols for: Leonard, F. C., 7.
- Oil reservoirs: Lovely, H. R., 1; Wilson, W. B., 1.
- Sedimentary rocks: Krynine, P. D., 5.
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- Claudetite, Ariz.: Buerger, M. J., 4.
- Clay. See also Bentonite; Bleaching clays; Fire clays; Kaolin.
- Analysis of minerals, differential thermal: Grim, R. E., 2.
- Aqueous solutions action on clays: Nutting, P. G., 2.
- Arkansas, Pike Co.: Herold, P. G., 1.
- Aspects of modern geology: Bastin, E. S., 2.
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- California, Edwin clay: Bates, T. F., 1.
- San Benito quad.: Wilson, I. F., 1.
- Santa Cruz Co.: Hubbard, H. G., 1.
- Clays, soils, and geologic processes: Ross, C. S., 4.
- Endellite and halloysite, relationship: Alexander, L. T., 1.
- Florida: Vernon, R. O., 3.
- Holmes Co.: Vernon, R. O., 1.

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- Southern, natural features: Davis, J. H., Jr., 1.  
 Washington Co.: Vernon, R. O., 1.  
 Georgia, Coastal Plain: Cooke, C. W., 5.  
 Kaolins: Klinefelter, T. A., 1; Mitchell, L., 1.  
 Sand-lookout Mtn. area: Sullivan, J. W., 2.  
 Halloysite and endellite relationships: Alexander, L. T., 1.  
 Idaho, metal, coal mining dists.: Ross, C. P., 1.

- Illinois, halloysite: Lamar, J. E., 1.  
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 Periglacial involutions: Sharp, R. P., 1.  
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 Willman, H. B., 2.

- Kansas: Moore, R. C., 1.  
 Bentonite: Kinney, E. D., 1.  
 Pre-Greenhorn beds: Plummer, N. V., 1.  
 Kentucky: McFarlan, A. C., 2.  
 Burbank oil pool: Jillson, W. R., 3.  
 Massachusetts, Cape Cod tills: Sayles, R. W., 1.

- Connecticut Valley: Jahns, R. H., 1.  
 Materials of: Grim, R. E., 1.  
 Michigan, Traverse rocks, Thunder Bay area: Warthin, S. A., Jr., 2.

- Minerals, lattice structures: Hendricks, S. B., 1.

- Marine sediments: Dietz, R. S., 1.  
 Minnesota: Emmons, W. H., 2; Thiel, G. A., 1.

- Mississippi, Adams Co.: Vestal, F. E., 1.  
 Camp Van Dorn area: Brown, G. F., 2.  
 Choctaw Co.: Vestal, F. E., 2.  
 Clay Co.: Bergquist, H. R., 2.  
 Montgomery Co.: Priddy, R. R., 2.  
 Pontotoc Co.: Priddy, R. R., 3.  
 Scott Co.: Bergquist, H. R., 1.  
 Tallahatchie Co.: Priddy, R. R., 1.  
 Union Co.: Conant, L. C., 1.

- Missouri, fire clays: Bradley, R. S., 1;  
 McQueen, H. S., 2.

- Stoddard Co.: Stewart, D. R., 1.

- Nebraska: Borrowman, G., 1.

- Geologic sections: Condra, G. E., 1.  
 New Mexico, Galisteo fm.: Stearns, C. E., 2.

- New York, Mohawkian, West Canada Creek: Kay, G. M., 6.

- Subsurface explor.: Wheeler, G., 1.  
 North Carolina Coastal Plain: Richards, H. G., 2.

- Ontario, Dryden-Wabigoon area: Satterly, J., 3.

- Haliburton area: Satterly, J., 4.

- Langmuir-Sheraton area: Berry, L. G., 2.  
 Windigo-North Caribou Lakes: Satterly, J., 2.

- Pennsylvania, Brookville quad.: Graeber, C. K., 1.

- Lancaster Co.: Foose, R. M., 2.

## Clay—Continued.

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- Lehigh Co. min. res.: Miller, B. L., 3.  
 Properties of: Hendricks, S. B., 1.  
 Quebec, Lake Wakeham area: Claveau, J., 3.

- Matapédia Lake area: Aubert de la Rue, E., 1.

- Rhizococoncretions, St. Lawrence River: Rousseau, J., 1.

- Red clay ocean sediments, radioactivity: Urry, W. D., 1.

- Research and agriculture: Kelley, W. P., 1.

- Research and ceramics: Norton, F. H., 1.

- Research in construction engineering: Winterkorn, H. F., 1.

- Soil mechanics and foundation engineering: Huntington, W. C., 1.

- South Dakota: Connolly, J. P., 1.

- Medicine Butte anticline: Petsch, B. C., 1.

- Tennessee, bentonitic: Whitlatch, G. I., 3.

- Eocene: Whitlatch, G. I., 3.

- Texas: Evans, G. L., 1.

- Atacosa Co.: McCammon, J. H., II, 1.

- Filtering clays: Evans, G. L., 3.

- Gonzalez Co.: Chelf, C. R., 1.

- High Plains, caliche: Sidwell, R. G., 1.  
 Mabelle Draw Perm. area: Read, W. F., 1.

- Medley dist.: Vogel, F. A., Jr., 1.

- Old Browndell townsite: Shafer, G. H., 2.

- Polk, adjoining Cos.: Shafer, G. H., 1.

- Wilson Co.: Cowan, W. M., 1.

- Thermal analysis of minerals in: Grim, R. E., 2.

- Virginia, Buena Vista: Bloomer, R. O., 1.

- Elkton area: King, P. B., 3.

- Eocene: Gildersleeve, B., 1.

- Lyndhurst-Vesuvius dist.: Knechtel, M. M., 2.

- War minerals: Bevan, A. C., 2.

- Washington, Cowlitz deposits: Allen, V. T., 1.

- Wenatchee-Ellensburg-Yakima area: Glover, S. L., 2.

- West Virginia, SE.: Reeves, F., 1.

- Wyoming, bentonite: Baker, V. R., 2.

- Cleavage, distortion by folding of strata: Cloos, E., 1.

- Mineral identification by: Hawkins, A. C., 4.

- Climate and man: Russell, R. J., 1.

- Climate, geologic. See Paleoclimatology.

- Climates of yesterday: Lott, A. V., 1.

- Clinton gas field, Ohio: Denman, R. H., 1.

- Coal. See also Lignite.

- Alaska, Gerstle River dist.: Moffit, F. H., 1.

- Alberta: Allan, J. A., 1; Beach, H. H., 3.

- Anthraxylon, coal relations: Marshall, C. E., 1.

- Aspects of modern geology: Bastin, E. S., 2.

- British Columbia: Gunning, H. C., 2.

Coal—Continued.

- California, San Benito quad.: Wilson, I. F., 1.
- Canada, Cape Breton fields: Gray, F. W., 1.
- Sydney coal field: Gray, F. W., 1.
- Classification: Dapples, E. C., 1.
- Colorado, Trinidad area: Floyd, E., 1.
- Constitution, characteristics: Lowry, H. H., 1.
- Physical, significance: McCabe, L. C., 1.
- Correlation by spores, coal seams, Tenn.: Bentall, R., 2.
- Cretaceous of Calif.: Jenkins, O. P., 3.
- Description and classification: Dapples, E. C., 1.
- Des Moinesian-Missourian rocks, Kans.-Okla.: Oakes, M. C., 1.
- Georgia, Sand-lookout Mtn. area: Sullivan, J. W., 2.
- Idaho, metal, coal mining dists: Ross, C. P., 1.
- Illinois, carbon-ratio theory status: Bell, A. H., 1.
- Herrin (No. 6) coal bed structure: Payne J. N., 1.
- Marseilles quad.: Willman, H. B., 2.
- Ottawa quad.: Willman, H. B., 2.
- Streator quad.: Robinson, L. C., 1; Willman, H. B., 2.
- Illinois-Indiana Penn. key beds: Alexander, J. W., 1.
- Indiana, Fort Branch field: Schenck, Herman, G., 1.
- Iowa, flora: Hoskins, J. H., 5.
- Greene County: Tapper, W. B., 1.
- Kansas, Douglas group, E-cent.: Bowsher, A. L., 1.
- Southeastern: Hall, H. H., 1.
- Kentucky: McFarlan, A. C., 2.
- Cub Run quad.: Hagan, W. W., 1.
- Floyd Co.: Jillson, W. R., 6.
- Lexington coal, NW. Mo.: Greene, F. C., 2.
- Microfossils, Angus coal, Iowa: Wilson, L. R., 9.
- Mineral matter in: Sprunk, G. C., 1.
- Minerals in world affairs: Lovering, T. S., 3.
- Minnesota, min. res.: Emmons, W. H., 2.
- Missouri, NW.: Greene, F. C., 2.
- Nebraska, geol. secs.: Condra, G. E., 1.
- New Brunswick, LeDreau-Musquash area: Wright, W. J., 1.
- North America, coal-age forests: Janssen, R. E., 1.
- Nova Scotia, Chimney Corner field: Douglas, G. V., 2.
- New Campbellton area: Douglas, G. V., 3.
- Ohio, Allegheny ser., coals, lss. below Lower Kittanning: Sturgeon, M. T., 1.
- Carroll Co.: Lamborn R. E., 1.
- Jointing: Ver Steeg, K., 3.
- Mahoning Co.: Lamborn, R. E., 1.

Coal—Continued.

- Pennsylvanian fossils in: Kosanke, R. M., 2.
- Pittsburgh and Pomeroy plants: Kosanke, R. M., 1.
- Oklahoma, Henryetta bed: Davis, J. D., 1.
- Osage Co.: Bass, N. W., 2.
- Origin and composition: Mott, R. A., 1.
- Pennsylvania, Brookville quad.: Graeber, C. K., 1.
- Early devel.: Robinson, C. W., 1.
- Pennsylvania turnpike guidebook: Cleaves, A. B., 1.
- Physical constitution: Cady, G. H., 1; Sprunk, G. C., 2.
- Plankton in fm. of: Gillette, H. P., 2.
- Plant constituents in lignite: Radforth, N. W., 2.
- Quartz veins, Ouachita Mts., Ark.-Okla.: Miser, H. D., 2.
- South Dakota, Black Hills minerals: Lincoln, F. C., 1.
- Texas, Young Co.: Criswell, D. R., 1.
- Virginia, war minerals: Bevan, A. C., 2.
- Washington: Green, S. H., 1.
- Wenatchee-Ellensburg-Yakima area: Glover, S. L., 2.
- West Virginia, SE., regional metamorphism: Heck, E. T., 3.
- Yukon, Alaska Highway area min. poss.: Thomas, L. O., 1.
- Coal balls.
  - Flora, Ill.: Andrews, H. N., Jr., 2, 3, 10.
  - Illinois, Carb. flora: Andrews, H. N., Jr., 2, 3, 10.
  - Lepidocarpon: Pannell, E., 2.
  - Iowa, lycopod leaves with Lepidodendron: Wilson, L. R., 3.
  - Sphenophyllostachys, Carb., Iowa: Hoskins, J. H., 1.
  - Texas, flora: Reed, F. D., 1.
- Coalinga oil field, Calif.: Birkhauser, M., 1; Chambers, L. S., 1.
- Cobalt, Idaho: Anderson, A. L., 4; Ross, C. P., 1.
- Cocoliths, ls., formed by plants: Johnson, J. H., 6.
- Coelenterata. See also Anthozoa; Hydrozoa; Invertebrata (general).
  - Chitinozoa, Paleozoic, U. S.: Cooper, C. L., 6.
  - Fauna, Niagaran, Ill.: Lowenstam, H. A., 2.
  - Silurian, W. Va.: Woodward, H. P., 1.
  - Stony Mtn. fm., Manitoba: Okulitch, V. J., 3.
- Invertebrata, Miocene, N. J.: Richards, H. G., 1.
- Laotira, Upper Camb., Wyo.: Caster, K. E., 1.
- Mississippi, Clay Co.: Bergquist, H. R., 2.
- Pontotoc Co.: Priddy, R. R., 3.
- Quebec, Potsdam: Tremblay, P., 1.

Coeruleolactite, X-ray data, phosphate minerals: McConnell, D., 2.

Colemanite, Mt. Blanco, Death Valley, minerals: Funk, B. G., 1.

Collecting, microfossils: Schenck, H. G., 3.  
Oriented mineral specimens: Morgan, R. E., 1.

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#### Colorado.

##### *Economic geology.*

Alma dist.: Singewald, Q. D., 1.

Aspen mining dist.: Vanderwilt, J. W., 2.

Beaver-Tarryall area, Park Co.: Singewald, Q. D., 2.

Colorado Front Range min. belt: Lovering, T. S., 2.

Cripple Creek dist.: Koschmann, A. H., 1.

Crude oil relationships: Bass, N. W., 3.

Gold placer area, Craig-Baggs: Promel, H. W. C., 1.

Greasewood oil field: Lavinton, C. S., 1.  
Lakewood area, Boulder Co.: Sample, R. D., 1.

Leadville dist.: Loughlin, G. F., 1.

Molybdenite, Climax: Vanderwilt, J. W., 1.

Natural gas: Barb, C. F., 1.

Nickel, Gold Hill: Goddard, E. N., 1.

Oil shale: Baxter, R. A., 1; Lightburn, K., 1.

Petroleum: Barb, C. F., 1.

Scheelite: Argall, G. O., Jr., 1.

Trinidad area: Floyd, E., 1.

Tungsten dist., Boulder Co.: Bascom, W., 1.

Vanadium: Argall, G. O., Jr., 2; Fischer, R. P., 1.

Wasatch fm., oil and gas: Nightingale, W. T., 1.

#### Colorado—Continued.

##### *Historical geology.*

Arkansas River gorge: Kessler, F. C., 1.

Aspen mining dist.: Vanderwilt, J. W., 2.

Beaver-Tarryall area, Park Co.: Singewald, Q. D., 2.

Buckskinian ser.: Keyes, 35.

Colorado Front Range min. belt: Lovering, T. S., 2.

Cretaceous-Tert. boundary, Denver Basin: Brown, R. W., 4.

Cripple Creek dist.: Koschmann, A. H., 1.

Dike rocks, Front Range, minor constituents: Bray, J. M., 2.

Fluorites, Jamestown: Bray, J. M., 3.

Fox Hills, Lower Medicine Bow fms.: Dorf, 1.

Gore area Paleozoic: Brill, K. G., Jr., 1.

Granites, correl.: Boos, M. F., 1.

Greasewood oil field: Lavinton, C. S., 1.

Gregory Canyon area, Boulder Co.: Toller-son, O. W., 1.

Iron Hill alkalic rocks: Larsen, E. S., 1.

Lakewood area, Boulder Co.: Sample, R. D., 1.

La Plata Juras. fm.: Keyes, C. R., 8.

Laramie River Valley structure: Beckwith, R. H., 1.

Leadville dist.: Loughlin, G. F., 1.

Man, ancient headquarters area: Ives, R. L., 3.

Morrison fm. type area, Jefferson Co.: Waldschmidt, W. A., 2.

Nickel area, Gold Hill: Goddard, E. N., 1.

North America, sub-surface, Kans.-Front Range, Colo.: Peters, T. C., 1.

Paleobotany and Cret.-Tert. boundary: Dorf, 2.

San Luis Valley: Pearl, R. M., 3.

Trinidad area: Floyd, E., 1.

Tungsten dist., Boulder Co.: Bascom, W., 1.

##### *Mineralogy.*

Alma dist.: Singewald, Q. D., 1.

Arkansas River gorge: Kessler, F. C., 1.

Beaver-Tarryall area, Park Co.: Singewald, Q. D., 2.

Chalcedony: Pearl, R. M., 2.

Colorado Front Range min. belt: Lovering, T. S., 2.

Colorado Mus. Nat. History: Bailey, A. M., 1.

Cripple Creek dist.: Koschmann, A. H., 1.

Denver Basin sediments: Curtis, B. F., 1.

Dike rocks, Front Range, minor constituents: Bray, J. M., 2.

Eaton meteorite: Nininger, H. H., 11.

Field trip: Fischer, R. H. A., 1.

Fluorites, Jamestown: Bray, J. M., 3.

Gold placer area, Craig-Baggs: Prommel, H. W. C., 1.

Hydrohetaerolite: Frondel, C., 1.

Ilsemanite: Goldring, E. D., 1.

Iron Hill alkalic rocks: Larsen, E. S., 1.

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*Mineralogy*—Continued.

- Lakewood area, Boulder Co.: Sample, R. D., 1.  
 Leadville dist.: Loughlin, G. F., 1.  
 Minerals, rocks, and fossils in Mus.: Markman, H. C., 1.  
 Molybdenite deposit, Climax: Vanderwilt, J. W., 1.  
 Nickel, Gold Hill area: Goddard, E. N., 1.  
 Pyrite, cube-edge measurements: Peacock, M. A., 2.  
 Radioactive aureoles around ore deposits: Keevil, N. B., 8.  
 San Luis Valley: Pearl, R. M., 3.  
 Scheelite: Argall, G. E., Jr., 1.  
 Stonington meteorite: Buddhue, J. D., 1, 2.  
 Tertiary dike rocks, Front Range: Bray, J. M., 2.  
 Tungsten dist., Boulder Co.: Bascom, W., 1.  
 Vanadium: Argall, G. O., Jr., 2.

*Paleontology*.

- Amphicotylus, Juras.: Mook, C. C., 1.  
 Arkansas River gorge: Kessler, F. C., 1.  
 Barylambda, Paleocene: Patterson, B., 2.  
 Buteo, Oligocene: Miller, A. H., 1.  
 Cerambycidae, Tert., Florissant: Linsley, E. Gorton, 1.  
 Colorado Mus. Nat. History: Bailey, A. M., 1.  
 Cretaceous-Tertiary boundary, Denver Basin: Brown, R. W., 4.  
 Field trip: Fischer, R. H. A., 1.  
 Folsom, Yuma artifacts: Renaud, E. B., 2.  
 Fossil man, San Luis Valley: Renaud, E. B., 3.  
 Fox Hills, Lower Medicine Bow fms.: Dorf, 1.  
 Fusulinids, Penn.: Thompson, M. L., 1.  
 Gore area, Paleozoic: Brill, K. G., Jr., 1.  
 Leptolepis, Juras.: Dunkle, D. H., 2.  
 Man, ancient headquarters area: Ives, R. L., 3.  
 Minerals, rocks and fossils in Mus.: Markman, H. C., 1.  
 Morrison "gastroliths" questioned: Stokes, W. L., 1.  
 Osmylidae, Florissant shs.: Carpenter, F. M., 2.  
 Plants, Paleozoic: Arnolds, C. A., 3.  
 Roses, Oligocene: Resser, C. E., 1.  
 Unio, Juras., Grand River Valley: Holt, E. L., 1.  
 Yuma, Folsom artifacts: Renaud, E. B., 2.  
 Walchia, Invertebrata, Penn.: Elias, M. K., 3.

*Petrology*.

- Beaver-Tarryall area, Park Co.: Singewald, Q. D., 2.  
 Beryl-monazite pegmatite dike, Centennial Cone: Waldschmidt, W. A., 1.  
 Cripple Creek dist.: Koschmann, A. H., 1.  
 Denver Basin sediments: Curtis, B. F., 1.

## Colorado—Continued.

*Petrology*—Continued.

- Dike rocks, Front Range, minor constituents: Bray, J. M., 2.  
 Elements, minor, Jamestown ig. rocks: Bray, J. M., 1.  
 Gore area, Paleozoic: Brill, K. G., Jr., 1.  
 Iron Hill alkalic rocks: Larsen, E. S., 1.  
 Laramie River Valley structure: Beckwith, R. H., 1.  
 Leadville dist.: Loughlin, G. F., 1.  
 Morrison "gastroliths" questioned: Stokes, W. L., 1.  
 Nickel, Gold Hill area: Goddard, E. N., 1.  
 Sand compacting, factors: Van Tuyl, F. M., 1.

*Physical geology*.

- Alma dist.: Singewald, Q. D., 1.  
 Arkansas River gorge: Kessler, F. C., 1.  
 Aspen mining dist.: Vanderwilt, J. W., 2.  
 Boulder arch: Woodbury, H. O., 1.  
 Colorado Front Range min. belt: Lovering, T. S., 2.  
 Cripple Creek dist.: Koschmann, A. H., 1.  
 Elements, minor, Jamestown ig. rocks: Bray, J. M., 1.  
 Greasewood oil field: Lavington, C. S., 1.  
 Gregory Canyon area, Boulder Co.: Tollefson, O. W., 1.  
 Iron Hill alkalic rocks: Larsen, E. S., 1.  
 Lakewood area, Boulder Co.: Sample, R. D., 1.  
 Laramie River Valley structure: Beckwith, R. H., 1.  
 Leadville dist.: Loughlin, G. F., 1.  
 Molybdenite deposit, Climax: Vanderwilt, J. W., 1.  
 National Monument: Minor, W. C., 1.  
 Nickel, Gold Hill area: Goddard, E. N., 1.  
 Radioactive aureoles around ore deposits: Keevil, N. B., 8.  
 Scenery, geol. interpretation: Pearl, R. M., 1.  
 Trinidad area: Floyd, E., 1.

*Physiographic geology*.

- Beaver-Meadow complex: Ives, R. L., 4.  
 Beaver-Tarryall area, Park Co.: Singewald, Q. D., 2.  
 Glacial features, Rocky Mtn. Nat. Park: Petersen, W. A., 1.  
 Gold placer area, Craig-Baggs: Prommel, H. W. C., 1.  
 National Monument: Minor, W. C., 1.  
 Scenery, geol. interpretation: Pearl, R. M., 1.

*Underground water*.

- San Luis Valley: Pearl, R. M., 3.

Columbite-tantalite, Manitoba: Thomson, J. Ellis, 3.

Columbium, rare-element prosp. in pegmatites: Quirke, T. T., 2.

Compressive strength of meteorites: Buddhue, J. D., 4.

- Computation, dips below unconformity: Dix, C. H., 1.
- Canadian Shield Archean sedimentation: Pettijohn, F. J., 1.
- Clay rhizoconcretions, St. Lawrence River, made by tidal plants: Rousseau, J., 1.
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- Alberta: Allan, J. A., 1.
- Clay rhizoconcretions, St. Lawrence River: Rousseau, J., 1.
- Formation of: Green, J. R., 1.
- Georgia, Pottsville: Sullivan, J. W., 1.
- Illinois-Indiana, Penn. key beds: Alexander, J. W., 1.
- Iowa, Adams Co. Penn.: Wood, L. W., 1.
- Kansas, Haskell ls.: Bridwell, A., 1.
- Manitoba, gypsum, anhydrite deposit: Brownell, G. M., 1.
- Maryland, dufrenite: Dake, H. C., 7.
- Minnesota, Thomson fm.: Schwartz, G. M., 2.
- Missouri Valley manganese deposits: Rothrock, E. P., 4.
- Nebraska minerals: Schramm, E. F., 1.
- New York, Oriskany ss. chert nodules: Apsour, C. N., 1.
- North Dakota, Morton Co.: Laird, W. M., 2.
- Ohio, galena in Carb.: Ver Steeg, K., 1.
- Greenfield dolomite: Wells, J. W., 3.
- South Dakota, Black Hills pre-Camb. domes: Runner, J. J., 1.
- Hell Canyon: Elshire, A. L., 1.
- Medicine Butte anticline: Petsch, B. C., 1.
- Texas, Eagle Ford septaria: Litsey, J. B., 1.
- Mabelle Draw Perm. area: Read, W. F., 1.
- Virginia Eocene: Gildersleeve, B., 1.
- Wisconsin, older drift: Stratton, C. G., 1.
- Conejo oil field, Calif.: May, J. C., 1.
- Conglomerates. See also Sedimentation.
- Alaska, Eagle-Circle dist.: Mertie, J. B., Jr., 1.
- Black River fms., N. Y., Ontario: Young, F. P., Jr., 1.
- California, Franciscan-Knoxville problem: Taliaferro, 2.
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- Idaho, Bannock Range: Ludlum, J. C., 2.
- Mexico, Valsequillo canal area: Alverez Carvajal, M., 1.
- Montana, Sawtooth Range: Deiss, C. F., 2.
- Northwest Territories: Anonymous, 24.
- Ontario, McGarry, McVittie Tps., Larder Lake area: Thomson, Jas. E., 3.
- Mishibishu Lake area: Evans, J. E. L., 3.
- Sudbury dist. older rocks: Cooke, H. C., 3.
- Conglomerates—Continued.
- Ontario—Continued.
- Windigo-North Caribou Lakes: Satterly, J., 2.
- Wunnummin Lake area: Prest, V. K., 2.
- Pennsylvania, Lehigh Co., Hardystone fm.: Miller, B. L., 2.
- Lehigh Co. Trias.: Wherry, W. T., 1.
- Ordovician clastic sed. rocks: Willard, B., 3.
- Spitzenberg: Whitcomb, L., 1.
- Texas, Llano Uplift, Cret.: Damon, H. G., 1.
- Santiago Peak quad.: Eiffer, G. K. Jr., 1.
- Connate waters.
- Bibliography, oil-field waters: Case, L. C., 1.
- Border-Red Coulee field, Mont.-Alberta: Erdmann, C. E., 1.
- Ground water: Meinzer, O. E., 2.
- Differential density factor: Brown, J. S., 2; McKnight, E. T., 1.
- Micro-organisms in oil-field waters: Barclay, F., 1.
- Montana, oil-field waters: Crawford, J. G., 1.
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- Ontario, Sturgeon River gold mines: Bruce, E. L., 1.
- Texas, Frio fm. brines: Rolshausen, F. W., 1.
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- Nickel sulphides, Mt. Prospect: Cameron, E. N., 1.
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- Mica, curved: Hawkins, A. C., 7.
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- Prehnite, King Philip's Cave: Foster, G. V., 1.
- Sulphides, nickel deposit, Mt. Prospect: Cameron, E. N., 1.
- Paleontology.*
- Bosmina, Quat., lake sediments: Austin, T. S., 1.
- Buenoa, Lyd Hyt Pond: Hutchinson, G. E., 1.
- Diatoms, Linsley Pond: Patrick, R. M., 1.
- Sponge spicules, lake sediments: Jewell, M. E., 1.
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- Underground water.*
- Ground-water invs.: Ferris, J. G., 1.



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 Kentucky, Ord. sequence: Branson, E. B., 2.  
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   Heath fm.: Scott, H. W., 2.  
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   Quebec, Ord.: Sinclair, G. W., 3.  
 Conventional orientation of crystals: Donay, 5.  
 Copper.  
   Alaska, Admiralty Is.: Reed, J. C., 4.  
   Baranof Is.: Reed, J. C., 3.  
   Beatson mine: Bateman, A. M., 1.  
   Chicago Is.: Pecora, W. T., 2.  
   Kennecott deposits: Bateman, A. M., 2.  
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   Arizona, Ajo copper dist.: Gilluly, J., 1.  
   Bisbee dist.: Rove, O. N., 1.  
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   Britannia mines: Ebbutt, F., 1.  
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   Garnet, Kans., aerolite: Nininger, H. H., 3.  
   Heat effects on sulphides: Hawley, J. E., 2.

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- Idaho, Blackbird dist.: Anderson, A. L., 4.  
 Metal, coal mining dists.: Ross, C. P., 1.  
   Salmon area: Anderson, A. L., 5.  
 Manitoba, Sherritt-Gordon mine: Derry, D. R., 1.  
 Mexico, Fresnille mine veins: Stone, J. B., 1.  
   Pilares dist.: Antúnez Echegary, F., 1.  
   San Antonio mine, Chihuahua: Hewitt, W. P., 1.  
 Minerals in world affairs: Lovering, T. S., 3.  
 Montana, Jefferson City area: Forrester, J. D., 3.  
 Nevada, Majuba Hill area: Smith, Ward, C., 1.  
   Robinson mining dist.: Pennebaker, E. N., 1.  
 Newfoundland, Fleur-de-Lys area: Fuller, J. O., 1.  
   War minerals: Snelgrove, A. K., 1.  
 New Mexico, Magdalena mining dist.: Loughlin, G. F., 2.  
 North America, pyrometasomatic ore deposits: Knopf, A., 1.  
   Structural features of ore deposits: Newhouse, W. H., 2.  
 Nova Scotia, Cap d'Or area: Douglas, G. V., 7.  
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   Paragenesis: Lowell, W. R., 1.  
   Wallowa batholith: Krauskopf, K. B., 1.  
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   Forget Lake area: Longley, W. W., 1.  
   Gaspé deposits: Jones, I. W., 1.  
   Lake Forgues to Johan Beetz on St. Lawrence: Claveau, J., 1.  
   Lake Wakeham area: Claveau, J., 3.  
   Matapédia Lake area: Aubert de la Rue, E., 1.  
   Normetal mine paragenesis: Putman, H. M., 1.  
   Rouyn-Harricana belt: Hawley, J. E., 3.  
 Texas: Evans, G. L., 4.  
 Utah, Cottonwood-American Fork area: Calkins, F. C., 2.  
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   Snohomish Co. min. properties: Broughton, W. A., 1.  
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 Cordierite, Safe Harbor, Pa.: Tomlinson, W. H., 1.  
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- Northwestern, Paleozoics: Miss. G. Soc., 1.

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Colorado, Beaver-Tarryall area, Park Co.: Singewald, Q. D., 2.

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Cretaceous, Upper, S. Calif.: Popenoe, W. P., 1.

Cuba, Juras.: Imlay, R. W., 2.

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#### Correlations—Continued.

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Kansas, Forest City Basin: Lee, W., 2.

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Pre-Greenhorn beds: Plummer, N. V., 1.

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Correlations—Continued.

- Ontario, Hutchison Lake area: Macdonald, R. D., 3.  
 Steep Rock Lake: Roberts, H. M., 1.  
 Sudbury pre-Camb.: Cooke, H. C., 1.  
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 Ostracoda, non-marine Penn.: S. Appalachians: Scott, H. W., 6.  
 Paleobotany and Cret.-Tert. boundary: Dorf, 2.  
 Panama, Tert.: Olsson, A. A., 1.  
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 Lower Miss. River Basin, Sil.: Ball, J. R., 2.  
 Pennsylvanian rocks: Cheney, M. G., 1.  
 Rocky Mtn. area oils: Crawford, J. G., 2.  
 Utah, Cottonwood-American Fork area: Calkins, F. C., 2.  
 Virginia, Eocene: Gildersleeve, B., 1.  
 Virginia-Kentucky, Middle Ord.: Huffman, G. G., 1.  
 West Virginia: Woodward, H. P., 1, 2.  
 Devonian: Woodward, H. P., 2.  
 Silurian: Woodward, H. P., 1.  
 Wisconsin, N.-cent., glacial border drift: Hole, F. D., 1.  
 Wyoming, Squaw fm.: Burma, B. H., 2.  
 Wyoming-Idaho, Eo-Trias.: Newell, N. D., 1.

Tables.

- Arkansas, Pitkin ls.: Easton, W. H., 1.  
 California-Oregon, Juras.: Taliaferro, 1.  
 Canada, Sydney coal field: Gray, F. W., 1.  
 Cenozoic fms., Atlantic, Gulf Coastal Plain and Caribbean area: Cooke, C. W., 1.  
 Colorado, Beaver-Tarryall area, Park Co.: Singewald, Q. D., 2.

Correlations—Continued.

Tables—Continued.

- Colorado Front Range min. belt: Lövering, T. S., 2.  
 Cretaceous, Atlantic, Gulf Coastal Plain, trans-Pecos Tex.: Stephenson, L. W., 2.  
 Cuba, Juras.: Imlay, R. W., 2.  
 Dinosaurs, hadrosaurian, distrib.: Lull, R. S., 2.  
 Eagle Ford group, Tex.: Moreman, W. L., 1.  
 Georgia, Coastal Plain: Cooke, C. W., 5.  
 Gulf region, N., Cent. Am., Cuba: Imlay, R. W., 5.  
 Idaho, Thaynes fm., Bear Lake Valley: Kummel, B., Jr., 2.  
 Three Forks fauna in Lost River Range: Baldwin, E. M., 1.  
 Illinois, Penn. fusuline beds: Weller, J. M., 5.  
 Illinois-Iowa Penn.: Weller, J. M., 2.  
 Iowa-Illinois Penn. Weller, J. M., 2.  
 Kansas, Perm. Ostracoda: Kellett, B., 1.  
 Mexico, orogenesis and relief: Robles Ramos, R., 1.  
 Miocene-Pliocene, Va.-N. Car.: Gardner, J. A., 1.  
 Monterrey, Mex. to Laredo, Tex.: S. Tex. G. Soc., 3.  
 Nebraska, geol. secs.: Condra, G. E., 1.  
 Nevada, Roberts Mts.: Merriam, C. W., 2.  
 New Mexico: Bates, R. L., 1.  
 Eddy Co.: West Texas G. Soc., 1.  
 North America: Dunbar, C. O., 3.  
 Appalachian quartzite: Fellows, R. E., 1.  
 Devonian sed. fms.: Cooper, G. A., 4.  
 Mid-continent: Hills, J. M., 1.  
 North Allegheny synclinalorium devel.: Kay, G. M., 3.  
 Silurian fms.: Swartz, C. K., 1.  
 North Dakota, Cannonball fm.: Fox, S. K., Jr., 1.  
 Ohio, Missn.: Holden, F. T., 2.  
 Oklahoma Mesozoic: Stovall, J. W., 2.  
 Texas Co.: Hemsell, C. C., 1.  
 Ontario, Dryden-Wabigoon area: Satterly, J., 3.  
 Oregon-California, Juras.: Taliaferro, 1.  
 Panama, Tert.: Olsson, A. A., 1.  
 Pennsylvania, Ord. clastic sed. rocks: Willard, B., 3.  
 Permian fish-bearing strata, U. S.-Greenland: Westoll, T. S., 1.  
 West Tex.-N. Mex.: King, P. B., 2.  
 Round Mtn. silt., Miocene, Calif.: Keen, A. M., 1.  
 South Dakota, Medicine Butte anticline: Petsch, B. C., 1.  
 Tetrapoda, Tex.-Russia-Africa: Watson, D. M. S., 1.  
 Texas, Comanchean: Scott, G., 2.  
 Fort Worth-Midland area: Scott, G., 1.  
 Permian Ostracoda: Kellett, B., 1.  
 Quitman Mts.: Huffington, R. M., 1.

## Correlations—Continued.

## Tables—Continued.

- United States, Dakota Basin: Ballard, N., 2.  
 Eastern and central: Schuchert, C., 1.  
 Pennsylvanian rocks: Cheney, M. G., 1.  
 Utah, Uinta, Wasatch Mts. fms.: Williams, J. Stewart, 2.  
 Vertebrata, Miocene, SE. Tex.: Hesse, C. J., 4.  
 Virginia, Early Grove field: Averitt, P., 1.
- Corundum.  
 California, S.: Murdoch, J., 1.  
 North Carolina: Brannock, K. C., 1;  
 White, W. A., 1.  
 Ontario, Haliburton area: Satterly, J., 4.
- Costa Rica. See also Central America.
- Economic geology.*  
 Galena: Dóndoli, C., 2.  
 Natural gas: Segura Paguaga, A., 2.  
 Petroleum: Segura Paguaga, A., 2.
- Historical geology.*  
 Amoura sh.: Goudkoff, P. P., 1.  
 Cenozoic fms., Atlantic, Gulf Coastal Plain and Caribbean region: Cooke, C. W., 4.  
 Petroleum and nat. gas area: Segura Paguaga, A., 2.  
 Virilla Canyon, Meseta Central: Crosby, I. B., 2.
- Mineralogy.*  
 Galena: Dóndoli, C., 2.
- Paleontology.*  
 Amoura sh.: Goudkoff, P. P., 1.  
 Mollusca, Miocene: Haas, O. H., 1.  
 Petroleum and nat. gas area: Segura Paguaga, A., 1.
- Petrology.*  
 Rocks of Costa Rica: Dóndoli, C., 1.  
 Virilla Canyon, Meseta Central: Crosby, I. B., 2.
- Physical geology.*  
 Ojo de Agua hot springs: Dóndoli, C., 3.  
 Virilla Canyon, Meseta Central: Crosby, I. B., 2.
- Physiographic geology.*  
 Valleys of Cartago and Coris: Segura Paguaga, A., 1.  
 Virilla Canyon, Meseta Central: Crosby, I. B., 2.
- Underground water.*  
 Ojo de Agua hot springs: Dóndoli, C., 3.  
 Valleys of Cartago and Coris: Segura Paguaga, A., 1.
- Cotton Valley fm. oil poss., Ark.: Thigpen, C. H., 1.
- Craters, meteorite: La Paz, L., 2.
- Cretaceous. See also Paleontology, Cretaceous.  
 Alabama, fluoride in ground water: Carlston, C. W., 2.  
 Selma, Ripley deposits: Monroe, W. H., 1.  
 Alaska, Baranof Is.: Guild, P. W., 2.

## Cretaceous—Continued.

## Alaska—Continued.

- Bohemia Basin, Yakobi Is.: Reed, J. C., 2.  
 Chicagof mining dist.: Mertie, J. B., Jr., 1.  
 Eagle-Circle dist.: Mertie, J. B., Jr., 1.  
 Nabesna area: Wayland, R. G., 2.  
 Nutzotin Mts. area: Moffit, F. H., 2.  
 Portage Pass area: Barnes, F. F., 1.  
 Seward Pen.: Alaska Plann. Coun., 1.  
 Alberta: Allan, J. A., 1; Farmilo, A. W., 1.  
 East-central: Hume, G. S., 1.  
 Foothills: Hage, C. O., 1; Hake, B. F., 1.  
 Marble Mtn. area: Beach, H. H., 1.  
 Moose Mtn. area: MacNeil, D. J., 1.  
 Moose Mtn.-Morley map area: Beach, H. H., 3.  
 Pekisko area: Hume, G. S., 3.  
 Arizona, Ajo copper dist.: Gilluly, J., 1.  
 Bisbee dist.: Rove, O. N., 1.  
 Hopi Buttes area: Hack, J. T., 2.  
 Arizona-New Mexico, Juras.-Cret. interval: Leopold, L. R., 1.  
 Arkansas, Comanchean: Weeks, W. B., 2.  
 Magnolia oil field: Carpenter, C. B., 1; Winham, H. F., 1.  
 Pike Co.: Herold, P. G., 1.  
 Barbados: Renz, H. H., 1.  
 Border-Red Coulee field, Mont.-Alberta: Erdmann, C. E., 1.  
 British Columbia: Gunning, H. C., 2.  
 Brown Hill: McLearn, F. H., 1.  
 Eldorado prospect: Brennan, C. V., 1.  
 Okanagan Valley origin: Schofield, S. J., 1.  
 Vancouver Is.: Joubin, F. R., 1.  
 Bucksianian ser., Kans.-Colo.: Keyes, 35.  
 California: Jenkins, O. P., 3.  
 Berryessa Valley: Anderson, F. M., 1.  
 Bradley-San Miguel dist.: Taliaferro, 4.  
 Cantua-Vallecitos area: Atwill, E. R., 2.  
 Coalinga oil field: Chambers, L. S., 1.  
 Coso quicksilver dist.: Ross, C. P., 6.  
 Crocker Flat landslide area: Simonson, R. R., 1.  
 Devil's Den oil field: Van Couvering, M., 1.  
 East Coalinga Extension field: Kaplow, E. J., 1.  
 Eocene, Santa Ynez Mts.: Kelley, F. R., 1.  
 Fairfield Knolls gas field: Kirby, J. M., 2.  
 Franciscan-Knoxville problem: Taliaferro, 2.  
 Franciscan ls., age: Thalmann, H. E., 6.  
 Mendocino Co.: Thalmann, H. E., 8.  
 Geologic horizons of fields: Howard, P. J., 1.  
 Goleta oil field: Vickery, F. P., 1.  
 Humboldt Co.: MacGinitie, H. D., 1.  
 Kettleman Hills oil field: Galloway, J., 1.  
 McDonald Is. gas field: Knox, G. L., 1.

## Cretaceous—Continued.

## California—Continued.

- Marysville (Sutter) Buttes gas field: Johnson, H. R., 1.  
 Morgan Hill area: Gilbert, C. M., 1.  
 Mount Diablo region: Cross, C. M., 1.  
 Park dist.: Bailey, E. H., 2.  
 Paskenta region: Rist, R. L., 1.  
 Petaluma area: Johnson, F. A., 1.  
 Petroleum and gas strat. occurrence: Kribbs, G. R., 3.  
 Point Arena-Fort Ross area: Weaver, C. E., 2.  
 Potrero Hills gas field: Tolman, F. B., 1.  
 Rio Vista gas field: Soper, E. K., 4.  
 Rumsey Hills area: Kirby, J. M., 3.  
 Sacramento Valley: Kirby, J. M., 1;  
     Popenoe, W. P., 2.  
 San Benito quad.: Wilson, I. F., 1.  
 San Diego Co.: Hertlein, L. G., 1.  
 Santa Ana Mts.: Popenoe, W. P., 3.  
 Simi oil field: Stipp, T. F., 1.  
 Sites area: Kirby, J. M., 4.  
 Southern Calif.: Popenoe, W. P., 1.  
 Stayton dist.: Bailey, E. H., 1.  
 Sutter (Marysville) Buttes field: Stalder, W., 1.  
 Tracy gas field: Beckwith, H. T., 1.  
 West side Sacramento Valley: Kirby, J. M., 1.  
 Willows gas field: Williams, R. N., Jr., 2.  
 Canada, Nat. Parks, Rockies and Selkirks: MacKay, B. R., 1.  
     Oil and gas fields: Hume, G. S., 2.  
     Oil fields: Hunter, C. M., 1.  
     Revisions in: McLearn, F. H., 7.  
 Central America: Weaver, C. E., 1.  
     Mesozoic: Mullerried, 4.  
     Northwest: Mullerried, 5.  
 Chico group in geol. literature: Anderson, F. M., 2.  
 Coal, origin and composition: Mott, R. A., 1.  
 Colorado, Arkansas River gorge: Kessler, F. C., 1.  
     Aspen dist.: Vanderwilt, J. W., 2.  
     Beaver-Tarryall area, Park Co.: Singewald, Q. D., 2.  
     Denver Basin: Brown, R. W., 4; Curtis, B. F., 1.  
     Front Range min. belt: Lovering, T. S., 2.  
     Greasewood field: Lavington, C. S., 1.  
     Trinidad area: Floyd, E., 1.  
 Colorado group: Keyes, 32.  
 Cuba, Florida area, Camaguey: Broderman, J., 5.  
     Geology and oil prosp.: Palmer, R. H., 1.  
     Habana Prov.: Broderman, J., 2, 3.  
     Mesozoic: Torre Mandrazo, R. de la, 1.  
     Pina del Río Prov.: Vermunt, L. W. J., 1.  
     Vento Valley: Broderman, J., 1.

## Cretaceous—Continued.

- Dinosaurs, hadrosaurian, distrib.: Lull, R. S., 2.  
 Elk Basin field, Mont.-Wyo.: Hendrickson, V. J., 1.  
 Florida: Vernon, R. O., 3.  
     Everglades: Parker, G. G., 1.  
     Peninsula, solution: Stubbs, S. A., 1.  
     Well studies: Cole, W. S., 1.  
 Foraminifera-Ostracoda show Fredericksburg-Washita boundary, Tex.: Lozo, F. E., Jr., 1.  
 Fredericksburg-Washita boundary, Tex.: Lozo, F. E., Jr., 1.  
 Georgia, Coastal Plain: Cooke, C. W., 5.  
 Georgia-Florida oil explor.: Carroll, D. L., 3.  
 Greenland, Traill Is.: Schaub, H. P., 1.  
 Gulf region, N., Cent. Am.: Imlay, R. W., 5.  
 Idaho, Blackbird dist.: Anderson, A. L., 4.  
 Illinois, outlines of geol.: Keyes, 25.  
     Southern: Bell, A. H., 6.  
     Wildcat drilling since 1936: Carter, C. W., 1.  
 Iowa, Greene Co.: Tapper, W. B., 1.  
 Jamaica, Guy's Hill Road sec.: Matley, C. A., 1.  
 Kansas, Comanchean: Plummer, N. V., 2.  
     Ellis, Russell Cos. oil fields: Frye, J. C., 5.  
     Ford Co.: Waite, H. A., 1.  
     Hamilton, Kearny Cos.: McLaughlin, T. G., 2.  
     Meade Co.: Frye, J. C., 4.  
     Morton Co.: McLaughlin, T. G., 1.  
     Oil and gas fields: Moore, R. C., 7.  
     Patterson pool: Hubley, M. D., 1.  
     Phillips Co.: Landes, K. K., 2.  
     Pre-Greenhorn beds: Plummer, N. V., 1.  
     Zenith pool: Imbt, W. C., 1.  
 Kansas-Oklahoma, Hugoton field: Garlough, J. L., 1.  
 Kentucky: McFarlan, A. C., 2.  
 Laramie River Valley, Colo.-Wyo.: Beckwith, R. H., 1.  
 Lithology of sea floor off Calif.: Emery, K. O., 1.  
 Louisiana, Comanchean: Weeks, W. B., 2.  
 Mexico, Cortinas Canyon area: Humphrey, W. E., 1.  
     Mesozoic: Mullerried, 4.  
     Monterrey-Salttillo area: Baker, C. L., 1.  
     Northern: Kellum, L. B., 1.  
     Orogenesis and relief: Robles Ramos, R., 1.  
     Río Nazas valley, Coahuila: Waitz, P., 2.  
     San Antonio mine, Chihuahua: Hewitt, W. P., 1.  
     Sierra Madre Oriental: Heim, A., 1;  
     Müllerried, 2.  
     Silver-lead deposits: Triplett, W. H., 1.  
     Stratigraphy: King, R. E., 1.  
     Tectonics: King, P. B., 1.  
     Tin deposits: Foshag, W. F., 1.  
     Valley of Tixtla: Mullerried, 9.

## Cretaceous—Continued.

- Mississippi, Clay Co.: Bergquist, H. R., 2.  
 Pontotoc Co.: Priddy, R. R., 3.  
 Union Co.: Conant, L. C., 1.  
 Missouri, Stoddard Co.: Stewart, D. R., 1.  
 Missouri Valley manganese deposits: Rothrock, E. P., 4.  
 Montana, Cedar Creek field: Seager, O. A., 1.  
 Cut Bank field: Blixt, J. E., 1.  
 Livingston ig. rocks: Parsons, W. H., 1.  
 Sawtooth Range: Deiss, C. F., 2.  
 Saypo quad.: Deiss, C. F., 1.  
 Three Forks area: Berry, G. W., 1.  
 Monterrey, Mex. to Laredo, Tex.: S. Tex. G. Soc., 3.  
 Nebraska, geol. secs.: Condra, G. E., 1.  
 Isopach maps: Fuenning, P., 1.  
 Nevada, dating diastrophic events: Longwell, C. R., 2.  
 New Jersey, Raritan fm.: Richards, H. G., 7.  
 New Mexico: Bates, R. L., 1.  
 Central mining dist.: Schmitt, H. A., 1.  
 Cimarron Range: Smith, J. F., Jr., 1.  
 Cretaceous-Tertiary boundary: Keyes, 9.  
 North America, Atlantic Gulf Coastal Plains trans-Pecos Tex.: Stephenson, L. W., 2.  
 North Carolina Coastal Plain: Richards, H. G., 2.  
 North Dakota: Kline, V. H., 1; Seager, O. A., 2.  
 Dakota Basin: Hennen, R. V., 1.  
 Morton Co.: Laird, W. M., 2.  
 Turtle River State Park: Laird, W. M., 3.  
 Williston Basin wildcat test: Ehlers, A., 1.  
 Oklahoma, Cimarron Co.: Schoff, S. L., 1; Stovall, J. W., 1.  
 Ground water: Dott, R. H., 1.  
 Mesozoic: Stovall, J. W., 2.  
 Ontario, sedimentary basin: Wilson, A. E., 1.  
 Oregon, Crater Lake Nat. Park: Williams, H., 1.  
 Nickel Mtn. area: Pecora, W. T., 1.  
 North-central: Hodge, E. T., 1.  
 Southwest coast: Twenhofel, 7.  
 Wallowa batholith: Krauskopf, K. B., 1.  
 Pacific Northwest, U. S.: Smith, W. D., 1.  
 Paleobotany and Cret.-Tert. boundary: Dorf, 2.  
 Pecos River Valley, Tex.-N. Mex.: Theis, C. V., 1.  
 Quebec, St. Jean-Beloeil areas: Clark, T. H., 2.  
 Rodessa field, Ark.-La.-Tex.: Hill, H. B., 1.  
 Saskatchewan, Big Muddy Valley: Houldsworth, E., 1.  
 South Carolina, Exogyra costata zone, Horry Co.: Berry, E. Willard, 3.

## Cretaceous—Continued.

- South Dakota, Chamberlain area: Gries, J. P., 1.  
 Surface: Rothrock, E. P., 5.  
 White River Valley: Rothrock, E. P., 2.  
 Texas: Evans, G. L., 1.  
 Barnhart field: Cole, T., 2.  
 Bowers fields: Brown, A. B., 1.  
 Comanchean: Scott, G., 2.  
 Cross Cut-Blake dist.: Klinger, E. D., 1.  
 Eagle Ford septaria: Litsey, J. B., 1.  
 East Texas field: Linor, H. E., 1.  
 Edwards Plateau: Jager, E. H., 1.  
 Fort Worth-Midland area: Scott, G., 1.  
 Fredericksburg-Washita boundary: Lozo, F. E., Jr., 1.  
 Llano Uplift: Damon, H. G., 1.  
 Odessa meteor crater: Sellards, E. H., 5.  
 Quitman Mts.: Huffington, R. M., 1.  
 Santiago Peak quad.: Eifler, G. K., Jr., 1.  
 Shafter mining dist.: Ross, C. P., 7.  
 Terlingua quicksilver dist.: Ross, C. P., 2.  
 Walnut Bend pool: Hilseweck, W. J., 1.  
 Washburn field: Esagen, W. K., 1.  
 Wasson field: Schneider, W. T., 1.  
 Texas-New Mexico, South Perm. Basin: King, R. E., 2.  
 Trinidad: Renz, H. H., 1.  
 Turtle Mts., N. Dak.-Manitoba: Greenlee, A. L., 1.  
 United States, Basin and Range Prov.: Nolan, T. B., 1.  
 Dakota Basin: Ballard, N., 2.  
 Interval map: Peterson, H. A., 1.  
 Lower Miss. River Basin, Sil.: Ball, J. R., 2.  
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 Rocky Mtn. oil and gas field: Dobbin, C. E., 2.  
 Rocky Mts.: Knight, S. H., 2.  
 Tuscaloosa fm., SE: Gulf Coastal Plain: Munyan, A. C., 1.  
 Utah, Cedar Hills: Schoff, S. L., 2.  
 Uinta Basin: Barb, C. F., 2.  
 Virginia, Appalachian Valley: Butts, C., 1.  
 Coastal Plain: Cederstrom, D. J., 7.  
 Washington, Olympic Pen.: Park, C. F., Jr., 1.  
 West Texas-New Mexico area: King, P. B., 2.  
 Wyoming, bentonite: Baker, V. R., 2.  
 Cache Creek area, Gros Ventre Mts.: Nelson, V. E., 1.  
 Casper Mtn.: Hares, C. J., 1.  
 Gros Ventre and N. Hoback Ranges: Nelson, V. E., 2.  
 Osage field: Dobbin, C. E., 1.  
 Rocks, soils, and selenium: Knight, S. H., 1.  
 Crinoidea. See also Echinodermata; Invertebrata (general).  
 Actinocrinus chloris Hall identified: Kirk, E., 6.

## Crinoidea—Continued.

- Alberta, Moose Mtn.-Morley area: Beach, H. H., 3.  
 Ampelocrinus, Miss., Ala., Ky.: Kirk, E., 2.  
 Ancyrocrinus, Dev., N. Y.: Goldring, W., 1.  
 Response to environment: Lowenstam, H. A., 4.  
 Arkansas, Pitkin ls.: Easton, W. H., 1.  
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 Faunas, Helderberg, Quebec: Clark, T. H., 1.  
 Niagaran, Ill.: Lowenstam, H. A., 2, 3.  
 Silurian, W. Va.: Woodward, H. P., 1.  
 Illinois, Marseilles, Ottawa, Streator quads.: Willman, H. B., 2.  
 Penn., Carlville quad.: Ball, J. R., 4.  
 Illinois-Indiana Penn. key beds: Alexander, J. W., 1.  
 Indiana, St. Louis and Ste. Genevieve lss.: McGrain, P., 2.  
 Kansas, Perm.: Byrne, F. E., 1.  
 Megalocrinus, Carb., Okla.: Moore, R. C., 3.  
 Metacatillocrinus, Penn., Okla.: Moore, R. C., 3.  
 Microcrinoid, Ord., Okla.: Croneis, C. G., 6.  
 Microfauna, Gulf Coast: Howe, H. V., 2.  
 Microfossils, Tert., Gulf Coast: Howe, H. V., 2.  
 New York, Snake Hill Ord. fauna: Howell, B. F., 4.  
 North America, Cactocrinus proboscoidalis, index fossil: Keyes, 15.  
 Paleozoic: Moore, R. C., 9.  
 Ohio, Allegheny ser., coals, lss., below Lower Kittanning: Sturgeon, M. T., 1.  
 Niagaran: Busch, D. A., 1.  
 Olentangy sh. fauna: Baker, R. C., 1.  
 Prout ls.-Plum Brook sh.: Stumm, E. C., 1.  
 Ontario, Trenton beds, age: Sinclair, G. W., 5.  
 Pelmatozoan, Paleozoic, bib. and lists: Bassler, R. S., 2.  
 Pennsylvania, Martinsburg fm., Lehigh Co.: Willard, B., 1.  
 Pitkin fm., Ark.: Easton, W. H., 3.  
 Redwall ls. fauna, Ariz.: Gutschick, R. C., 2.  
 Rhopocrinus, Carb., U. S.: Kirk, E., 1.  
 Sarocrinus, Missn., U. S.: Kirk, E., 3.  
 Steganocrinus revised: Kirk, E., 4.  
 Symbathocrinus, Missn., Tex.: Moore, R. C., 6.  
 Texas, Lower Cret.: Peck, R. E., 1.  
 Shafter mining dist.: Ross, C. P., 7.  
 Triceracrinus, Carb., Perm., Tex.: Bramlette, W. A., 1.  
 Trichinocrinus, Ord., Newfoundland: Moore, R. C., 8.  
 Vermont, Paleozoic revision: Doll, C. G., 2.

## Crinoidea—Continued.

- Virginia, Tazewell Co.: Cooper, B. N., 1.  
 Zygotocrinus, Carb., Iowa: Kirk, E., 5.  
 Cripple Creek dist., Colo.: Koschmann, A. H., 1.  
 Cristobalite: Murdoch, J., 2.  
 Cross Cut-Blake oil and gas fields, Tex.: Klinger, E. D., 1.  
 Crude-oil discoveries, declining rate: McCollum, L. F., 1.  
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 Bosmina, Quat., Conn.: Austin, T. S., 1.  
 Crab, Cret., Mex.: Stenzel, H. B., 3.  
 Paleocene, Tex.: Stenzel, H. B., 4.  
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 Invertebrata, Miocene, N. J.: Richards, H. G., 1.  
 Microfauna, Gulf Coast: Howe, H. V., 2.  
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 Tennessee, Douglas Dam lagoon deposits: Laurence, R. A., 3.  
 Cryptomelane, unit cell: Ramsdell, L. S., 1.  
 Psilomelane mineral: Richmond, W. E., Jr., 2.  
 Crystal models, making: Fisher, D. J., 3.  
 Crystallography. See also Mineralogy; Petrology.  
 Amblygonite, Maine: Palache, C., 2.  
 Amphiboles, extinction angles: Turner, F. J., 1.  
 Beryl pegmatites: Page, L. R., 2.  
 Beryllium: Warren, D. V., 2.  
 Boulangerite: Palache, C., 1.  
 Burkeite: Ramsdell, L. S., 3.  
 Calcite: Palache, C., 3.  
 Utah: Hayes, J. J., 1.  
 Carborundum, morphology: Donnay, 8.  
 Classification: Donnay, 9.  
 Conventional orientation of crystals: Donnay, 5.  
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 Crystals, asymmetrical, interpretation: Armstrong, E., 1.  
 General: Adams, L. H., 1.  
 Gillespite, Calif., Alaska: Pabst, A., 3.  
 Gnomonic projection, hexagonal system: Ramsdell, L. S., 2.  
 Goethite: Nuffield, E. W., 1.  
 Graphite: McConnell, D., 1.  
 High-cristobalite: Lukesh, J. S., 1.  
 Hureaulite, Calif.: Murdoch, J., 3.  
 Idocrase: Tremblay, J. A., 1.  
 Kaliophilite: Lukesh, J. S., 2.  
 Lepidocrosite: Nuffield, E. W., 1.  
 Maucherite: Peacock, M. A., 6.  
 Microlite, Va.: Donnay, 2.  
 Models from wood: Morin, L. G., 2.  
 Nomograms of optic angle formulae: Mertie, J. B., Jr., 2.  
 North Dakota, gypsum crystals, Morton Co.: Mitchell, R. H., 1.  
 Optical, text-book: Wahlstrom, E. E., 1.  
 Orpiment: Buerger, M. J., 2.

## Crystallography—Continued.

- Parkerite, Sudbury, Ontario: Michener, C. E., 1.  
 Pegmatite crystallization: Quirke, T. T., 3.  
 Pentlandite: Hawley, J. E., 5.  
 Plagioclase twinning: Donnay, 7; Emons, R. C., 2.  
 Pyrite: Smith, F. G., 2.  
   Cube-edge measurements: Peacock, M. A., 2.  
   Growth and deposition: Smith, F. G., 3.  
 Pyroxenes, extinction angle: Turner, F. J., 1.  
 Pyrrhotite: Hawley, J. E., 5.  
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 Quartz veins, Ouachita Mts., Ark.-Okla.: Miser, H. D., 2.  
 Resetting triclinic unit-cell in conventional orientation: Donnay, 6.  
 Scheelite group: Donnay, 4.  
 Silicate minerals, gelatinizing with acid, structure: Murata, K. J., 1.  
 Spatial distrib., minor elements in single-crystals: Frondel, C., 2.  
 System albite-anorthite-sphene: Prince, A. T., 1.  
    $\text{CaSiO}_3\text{--CaAl}_2\text{Si}_2\text{O}_8\text{--NaAlSiO}_4$ : Gummer, W. K., 1.  
    $\text{NaAlSi}_3\text{O}_8\text{--CaSiO}_3\text{--NaAlSiO}_4$ : Foster, W. R., 1.  
 Terminology of drawings: Tunell, G., 1.  
 Tetragonal space-groups: Donnay, 10.  
 32 point-groups, derivation: Donnay, 3.  
 X-ray crystallography: Buerger, M. J., 1.  
   Determination quartz crystal orientation: Bond, W. L., 1.  
   Diffraction, graphic interpretation: White, W. C., 1.

Crystals, asymmetrical, interpretation: Armstrong, E., 1.

Cuba. See also West Indies.

*Economic geology.*

- Chrome res.: Thayer, T. P., 1.  
 Chromite, gravimeter survey for: Cumings, W. L., 2.  
 Fuels, mineral: Corral y Alemán, J. I. del, 2.  
 Geology and oil prospects: Palmer, R. H., 1.  
 Jurassic, late: Imlay, R. W., 2.  
 Manganese: Crook, T. H., 1; Park, C. F., Jr., 2.  
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*Historical geology.*

- Chrome deposits: Thayer, T. P., 1.  
 Florida area, Camaguey: Broderman, J., 5.  
 Geologic work, Prov. Habana: Sánchez Roig, M., 2.  
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 Jurassic: Imlay, R. W., 2, 5.  
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## Cuba—Continued.

*Historical geology—Continued.*

- Mesozoic: Torre Mandrazo, R. de la, 1.  
 Mineral waters, Prov. Habana: Broderman, J., 2, 3.  
 Pinar del Río Prov.: Vermunt, L. W. J., 1.  
 Vento Valley: Broderman, J., 1.

*Mineralogy.*

- Cayman Trough sediments, radium content: Piggot, C. S., 1.  
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 Ranceite: Richmond, W. E., Jr., 3.

*Paleontology.*

- Cranis, Tert.: Cushman, 2.  
 Fossils, late Juras.: Imlay, R. W., 2.  
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 Lockhartia, Cret.: Cole, W. S., 2.  
 Luisichthys, Juras.: White, T. E., 2.  
 Mesozoic: Torre Mandrazo, R. de la, 1.  
 Mineral waters, Prov. Habana: Broderman, J., 2, 3.  
 Mollusca, Pleist.: Jaume, M. L., 1.  
 Pinar del Río Prov.: Vermunt, L. W. J., 1.  
 Pseudorbitoides: Vaughan, T. W., 3.  
 Vaughanina: Vaughan, T. W., 3.  
 Vento Valley: Broderman, J., 1.

*Petrology.*

- Chrome deposits: Thayer, T. P., 1.  
 Mineral waters, Prov. Habana: Broderman, J., 2.  
 Pinar del Río Prov.: Vermunt, L. W. J., 1.

*Physical geology.*

- Geology and oil prospects: Palmer, R. H., 1.  
 Jurassic, late: Imlay, R. W., 2.  
 Pinar del Río Prov.: Vermunt, L. W. J., 1.  
 Separation from N. Am.: Corral y Alemán, J. I. del, 3.  
 Deltas, N. coast: Massip y Valdés, S., 2.  
 Isla de Pinos: Massip y Valdés, S., 1.

*Underground water.*

- Florida area, Camaguey: Broderman, J., 5.  
 Mineral waters, Prov. Habana: Broderman, J., 2, 3.  
 Pinar del Río water supply: Broderman, J., 4.  
 Vento Valley: Broderman, J., 1.

Cut Bank oil and gas field, Mont.: Blixt, J. E., 1.



## Cyclothem.

Illinois, Penn., Carlville quad.: Ball, J. R., 4.

Rhythms, Penn.: Weller, J. M., 4.  
Streator quad.: Robinson, L. C., 1.

Cystoidea. See also Echinodermata; Invertebrata (general).

Edrioasterids, Ord.: Sinclair, G. W., 6.  
Faunas, Sil., W. Va.: Woodward, H. P., 1.  
Georgia, Sand-Lookout Mtn. area: Sullivan, J. W., 2.

Illinois, Marseilles, Ottawa, and Streator quads.: Willman, H. B., 2.

Ohio, Niagaran: Busch, D. A., 1.  
Pelmatozoan, Paleozoic, bib. and lists: Bassler, R. S., 2.

Vermont, Paleozoic revision: Doll, C. G., 2.

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Cytheropteron pacificum for C. minutum  
LeRoy: LeRoy, L. W., 2.

Dakota Basin oil and gas prospects, N. Dak.: Hennen, R. V., 1.

## Dams and dam sites.

Engineer, use of geology: Ries, H., 1.  
Mexico, La Angostura dam area: Vicente Crozco, J., 1.

Ontario, eng. study of glacial drift: Legget, R. F., 1.

Soil mechanics and foundation eng.: Huntington, W. C., 1.

Washington, Cedar Reservoir failure: Mackin, J. H., 1.

Danaite, British Columbia: Brennan, C. V., 1.

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Arcuates, negative types: Keith, B. A., Sr., 2.

California, Death Valley area: Stose, G. W., 2.

East Coalinga Extension field: Kaplow, E. J., 1.

San Benito quad.: Wilson, I. F., 1.

Santa Maria dist.: Woodring, 2.

Ventura region: Putnam, W. C., 1.

Canada, Sydney coal field: Gray, F. W., 1.  
Compression creep, rubber, rocks: DeLury, J. S., 1.

Fabric analysis of rock-flowage: Cloos, E., 4.

Idaho, Boise Basin: Anderson, A. L., 1.

Dixie dist.: Roberts, R. J., 3.

Ore control by rock structure: McKinstry, H. E., 2.

Southwest: Wenberg, E. H., 2.

Kansas, Forest City Basin: Lee, W., 2.

Laramie River Valley, Colo.-Wyo.: Beckwith, R. H., 1.

Measuring strata thicknesses due to flowage and folding: Cloos, E., 3.

## Deformation—Continued.

Mechanics of crustal deformation: Bucher, W. H., 4.

Minnesota, Thomson fm.: Schwartz, G. M., 1.

Montana, Sawtooth Range: Deiss, C., 2.  
New Mexico, Magdalena mining dist.: Loughlin, G. F., 2.

North America, Allegheny synclinalorium devel.: Kay, G. M., 3.

Appalachian quartzite: Fellows, R. E., 1.

Gold vein deposits: White, W. H., 1.

Northwest Territories, Gordon to Great Slave Lakes: Henderson, J. F., 1.

Ohio, coal-bed jointing: Ver Steeg, K., 3.

Ontario, Eagle Lake area: Moorhouse, W. W., 1.

Oregon, Portland area: Treasher, R. C., 2.

Patterns, earth's crust: Thom, W. T., Jr., 1.

Petrology, structural, and ore deposits: Fairbairn, H. W., 2.

Strata, by explosions: Boon, J. D., 2;  
Nettleton, L. L., 1.

Shown by petrofabrics: Knopf, E. F. B., 1.  
Structural petrology of deformed rocks: Fairbairn, H. W., 1.

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Texas, N. Quitman Mts.: Huffington, R. M., 1.

Tri-State geology, Kans.-Okla.-Mo.: Fowler, G. M., 2.

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Wyoming, Gros Ventre Range: Church, V., 1.

Gros Ventre and N. Hoback Ranges: Nelson, V. E., 2.

Dehydration curves of minerals, standard thermal: Nutting, P. G., 1.

## Deltas.

Biota migration via delta streams: Price, W. A., 3.

British Columbia, Okanagan Valley origin: Schofield, S. J., 1.

Cuba, N. coast: Massip y Valdés, S., 2.

Iowa, varved Pleist. sediments, Cedar Rapids: Wilson, L. R., 4.

Massachusetts, Conn. Valley: Jahns, R. H., 1.

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Ohio, tilted postglacial beds: Hubbard, G. D., 2.

Texas, Rio Grande Valley: S. Tex. G. Soc., 1.

United States, lakes: Logan, R. F., 1.

Vermont, Champlain Valley: Chapman, D. H., 1.

Great Ice Age: Jacobs, E. C., 2.

Wisconsin, glacial outwash along Chippewa River: Huff, L. C., 1.

Delesse-Rosiwal method, rock determination: Postel, A. W., 1.

- Del Valle oil field, Calif.: Sherman, R. V., 1; Stockman, L. P., 1.
- Density currents transporting sediments: Bell, H. S., 1.
- Density ground-water in ore deposition: Cederstrom, D. J., 3.
- Derivation, reservoir rocks: Howard, W. V., 7.
- Detrital mineral grains, slides of: Herbert, P., Jr., 1.
- Development, Va. geol. thought: Roberts, J. K., 2.
- Devils Den oil field, Calif.: Van Couvering, M., 1.
- Devonian. See also Paleontology, Devonian.
- Alabama, Birmingham area: Poor, R. S., 1.
- Cherokee Co.: Cloud, P. E., Jr., 3.
- Northwest, Paleozoics: Miss. G. Soc., 1.
- Alaska, Eagle-Circle dist.: Mertie, J. B., Jr., 1.
- Nutzotin Mts. area: Moffit, F. H., 2.
- Seward Pen.: Alaska Plann. Coun., 1.
- Alberta: Allan, J. A., 1.
- East-central: Hume, G. S., 1.
- Foothills area: Hake, B. F., 1.
- Marble Mtn. area: Beach, H. H., 1.
- Moose Mtn. area: MacNeil, D. J., 1.
- Moose Mtn.-Morley area: Beach, H. H., 3.
- Appalachians, north middle: Swartz, F. M., 1.
- Arizona, Bisbee dist.: Rove, O. N., 1.
- Geosyncline: Keyes, 23.
- Paleogeography: Stoyanow, A. A., 1.
- Revision of: Keyes, 20.
- Slate Mtn.: Mintz, Y., 1.
- Arkansas: Miser, H. D., 5.
- Limestones: Branner, G. C., 2.
- Canada, oil and gas fields: Hume, G. S., 2.
- Sydney coal field: Gray, F. W., 1.
- Western oil fields: Hunter, C. M., 1.
- Colorado, Aspen dist.: Vanderwilt, J. W., 2.
- Beaver-Tarryall area, Park Co.: Singewald, Q. D., 2.
- Gore area: Brill, K. G., Jr., 1.
- Corniferous, Ky., W. Va.: Lafferty, R. C., Jr., 1.
- Elk Basin field, Mont.-Wyo.: Hendrickson, V. J., 1.
- Fortune fm., SW. Mo.: Grohskopf, J. F., 1.
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- Illinois Basin oil field, U. S.: Hake, B. F., 2.
- Illinois, crude oils, geol. occurrence: Rees, O. W., 1.
- Fluorspar deposits: Bastin, E. S., 1.
- Kinderhook-New Albany strata: Workman, L. E., 1.
- Marseilles, Ottawa, Streator quads.: Willman, H. B., 2.
- Devonian—Continued.
- Illinois—Continued.
- Oil fields: Bell, A. H., 6.
- Oil sands: Squires, F., 1.
- Recent oil devel.: Millison, C., 1.
- Southern: Krause, A., 1.
- Wildcat drilling since 1936: Carter, W. C., 1.
- Wittenberg sh.: Keyes, 23.
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- Geology and highway eng.: Woods, K. B., 1.
- Indianapolis area: McGuinness, C. L., 1.
- Southern: Dawson, T. A., 1.
- Iowa, Carb. within Dev.: Stookey, S. W., 1.
- Kansas, Chanute field: Dillard, W. R., 1.
- Ford Co.: Waite, H. A., 1.
- Forest City Basin: Lee, W., 2.
- Oil and gas fields: Moore, R. C., 7.
- Kentucky: Freeman, L. B., 2, 4; Jones, D. Jonhathan, 1; McFarlan, A. C., 2.
- Burbank oil pool: Jillson, W. R., 3.
- Corniferous oil and gas fields: Lafferty, R. C., Jr., 1.
- Floyd Co.: Jillson, W. R., 6.
- Little North Mtn., Va., Md. W. Va.: Giles, A. W., 1.
- Maine, Aroostook Co.: White, W. S., 1.
- Mt. Desert rock ser.: Chadwick, G. H., 3.
- Southeast, ore deposits: Li, C.-Y., 1.
- Massachusetts, Conn. River Valley: Bain, G. W., 1.
- Mexico, stratigraphy: King, R. E., 1.
- Michigan, Traverse rocks, Thunder Bay area: Warthin, A. S., Jr., 2.
- Missouri, Cass Co., oil and gas res.: Clair, J. R., 1.
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- Fire clay dists.: McQueen, H. S., 2.
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- Southwest, Fortune fm.: Grohskopf, J. F., 1.
- Montana, Madison group: Sloss, L. L., 1.
- Sawtooth Range: Deiss, C., 2.
- Saypo quad.: Deiss, C., 1.
- Three Forks area: Berry, G. W., 1.
- Nebraska, geol. secs.: Condra, G. E., 1.
- Nevada, Roberts Mts.: Merriam, C. W., 2.
- Robinson mining dist.: Pennebaker, E. N., 1.
- Ruby Mts.: Sharp, R. P., 2.
- New Brunswick: Alcock, F. J., 3; Rose, B., 1.
- Long Reach, King's Co.: Alcock, F. J., 1.
- Reserve Brook ore deposits: MacKenzie, G. S., 2.
- New England-Hudson Valley area: Longwell, 4.
- New Hampshire, Cardigan-Rumney area: Fowler-Billings, K. S., 2.
- Claremont-Newport area: Chapman, C. A., 1.
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## Devonian—Continued.

- New Mexico: Bates, R. L., 1; Stevenson, F. V., 2.  
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 Middle, oil and gas: Born, K. E., 2.  
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 Rocky Mtn. oil and gas fields: Dobbin, C. E., 2.

## Devonian—Continued.

- Utah, Cottonwood-American Fork area: Calkins, F. C., 2.  
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 Limestones, insoluble residues: Jones, H. D., Jr., 1.  
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 Washington, Metaline quad.: Park, C. F., Jr., 4.  
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- Diabase.  
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- Diadochite, X-ray data, phosphate mins.: McConnell, D., 2.
- Diagenesis of sediments: Krumbein, W. C., 3.
- Diamonds, fluorescence: Orr, J. M., 1.  
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- Diastrophism.  
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 California, Bradley-San Miguel dist.: Taliaferro, 4.  
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 Diastrophism and evolution, sed. rocks: Krynine, P. D., 5.

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- Lithology of sea-floor off Calif.: Emery, K. O., 1.
- Ontario, Mishibishu Lake area: Evans, J. E. L., 3.
- Wallowa batholith: Krauskopf, K. B., 1.
- Sedimentary rocks: Krynine, P. D., 5.
- Texas, Fort Worth-Midland area: Scott, G., 1.
- United States, Rocky Mtn. oil and gas fields: Dobbin, C. E., 2.
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- Squaw fm.: Burma, B. H., 2.
- Diatomaceae.** See also Diatomaceous earth; Diatomite.
- California, San Benito quad.: Wilson, I. F., 1.
- Santa Maria dist.: Woodring, 2.
- Collecting microfossils: Schenck, H. G., 3.
- Connecticut, Linsley Pond: Patrick, R. M., 1.
- Costa Rica: Segura Paguaga, A., 2.
- Diatomaceae, fresh-water, Pacific Coast: Mulryan, H., 1.
- Fauna, N. Atlantic deep-sea cores: Henbest, L. G., 1.
- Invertebrata, Miocene, N. J.: Richards, H. G., 1.
- Massachusetts, Boylston St., Boston, fish weir: Johnson, F., 1; Linder, D. H., 1.
- Cape Cod tills: Sayles, R. W., 1.
- Microfauna, Gulf Coast: Howe, H. V., 2.
- Micropaleontological labs. and oil: Schenck, H. G., 5.
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- New Jersey, Cape May fm. marine topog.: MacClintock, P., 1.
- Paleoecology: Lohman, K. E., 1.
- Pleurosigma angulatum wall: Hamly, D. H., 1.
- Virginia, Petersburg area: McGill, W. M., 1.
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- Idaho, metal, coal mining dists.: Ross, C. P., 1.
- Kansas: Moore, R. C., 1.
- United States, accumulation: Conger, P. S., 1.
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- Florida: Vernon, R. O., 3.
- Ontario, Haliburton area: Satterly, J., 4.
- United States Pacific Northwest: Dammann, A., 1; Eyerly, G. B., 1.
- Virginia, Peterburg area: McGill, W. M., 1.
- Washington, Wenatchee-Ellensburg-Yakima area: Glover, S. L., 2.
- Dickite, quartz veins, Ouachita Mts., Ark.-Okla.: Miser, H. D., 2.
- Digenite, Alaska: Buerger, N. W., 1.
- Digenite is same as isometric chalcocite: Buerger, N. W., 1.
- Dikes.** See also Intrusions.
- Alabama, Pinckneyville quartz-diorite complex: Gault, H. R., 1.
- Alaska, Chicagof mining dist.: Reed, J. C., 1.
- Gerstle River dist.: Moffit, F. H., 1.
- Nutzotin Mts. area: Moffit, F. H., 2.
- Portage Pass area: Barnes, F. F., 1.
- Arizona, Ajo copper dist.: Gilluly, J., 1.
- Bisbee dist.: Rove, O. N., 1.
- Oatman-Katherine dists.: Lausen, C., 1.
- British Columbia, Bralorne mines: Joralemon, I. B., 1.
- Dolly Varden mine: Warren, H. V., 1.
- Sheep Creek gold-quartz veins: Walker, J. F., 1.
- Sullivan mine: Pentland, A. G., 1.
- California, andesite breccia, Plumas Co.: Durrell, C., 1.
- Cargo Muchacho Mts.: Henshaw, P. C., 2.
- Coso Mts. Hot Springs: Fraser, H. J., 2.
- Foliated dikes and xenoliths: Miller, W. J., 3.
- Tungsten area NE. of Visalia: Jenkins, W. C., 1.
- Welsh tungsten deposits: Little, J. M., 2.
- Canada, Bryce Tp., pebble-bearing: Moorhouse, W. W., 6.
- Canadian Shield, olivine diabase: Lewis, C. R., 1.
- North bank St. Lawrence, Bersimis to Matamec: Faessler, C., 1.
- Colorado, Centennial Cone: Waldschmidt, W. A., 1.
- Climax molybdenite deposit: Vanderwilt, J. W., 1.
- Cripple Creek dist.: Koschmann, A. H., 1.
- Front Range: Bray, J. M., 2.
- Gold Hill area: Goddard, E. N., 1.
- Iron Hill alkalic rocks: Larsen, E. S., 1.
- Jamestown dist.: Bray, J. M., 1.
- Tertiary rocks, Front Range: Bray, J. M., 2.
- Trinidad area: Floyd, E., 1.
- Connecticut, Mt. Prospect nickel sulphides: Cameron, E. N., 1.
- Greenland, Traill Is.: Schaub, H. P., 1.
- Idaho, Blackbird dist.: Anderson, A. L., 4.
- Boise Basin: Anderson, A. L., 1.
- Dixie dist.: Roberts, R. J., 3.
- Ore control by rock structure: McKinstrey, H. E., 2.
- Rocky Bar dist.: Anderson, A. L., 7.
- Illinois, fluorspar deposits: Bastin, E. S., 1.
- Iron ranges, Lake Superior dist.: Royce, S., 1.
- Labrador, Nain area: Wheeler, E. P., 2d, 1.

## Dikes—Continued.

- Maine, Mount Desert Is. rocks: Chadwick, G. H., 2, 3.  
 Vitrophyre dike, Cape Neddick: Haff, J. C., 3.  
 Manitoba, Gunnar mine: Lord, C. S., 1.  
 Rock alteration and ore deposits, San Antonio mine: Bragg, J. G., 1.  
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## Dikes—Continued.

## Ontario—Continued.

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## Dinosauria. See also Reptilia.

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 New Mexico: Simpson, G. G., 1.  
 Texas, tracks: Evans, G. L., 1.

## Diopside.

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 System  $\text{CaSiO}_3$ : Osborn, E. F., 1, 2.

## Diorite.

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Dip and strike from 3 parallel drill cores, lacking key beds: Bucher, W. H., 3.

Directional drilling applied to geology: Clifton, R. L., 2.

Discovery thinking and petroleum reserves: Levorsen, A. I., 8, 10.

Distortion by folding of strata: Cloos, E., 1.

## District of Columbia.

*Historical geology.*

Capital Parks geology: Bassler, R. S., 3.

*Physiographic geology.*

Anacostia River drainage basin: Williams, M. T., 1.

Dolerite, Traill Is., Greenland: Schaub, H. P., 1.

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## Dolomites—Continued.

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 Western: Stout, W. E., 1.  
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## Drainage changes—Continued.

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 Ventura region: Putnam, W. C., 1.  
 Colorado, Craig-Baggs placer area:  
 Prommel, H. W. C., 1.  
 Florida, S., natural features: Davis, J. H., Jr., 1.  
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 Lupher, R. L., 1.  
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 Streator quad.: Robinson, L. C., 1;  
 Willman, H. B., 2.  
 Indiana, Devil's Backbone and Hob  
 Trough, origin: Wickwire, G. T., 1.  
 Preglacial Teays Valley: Fidler, M. M., 1.  
 Kansas, Pleist. terraces: Frye, J. C., 3.  
 Stream channels in Arbuckle fm.:  
 Mull, J. A., Jr., 1.  
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 Kentucky River buried upland chan-  
 nels: Jillson, W. R., 5.  
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 son, W. R., 4.  
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 G. W., 1; Jahns, R. H., 1.  
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 Mussel distribution showing: Johnson, D. W., 2.  
 New Brunswick: Alcock, F. J., 3.  
 Central: Rose, B., 2, 3.  
 New York, interglacial valleys: Wold,  
 J. S., 1.  
 Lake George area: Newland, D. H., 1.  
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 Niagara River history: Great Lakes area:  
 Martin, H. M. M., 1.  
 North America, Great Lakes area: Mar-  
 tin, H. M. M., 1.  
 North Dakota, Morton Co.: Laird, W. M., 2.  
 Turtle River State Park: Laird, W. M., 3.  
 Ontario, North Bay terraces: Lang, A. H., 4.  
 Oregon, lake sediment pollens: Hansen,  
 H. P., 3.  
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 worth, E., 1.  
 Soil phenomena and climatic changes:  
 Bryan, K., 6.  
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 Price, W. A., 4.  
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 Outlet deltas: Logan, R. F., 1.  
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 D. H., 1.

## Drainage changes—Continued.

- Vermont—Continued.  
 West Charleston abandoned valley:  
 Doll, C. G., 1.  
 Wisconsin, NE.: Thwaites, F. T., 2.  
 Wyoming, Gros Ventre and N. Hoback  
 Ranges: Nelson, V. E., 2.  
 Noir Valley: Miner, N. A., 1.  
 Drift, Audubon Co., Iowa: Yoho, W. H., 1.  
 Drilling-time logs, uses: Willis, R., 1.  
 Droughts, long series: Gillette, H. P., 1.  
 Drowned valleys, Florida, tributary valley  
 lakes: Vernon, R. O., 2.  
 Drumlins.  
 Michigan: Bergquist, S. G., 1, 2.  
 Ontario, S.: Putnam, D. F., 1.  
 Dry polishing, opaque minerals: Fraser, H. J., 1.  
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 Dufrenite, concretions, Md.: Dake, H. C., 7.  
 Dunes. See also Sand dunes.  
 Alaska, Prince William Sound area:  
 Cooper, W. S., 1.  
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 Henny, G., 1.  
 Colorado, San Luis Valley: Pearl, R. M., 3.  
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 Peters, J. R., 2.  
 Florida: Kurz, H., 1.  
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 H. M., 1.  
 Sand-dune stratification: Smith, H. T. U., 3.  
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 Dunite.  
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 Dust storms. See also Wind work.  
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 Bell, H. S., 1.  
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 C. F. S., 1.  
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 Geomorphology: Hinds, N. E. A., 1.  
 History of: Flint, R. F., 1.

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- Meteorites and an earth-model: Daly, R. A., 4.  
 Structure, motions, fm.: Blankner, F., 1.  
*Age.*  
 Age of solar system, measurement: Evans, R. D., 2.  
 Earth's history: Quirke, T. T., 1.  
 Helium age measurement, magnetite index: Hurley, P. M., 1.  
 Helium index, unreliability: Keevil, N. B., 1.  
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 Elements, distrib.: Pannell, J. H., 1.  
 Fabric analyses of rock-flowage: Cloos, E., 4.  
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 Fossil magnetism: McNish, A. G., 1.  
 General: Allen, J. S., 1; Shand, S. J., 3.  
 Geodesy and causes of earthquakes: Heck, N. H., 3.  
 Gravitation, exponential law, effects on seismol. and tectonic phenomena: Shneiderov, 1.  
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 Nickel abundance: Wells, R. C., 1.  
 Oceans: Sverdrup, H. U., 1.  
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 Southeast intrusives: Harrison, J. M., 1.  
 Physical changes from water: Twenhofel, 2.  
 Physical geography: Seeman, A. L., 1.  
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 Seismology, pure, applied to geology: Leet, L. D., 3.  
 Tectonophysics, physics of earth deformation: Macelwane, J. B., 1.  
 Tetrahedron theory of the earth: Corral y Alemán, J. I. del, 1.  
 Variations, earth's crustal layers: Gutenberg, 7.

*Interior*

- Core of the earth: Dake, H. C., 9.

## Earth—Continued.

*Interior—Continued.*

- Density variation of core: Bullen, K. E., 1.  
 Earthquake causes: Hodgson, E. A., 1.  
 Fossil magnetism: McNish, A. G., 1.  
 General: Shand, S. J., 3.  
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 Gravitation, exponential law, effects on seismol. and tectonic phenomena: Shneiderov, 1.  
 Meteorites and an earth-model: Daly, R. A., 4.  
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 Earthquakes. See also Seismology.  
 Alexander, N. Y., 2/23/39; Jackson, P., 1.  
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 Seismographic stations, activities: Louderback, G. D., 1.  
 Southern: Gutenberg, 4, 6.  
 Causes of: Hodgson, E. A., 1.  
 Correlations with geosynclines: DeLury, J. S., 2.  
 Deep-focus: Lynch, W. A., 1.  
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 Magnitude, intensity, energy, acceleration: Gutenberg, 2.  
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 East Texas field: Minor, H. E., 1.  
 East Tuskegee oil pool, Okla.: Borden, J. L., 1.  
 Echinodermata. See also Asteroidea; Blastoidea; Crinoidea; Cystoidea; Echinoidea; Invertebrata (general).  
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 Barbados: Renz, H. H., 1.  
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 San Benito quad.: Wilson, I. F., 1.  
 Cystids, Ord, Okla.: Bassler, R. S., 4.  
 Faunas, Leonard Perm. ser., U. S.: Clifton, R. L., 1.  
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 Silurian, W. Va.: Woodward, H. P., 1.  
 Georgia, Coastal Plain: Cooke, C. W., 5.  
 Invertebrata, Miocene, N. J.: Richards, H. G., 1.  
 Machaeridia, Ord., N. Y.: Ruedemann, R., 3.  
 Microfossils, Tert., Gulf Coast, U. S.: Howe, H. V., 2.  
 Micropaleontology and oil explor.: Croneis, C. G., 1.  
 Mississippi, Clay Co.: Bergquist, H. R., 2.  
 Pontotoc Co.: Priddy, R. R., 3.

## Echinodermata—Continued.

- Panama, Tert.: Olsson, A. A., 1.  
 Pelmatozoan, Paleozoic, Bib. and lists: Bassler, R. S., 2.  
 Plates, Ord., Iowa: Spivey, R. C., 1.  
 Echinoidea. See also Echinodermata.  
 Alabama, Glendon fm. fauna: Howe, H. V., 1.  
 Arkansas, Pitkin ls.: Easton, W. H., 1.  
 Eocene, La.: Barry, J. O., 1.  
 Foerstediscus, Ord., Ill.: Branson, C. C., 1.  
 Pendleton fm. fauna, Tex., La.: Wasem, R., 1.  
 Sea urchin, Cret., Manitoba: Leith, E. I., 3.  
 United States, E., Cenozoic: Cooke, C. W., 1.  
 Virginia, Appalachian Valley: Butts, C., 1.  
 Ecology of marine organisms: Ladd, H. S., 1.  
 Economic geologists, function during and after war: Behre, C. H., Jr., 5.  
 Economic geology (general). For areal see under the various States and Countries. See also Ore deposits, origin; and the particular products.  
 Aerial photographs, use and interpretation: Eardley, A. J., 1.  
 Aspects of modern geology: Bastin, E. S., 2.  
 Autoradiography of ores: Goodman, C., 2.  
 Bacteria and source sediments: ZoBell, C. E., 2.  
 Banded hematite ores: Dunn, J. A., 1.  
 Beryl pegmatites: Page, L. R., 2.  
 Calculating true thickness of folded bed: Hobson, G. D., 1.  
 Calculation, depth magnetic deposits: Sen, J., 1.  
 Classification, epigenetic ore dists.: Anonymous, 2.  
 Oil reservoirs: Wilson, W. B., 1.  
 Clays, bleaching: Schroter, G. A., 1.  
 Research and ceramics: Norton, F. H., 1.  
 Coal, description and classification: Daples, E. C., 1.  
 Mineral matter in: Sprunk, G. C., 1.  
 Collecting oriented mineral specimens: Morgan, R. E., 1.  
 Core analysis data, interpretation: Schmidt, K. H., 1.  
 In estimating oil reserves: Horn, C. R., 1.  
 Crude-oil discoveries, declining rate: McCollum, E. F., 1.  
 Density, ground-water in ore deposition: Cederstrom, D. J., 3.  
 Derivation, reservoir rocks: Howard, W. V., 7.  
 Diamonds: Kraus, E. H., 1.  
 Directional drilling applied to geol.: Clifton, R. L., 2.  
 Discovery thinking and oil reserves: Levorsen, A. I., 8.  
 Drilling-time logs, uses: Willis, R., 1.  
 Economic geologists, function during and after war: Behre, C. H., Jr., 5.

## Economic geology—Continued.

- Economic min. deposits: Bateman, A. M., 3; Singewald, J. T., Jr., 3.
- Economic paleontology and mineralogy: Driver, H. L., 2.
- Electric logging to determine character of fms.: Uren, L. C., 1.
- Electric methods in geophys. prosp.: Evjen, H. M., 1.
- Elements, distrib.: Pannell, J. H., 1.
- Engineer, use of geology: Ries, H., 1.
- Engineering geology, devel. and use: Nickell, F. A., 1; Weaver, P., 2.
- Exploration for oil and gas: DeGolyer, E. L., 3.
- Exsolution in ore minerals: Schwartz, G. M., 4.
- Fluorescence: Golson, G. A., 1.
- Fluorescent surveys to find oil: Turner, T. L., 1.
- Fluorographic analysis of soil for oil: Short, E. H., Jr., 1.
- Formation dip and strike determination method: Doll, H. G., 1.
- Geochemical prospecting: Rosaire, E. E., 1.
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## Economic geology—Continued.

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## Economic geology—Continued.

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- El Segundo oil field, Calif.: Hill, M. L., 2; Reese, R. G., 1.
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 Hopi Indians environment changes: McCann, F. T., 1.  
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 La Jolla shoreline: Shepard, F. P., 4.  
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## Erosion—Continued.

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 Hydrology, ls. terranes: Swinnerton, A. C., 2.  
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 Glacier Nat. Park: Alden, W. C., 1.  
 Mountain sculpture by rolling debris: Blackwelder, 1.  
 New Brunswick, central: Rose, B., 2, 3.  
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 High level: Peters, J. R., 1.  
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 Pawhuska rock plain, Okla.-Kans.: Ham, W. E., 4.

## Erosion—Continued.

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 Physical changes from water: Twenhofel, 2.  
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 Palo Duro Canyon: Hinton, G., 1.  
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 Northwest flank Gros Ventre Mts.: Swenson, F. A., 2.  
 Southeast, late Paleozoics: Knight, S. H., 3.  
 Teton Mts.: Baker, V. R., 1; Edmund, R. W., 1; Fryxell, F. M., 2.  
 Warm Springs Canyon nat. bridges: Delo, D. M., 1.  
 Erratics, Shickshock Mts., Gaspé, Quebec: Flint, R. F., 3.  
 Errors, measuring strata: Secrist, M. H., 1.  
 Eruptive rocks: Shand, S. J., 3.  
 Eskers.  
 Ontario, Kenogamisis River area: MacDonald, R. D., 2.  
 Vermont, Great Ice Age: Jacobs, E. C., 2.  
 Eulytite, and aggricolite identical: Frondel, C., 5.  
 Bismuth, arsenates of: Frondel, C., 5.  
 Eurypterida. See also Arachnida.  
 New York, Ord.: Ruedemann, R., 2.  
 Plankton, Ord., N. Y.: Ruedemann, R., 4.  
 Silurian, W. Va.: Woodward, H. P., 1.  
 Eustephanelia for Eustaphanus: Swartz, F. M., 2.  
 Evolution.  
 Horses, skull: Reeve, E. C. R., 1.  
 Foot devel.: Camp, C. L., 2.  
 Insects, wing origin: Forbes, W. T. M., 1.

## Evolution—Continued.

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 Locomotion and environment in mammals: Gregory, W. K., 1.  
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 Sedimentary rocks: Krynine, P. D., 5.  
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 Excursions.  
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 Experimental investigations.  
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- Pyrite, growth and deposition: Smith, F. G., 3.  
 Pyrrhotite stability: Jensen, E., 1.  
 Quartz, production: Kerr, P. F., 2.  
 Sand grains, shape origin: Ingerson, F. E., 1.  
 Ripple marks, size: Evans, O. F., 2, 5.  
 Grain-size influence: Evans, O. F., 5.  
 Salt-dome fm.: Nettleton, L. L., 2.  
 Sand compacting, factors: Van Tuyl, F. M., 1.  
 Sedimentation studies: Horberg, L., 2.  
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 Solubility, solids in gases or vapors: Morey, G. W., 1.  
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 System  $\text{CaSiO}_3$ : Osborn, E. F., 1, 2.  
 System  $\text{CaSiO}_3\text{-CaAl}_2\text{Si}_2\text{O}_8\text{-NaAlSiO}_4$ : Gummer, W. K., 1.  
 System  $\text{NaAlSiO}_3\text{-CaSiO}_3\text{-NaAlSiO}_4$ : Foster, W. R., 1.

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 Marble Mtn. area: Beach, H. H., 1.  
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 Pekisko area: Hume, G. S., 3.

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## Faulting—Continued.

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 Slate Mtn.: Mintz, Y., 1.  
 Tombstone dist.: Butler, B. S., 1.  
 Uinkaret volcanic field: Koons, E. D., 2.  
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 Midway oil field: Markley, E. A., 1;  
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 Pitkin ls.: Easton, W. H., 1.  
 Quicksilver deposits: Reed, J. C., 6.  
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 Buena Vista Hills area, Midway-Sunset oil field: McMasters, J. H., 1.  
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 Capitan oil field: Kribbas, G. R., 1.  
 Cargo Muchacho Mts.: Henshaw, P. C., 2.  
 Casmalia oil field: Porter, W. W., II, 2.  
 Chino oil field: Krueger, M. L., 1.  
 Coso Mts. Hot Springs: Fraser, H. J., 2.  
 Coso quicksilver dist.: Ross, C. P., 6.  
 Crocker Flat landslide area: Simonson, R. R., 1.

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- Death Valley area: Stose, G. W., 2.

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 Tarbet, L. A., 1.

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 Dudley Ridge gas field: Henry, G., 1.  
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 Elwood oil field: Hills M. L., 2.

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- Halfmoon Bay dist.: Crandall, R. R., 1.  
 Huasna oil area: Taliaferro, 3.

## Faulting—Continued.

## California—Continued.

- Humboldt Co.: MacGinitie, H. D., 1.  
 Huntington Beach oil field: Weaver, D. K., 1.  
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 Kern Front oil field: Edwards, E. C., 2.  
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 Lost Hills oil field: Follansbee, G. S., Jr., 1.  
 McKittick oil field: Stevens, J. B., 1.  
 Martinez Creek area: Curran, J. F., 1.  
 Middle Butte dist.: Fraser, H. J., 4.  
 Montebello oil field: Reese, R. G., 3.  
 Moody Gulch oil field: Krueger, M. L., 3.  
 Morgan Hill area: Gilbert, C. M., 1.  
 Mother Lode, Eldorado, Amador Cos.: Whitehead, W. L., 1.  
 Mount Diablo region: Cross, C. M., 1.  
 Mountain View oil field: Miller, R. H., 2.  
 Newhall oil field: Kew, W. S. W., 1.  
 Newport oil field: Parker, S. F., 1.  
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 Paloma field: Wood, J. T., Jr., 1.  
 Park dist.: Bailey, E. H., 2.  
 Paskenta region: Rist, R. L., 1.  
 Paymaster dist.: Hadley, J. B., 1.  
 Petaluma area: Johnson, F. A., 1.  
 Point Arena-Fort Ross area: Weaver, C. E., 2.  
 Potrero oil field: Willis, R., 2.  
 Rincon oil field: Stewart, R. E., 1.  
 Rio Bravo oil field: Noble, E. E., 2.  
 Rio Vista gas field: Soper, E. K., 4.  
 Round Mtn. oil field: Rogers, R. G., 1.  
 Rumsey Hills area: Kirby, J. M., 3.  
 San Andreas fault zone: Shepard, F. P., 7.  
 San Benito quad.: Wilson, I. F., 1.  
 San Gabriel Mts.: Williams, J. E., 1.  
 Santa Ana Mts.: Popenoe, W. P., 3.  
 Santa Clara River drainage area: Loel, W., 1.  
 Santa Maria dist.: Woodring, 2.  
 Santa Maria Valley oil field: Canfield, C. R., 1.  
 Santa Paula oil field: Waterfall, L. N., 1.  
 Sargent oil field: Michelin, J., 1.  
 Seal Beach oil field: Clements, T., 1.  
 Sespe oil field: Clements, T., 1.  
 Sierra Nevada manganese deposits: Taliaferro, N. L., 6.  
 Simi oil field: Stipp, T. F., 1.  
 Soledad quad.: Schombel, L. F., 1.

## Faulting—Continued.

## California—Continued.

- South Mtn. oil field: Snedden, L. B., 1.  
 Southern Calif.: Gutenberg, 4.  
 Stayton dist.: Bailey, E. H., 1.  
 Sutter (Marysville) Buttes field: Stalder, W., 1.  
 Temblor oil field: Simonson, R. R., 2.  
 Torrance oil field: Cabeen, W. R., 1.  
 Ventura Ave. oil field: Thoms, C. C., 1.  
 Ventura region: Putnam, W. C., 1.  
 Whittier oil field: Holman, W. H., 1.  
 Wilmington oil field: Crown, W. J., 1;  
 Winterburn, R., 1.  
 Yorba Linda part of Coyote Hills oil field: Parker, F. S., 2.  
 Canada, Canadian Shield structures: Jolliffe, A. W., 1.  
 Oil and gas fields: Hume, G. S., 2.  
 Sydney coal field: Gray, F. W., 1.  
 Central America, NW.: Mullerried, 5.  
 Classification of: Clark, S. K., 1; Longwell, C. R., 6.  
 Colorado, Alma dist.: Singewald, Q. D., 1.  
 Aspen dist.: Vanderwilt, J. W., 2.  
 Beaver-Tarryall area, Park Co.: Singewald, Q. D., 2.  
 Boulder arch: Woodbury, H. O., 1.  
 Climax molybdenite deposit: Vanderwilt, J. W., 1.  
 Cripple Creek dist.: Koschmann, A. H., 1.  
 Front Range min. belt: Lovering, T. S., 2.  
 Greasewood field: Lavington, C. S., 1.  
 Gregory Canyon area, Boulder Co.: Tollefson, O. W., 1.  
 Gouge not positive fault evidence: Burwala, J. P., 1.  
 Iron Hill alkaline rocks: Larsen, E. S., 1.  
 Lakewood area, Boulder Co.: Sample, R. D., 1.  
 Leadville dist.: Loughlin, G. F., 1.  
 Connecticut, nickel sulphides, Mt. Prospect: Cameron, E. N., 1.  
 Costa Rica, Virilla Canyon, Meseta Central: Crosby, I. B., 2.  
 Cuba, geology and oil prosp.: Palmer, R. H., 1.  
 Pinar del Río Prov.: Vermunt, L. W. J., 1.  
 Deformation patterns, major: Thom, W. T., Jr., 1.  
 Elk Basin field, Mont.-Wyo.: Hendrickson, V. J., 1.  
 Faults and earthquakes: Louderback, G. D., 2.  
 Georgia, gold deposits: Park, C. F., Jr., 3.  
 Greenland, Traill Is.: Schaub, H. P., 1.  
 Idaho, Bannock Range: Ludlum, J. C., 2.  
 Blackbird dist.: Anderson, A. L., 4.  
 Copper, Salmon area: Anderson, A. L., 5.  
 Elk City dist. veins: Shenon, P. J., 3.  
 Meyers Cove area: Anderson, A. L., 6.  
 Murray dist.: Shenon, P. J., 2.

## Faulting—Continued.

## Idaho—Continued.

- Ore control by rock structure: McKinstry, H. E., 2.
- Rocky Bar dist.: Anderson, A. L., 7.
- Warren dist. veins: Reed, J. C., 5.
- Yellow Pine mine, stibnite: Bradley, J. D., 1.

## Illinois, Fox River area: Willman, H. B., 4.

- Marseilles, Ottawa, Streator quads.: Willman, H. B., 2.

- Omaha oil pool: English, R. M., 1.
- Pre-Pennsylvanian surface: Smith, M. H., 1.

## Iowa, Red Oak fault: Keyes, 19.

- Iron ranges, Lake Superior dist.: Royce, S., 1.

## Kansas, Hamilton, Kearny Cos.: McLaughlin, T. G., 2.

## Kentucky: Jones, D. Johnathan, 1.

- Cub Run quad.: Hagan, W. W., 1.

- Ford Co.: Waite, H. A., 1.

- Local dips and faulting: Russell, W. L., 1.

- McLouth field: Lee, W., 1.

- Kentucky River, en echelon faulting: McFarlan, A. C., 3.

## Laramie River Valley, Colo.-Wyo.: Beckwith, R. H., 1.

- Lithology of sea-floor off Calif.: Emery, K. O., 1.

## Little North Mtn., Va., Md., W. Va.: Giles, A. W., 1.

- Location by elec. prosp.: Hawley, P. F., 1.

## Louisiana, Anse la Butte dome: Bates, F. W., 1.

- Eola oil field: Oil and Gas Jour., 1.

- Jennings oil field: Roach, C. B., 1.

## Maine, Aroostook Co.: White, W. S., 1.

## Manitoba, Bird River area: Bateman, J. D., 2.

- Gunner mine: Lord, C. S., 1.

- McVeigh Lake area: Bateman, J. D., 1.

- Martie overthrust, Md.-Pa.: Gilluly, J., 2.

## Massachusetts, Cynn. River Valley: Bain, G. W., 1.

## Meade Basin, Kans.-Okla., deep solution:

- Frye, J. C., 1.

## Mexico, El Alamo mine, Baja Calif.:

- Antúnez Echegaray, F., 2.

## Guadalajara: Díaz, S., 1.

## La Angostura dam area: Vicente Orozco, J., 1.

## Northern: Kellum, L. B., 1.

## Northern, tectonics: King, P. B., 1.

## Pachuca dist.: Wisser, E., 1.

## San Antonio mine, Chihuahua: Hewitt, W. P., 1.

## Sierra Madre Oriental: Hein, A., 1.

## Structural features, ore deposits: Schmitt, H. A., 1.

## Tula dist.: Robles Ramos, R., 2.

## Michigan, Menominee, Calumet dists.,

## Huronian: Pettijohn, F. J., 3.

## Faulting—Continued.

## Michigan—Continued.

## Menominee range, Dickinson Co.: Dutton, C. E., 1.

## Minnesota, Thomson fm.: Schwartz, G. M., 1, 3.

## Mississippi, Camp McCain area: Brown, G. F., 1.

## Tallahatchie Co.: Priddy, R. R., 1.

## Mississippi Valley, upper: Behre, C. H., Jr., 1.

## Missouri, Case and Jackson Cos., oil and gas res.: Clair, J. R., 1.

## Fire clay dists.: McQueen, H. S., 2.

## Mary Arnold mines: Clark, E. L., 1.

## Montana, Chief Mtn., origin: Vokes, H. E., 7.

## Libby quad.: Gibson, R., 1.

## Sawtooth Range: Deiss, C. F., 2.

## Saypo quad.: Deiss, C. F., 1.

## Sheep Creek dist.: McGuire, R. A., 1.

## Three Forks area: Berry, G. W., 1.

## Nevada, Majuba Hill area: Smith, Ward C., 1.

## Nevada dist.: Roberts, R. J., 1.

## Roberts Mts.: Merriam, C. W., 2.

## Robinson mining dist.: Pennebaker, E. N., 1.

## Rose Creek tungsten mine: Roberts, R. J., 2.

## Ruby Mts., S.: Sharp, R. P., 2.

## Three Kids dist.: Hunt, C. B., 1.

## New Brunswick, Reserve Brook ore deposits: MacKenzie, G. S., 2.

## New England-Hudson Valley area: Longwell, 4.

## Newfoundland, Fleur-de-Lys area: Fuller, J. O., 1.

## Western, Carb.: Betz, F., Jr., 2.

## New Hampshire, Claremont-Newport area: Chapman, C. A., 1.

## Mount Cube area: Hadley, J. B., 2.

## Ossipee Mts. area: Billings, M. P., 2.

## Winnepesaukee quad.: Quinn, A. W., 1.

## New Mexico, Central mining dist.: Schmitt, H. A., 1.

## Cimarron Range: Smith, J. F., Jr., 1.

## Los Pinos Mts.: Stark, J. T., 1.

## Magdalena mining dist.: Loughlin, G. F., 2.

## Questa dist.: Vanderwilt, J. W., 3.

## Sierra Cuchillo: Jahns, R. H., 4.

## New York, Adirondack magnetite: Alling, H. L., 1.

## Lake George area: Newland, D. H., 1.

## New York City, seismotectonic lines: O'Connell, D. T., 1.

## Schunemunk Mtn. area: Sharpe, C. F. S., 2.

## Wellsville quad.: Woodruff, J. G., 1.

## Nomenclature: Gill, J. E., 1.

## North America, gold vein deposits: White, W. H., 1.

## Lake Ontario homocline: Kay, G. M., 2.

## Pegmatites: Landes, K. K., 1.



## Faulting—Continued.

## North America—Continued.

- Structural features of ore deposits:  
Newhouse, W. H., 2.
- North Carolina, barite deposits: Stuckey, J. L., 2.
- Pegmatites: Kesler, T. L., 3.
- Northwest Territories: Anonymous, 24.
- Great Bear Lake dist.: Kidd, D. F., 1.
- Nova Scotia, New Ross area: Douglas, G. V., 4, 5.
- Pembroke area: Campbell, C. O., 1.
- Ohio, western: Stout, W. E., 1.
- Oklahoma, Billings oil field: Klaus, H., 1.
- Dora pool: Ingham, W. I., 1.
- Oklahoma City oil field: Oil and Gas Jour., 1.
- St. Clair ls. near Marble City: Ham, W. E., 3.
- Ontario, Big Duck-Aguasabon Lakes area:  
Bartley, M. W., 1.
- Cobalt: Moore, E. S., 1.
- Cuniptau nickel mine: Sandefur, B. T., 1.
- Dryden-Wabigoon area: Satterly, J., 3.
- Garnett-Cunningham area: Meen, V. B., 1.
- Goldrock area: Thomson, Jas. E., 1.
- Goudreau-Lochalsh area: Bruce, E. L., 3.
- Little Long Lac gold area: Armstrong, H. S., 1.
- McGarry, McVittie Tps., Larder Lake area: Thomson, Jas. E., 3.
- Matachewan mine: Derry, D. R., 2;
- Hopper, C. H., 1.
- Ottawa-Bonnechere graben area: Kay, G. M., 2.
- Steep Rock Lake: Roberts, H. M., 1.
- Sudbury dist.: Cooke, H. C., 3; Fairbairn, H. W., 3.
- Thunder Bay dist.: Bruce, E. L., 4.
- Timagami area: Moorhouse, W. W., 2.
- Windigo-North Caribou Lakes: Satterly, J., 2.
- Opalite dist., Oreg.-Nev.: Yates, R. G., 1.
- Oregon, Horse Heaven mine: Staples, L. W., 2.
- Juniper Ridge: Allen, J. E., 1.
- North-central: Hodge, E. T., 1.
- Ochoco quicksilver dist.: Stephenson, E. L., 1.
- Snake-Imnaha Rivers jct. area: Libbey, F. W., 2.
- Tyrrell area: Lowry, W. D., 1.
- Pacific Northwest, U. S.: Smith, W. D., 1.
- Pennsylvania, Harrisburg area: Cloos, E., 2.
- Lehigh Co.: Fraser, D. M., 1; Miller, B. L., 1.
- Leiberts Gap origin: Myers, R. E., 2.
- Triassic: McLaughlin, D. B., 1.
- Pennsylvania Turnpike guidebook: Cleaves, A. B., 1.
- Permian, West Tex.-N. Mex.: King, P. B., 2.

## Faulting—Continued.

- Quebec, Barry Lake area: Milner, R. L., 1.
- Brock River area: Kindle, E. D., 1.
- Cadillac Tp. gold deposits: Gunning, H. C., 1.
- Cadillac-Malartic dist.: Flaherty, G. F., 1.
- Dubuisson Tp.: Norman, G. W. H., 1.
- Federal area, Gaspé: Gill, J. E., 2.
- Gaspé deposits: Jones, I. W., 1.
- Kitchigama Lake area: Longley, W. W., 2.
- Lake Wakeham area: Claveau, J., 3.
- Matapédia Lake area: Aubert de la Rue, E., 1.
- Noranda, etc., dists.: Wilson, M. E., 1.
- Olga-Mattagami area: Auger, P. E., 1.
- Pre-Cambrian succession, W.: Wilson, M. E., 3.
- Rouyn-Harricaw belt: Hawley, J. E., 3.
- St. Jean-Beloeil areas: Clark, T. H., 2.
- Rodessa field, Ark.-La.-Tex.: Hill, H. B., 1.
- South Dakota, Black Hills pre-Camb. domes: Runner, J. J., 1.
- Structural geology: Billings, M. P., 1.
- Tennessee, Douglas Dam lagoon deposit: Laurence, R. A., 3.
- Rome, Rutledge fms., Watts Bar Dam: Fox, P. P., 3.
- Texas, Campbell, Hunt Co., elec. prosp.: Hawley, P. F., 1.
- Hitchcock field: Halbouty, M. T., 2.
- Houston Co.: Stenzel, H. B., 1.
- Jackson Co. fields: Hornberger, J., Jr., 1.
- Luling-Powell oil fields: Oil and Gas Jour., 1.
- Quitman Mts.: Huffington, R. M., 1.
- Sam Fordyce field: Earl, E. L., 1.
- Santiago Peak quad.: Eifler, G. K., Jr., 1.
- Shafter mining dist.: Ross, C. P., 7.
- Terlingua quicksilver dist.: Ross, C. P., 2.
- Texas-New Mexico Permian, Basin: King, R. E., 2.
- Tri-State geology, Kans.-Okla.-Mo.: Fowler, G. M., 2.
- United States, Basin and Range prov.: Nolan, T. B., 1.
- Columbia basins and plateaus: Freeman, O. W., 2.
- Great Basin area: Wheeler, H. E., 1.
- Ore shoots on warped fault planes: Emmons, W. H., 1.
- Ring dikes: Billings, M. P., 3.
- Rocky Mtn. oil and gas fields: Dobbin, C. E., 2.
- Rocky Mtn. prov.: Forrester, J. D., 1.
- Utah, Ashbrook silver dist.: Peterson, V. E., 1.
- Cedar Hills: Schoff, S. L., 2.
- Cottonwood-American Fork area: Calkins, F. C., 2.

## Faulting—Continued.

## Utah—Continued.

Uinta, Wasatch Mts. fms.: Williams, J. Stewart, 2.

West Tintic mining dist.: Stringham, B. F., 1.

Vermont, west-central: Cady, W. M., 1.

Virginia, Appalachian Valley: Butts, C., 1.

Clarke Co.: Butts, C., 3.

Elkton area: King, P. B., 3.

Frederick Co.: Butts, C., 3.

Lyndhurst-Vesuvius dist.: Knechtel, M. M., 2.

Riverton en echelon tension fractures: Shainin, V. E., 2.

Thrust-fault in granodiorite: Nelson, W. A., 1.

Walker Mtn.: Butts, C., 2; Edmundson, R. S., 2.

Washington, Blewett iron deposit, Chelan Co.: Broughton, W. A., 3.

Metaline quad.: Park, C. F., Jr., 4.

Olympic Pen.: Park, C. F., Jr., 1.

Silver Hill dist.: Page, L. R., 1.

West Virginia: Woodward, H. P., 1.

Manganese and iron areas: Reeves, F., 1.

Wyoming, Cache Creek area, Gros Ventre Mts.: Nelson, V. E., 1.

Casper Mtn.: Hares, C. J., 1.

Grand Teton Nat. Park: Horberg, L., 1.

Gros Ventre Range: Church, V., 1; Swenson, F. A., 2.

Gros Ventre and N. Hoback Ranges: Nelson, V. E., 2.

Heart Mtn. and South Fork thrusts: Pierce, W. G., 2.

Late Paleozoic, SE.: Knight, S. H., 3.

Squaw fm.: Burma, B. H., 2.

Teton Mts.: Baker, V. R., 1; Edmund, R. W., 1; Fryxell, 2.

Yukon, Wolf Creek area, St. Elias Range: Sharp, R. P., 7.

Fayalite, U. S.: Gwin, G. R., 1.

## Feldspar.

Hawaiian lavas: Macdonald, G. A., 2.

Idaho, metal, coal mining dists.: Ross, C. P., 1.

Orbicular rock, Buffalo Hump: Goodspeed, G. E., 1.

Illinois: Willman, H. B., 1.

Maryland, Patapsco State Park: Mather, L. B., Jr., 1.

Newfoundland, Fleur-de-Lys area: Fuller, J. O., 1.

New Hampshire, "Big" mine: Anonymous, 25.

Cardigan-Rumney area: Fowler-Billings, K. S., 2.

North Carolina, square gravel: Hawkins, A. C., 3.

Ontario, Haliburton area: Satterly, J., 4.

Plagioclase twinning: Donnay, 7.

South Dakota: Connolly, J. P., 1.

Texas, Llano Co.: Chelf, C. R., 2.

## Feldspar—Continued.

Virginia: Dear, P. S., 1.

War minerals: Bevan, A. C., 2.

Felker di-met rock saw: Fairbairn, H. W., 6.

Felsite. Maine, Mount Desert Is.: Chadwick, G. H., 2.

Ontario, Dryden-Wabigoon area: Satterly, J., 3.

Fe-Ni-S system: Hawley, J. E., 5.

## Fensters.

Tennessee, Laurel Bloomery area: Ferguson, H. W., 1.

Virginia, Appalachian Valley: Butts, C., 1.

Ferberite, Boulder Co., Colo.: Bascom, W., 1; Sample, R. D., 1.

Field geology: Pratt, W. E., 2.

Field tests, common metals: Fansett, G. R., 1.

Common minerals: Fansett, G. R., 2.

Fire clays, Mo.: Bradley, R. S., 1; McQueen, H. S., 2.

Flagellates, micropaleontology and oil explor.: Croneis, C. G., 1.

Flint, Patapsco State Park, Md.: Mather, L. B., Jr., 1.

Floods, Arroyo Seco, Calif.: Krumbein, W. C., 2.

Floor of the ocean: Daly, R. A., 1.

## Florida.

Geological evolution: Mummey, G. P., 1.

Structure and gravity: Campbell, R. B., 1.

## Areas described.

Holmes Co.: Vernon, R. O., 1.

Washington Co.: Vernon, R. O., 1.

## Economic geology.

Exploration for oil: Carroll, D. L., 3.

Holmes Co.: Vernon, R. O., 1.

Limestones, dolomitic: Hopkins, R. H., 1.

Mineral res.: Vernon, R. O., 3.

Phosphate res.: Mansfield, G. R., 2.

Washington Co.: Vernon, R. O., 1.

## Historical geology.

Everglades: Parker, G. G., 1.

General: Vernon, R. O., 3.

Holmes Co.: Vernon, R. O., 1.

Solution in Pen. Fla.: Stubbs, S. A., 1.

Southern Fla.: Davis, J. H., Jr., 1.

Structure and gravity: Campbell, R. B., 1.

Washington Co.: Vernon, R. O., 1.

Wells, study of: Cole, W. S., 1.

## Mineralogy.

Heavy minerals in beach sands: Phelps, W. B., 1.

Mineral res.: Vernon, R. O., 3.

## Paleontology.

Aves, Tert.: Wetmore, 3.

Diatomite: Vernon, R. O., 3.

Foraminifera, Eocene, in borings: Douville, H., 1.

Holmes Co.: Vernon, R. O., 1.

Ice-age animals: Colbert, E. H., 4.

Mammalia, Miocene: White, T. E., 1.

Florida—Continued.

*Paleontology*—Continued.

- Man, Pleist.: Cooke, C. W., 5.
- Washington Co.: Vernon, R. O., 1.
- Wells, studies of: Cole, W. S., 1.

*Petrology.*

- Limestones, dolomitic: Hopkins, R. H., 1.

*Physical geology.*

- Earthquakes, history of: Campbell, R. B., 1.
- General: Vernon, R. O., 3.
- Solution in Pen. Fla.: Stubbs, S. A., 1.
- Structure and gravity: Campbell, R. B., 1.

*Physiographic geology.*

- Dunes, beaches, barrier, islands: Kurz, H., 1.
- General: Vernon, R. O., 3.
- Holmes Co.: Vernon, R. O., 1.
- Ice-age: Colbert, E. H., 4.
- Ocean currents, Pleist.: Dickerson, R. E., 1.
- Solution in Pen. Fla.: Stubbs, S. A., 1.
- Southern Fla., natural features: Davis, J. H., Jr., 1.
- Valley lakes, tributary, W. Fla.: Vernon, R. O., 2.
- Washington Co.: Vernon, R. O., 1.

*Underground water.*

- Everglades: Parker, G. G., 1.
- Ground water: Vernon, R. O., 3.
- Solution in Pen. Fla.: Stubbs, S. A., 1.
- Southern Fla., natural features: Davis, J. H., Jr., 1.

Fluorescence.

- Diamonds: Orr, J. M., 1.
- General: Golson, G. A., 1.
- Glossary of: De Ment, J. A., 3.
- Scheelite: Greenwood, R., 1.
- 3d law: De Ment, J. A., 4.
- Topaz: De Ment, J. A., 2.
- Zircon: De Ment, J. A., 1.

- Fluoride, Ala, Cret. area ground water: Carls-ton, C. W., 2.

Fluorite.

- Colorado, Jamestown area: Bray, J. M., 3.
- Idaho, Meyers Cove area: Anderson, A. L., 1.
- New Hampshire, Cheshire Co.: Banner-man, H. M., 2.
- New Mexico, Sierra Cuchillo: Jahns, R. H., 4.
- New York, Lockport dolomite: Jensen, D. E., 1.
- Texas, Eagle Mts.: Evans, G. L., 5.
- Spring Creek area: Barnes, V. E., 6.

- Fluorographic analysis of soil for oil: Short, E. H., Jr., 1.

Fluorspar.

- Idaho, Meyers Cove area: Anderson, A. L., 6.
- Illinois: Bastin, E. S., 1.
- Mexico: García, J. A., 1.

Fluorspar—Continued.

- Newfoundland, St. Lawrence dist.: Van Alstine, R. E., 1.
- War minerals: Snelgrove, A. K., 1.
- Ontario, Haliburton area: Satterly, J., 4.
- Texas, Eagle Mts.: Evans, G. L., 5.
- United States: Williams, J. S., 2.

Folding.

- Alaska, Eagle-Circle dist.: Mertie, J. B., Jr., 1.
- Matanuska Valley: Martin, P. F., 1.
- Nutzotin Mts. area: Moffit, F. H., 2.
- Portage Pass area: Barnes, F. F., 1.
- Stampede Creek area: White, D. E., 1.
- Alberta: Farmilo, A. W., 1.
- Foothills area: Hage, C. O., 1; Hake, B. F., 1.
- Marble Mtn. area: Beach, H. H., 1.
- Moose Mtn. area: MacNeil, D. J., 1.
- Moose Mtn.-Morley area: Beach, H. H., 3.
- Pekisko area: Hume, G. S., 3.
- Appalachians: Lammers, E. C. H., 2.
- Arizona, Tombstone dist.: Butler, B. S., 1.
- Uinkaret volcanic field: Koons, E. D., 2.
- Arkansas, Alexander quad.: Strahler, A. N., 1.
- Pike Co.: Gallagher, D., 1.
- Quicksilver deposits: Reed, J. C., 6.
- British Columbia, Barkerville gold belt: Hanson, G., 2.
- Eldorado prospect: Brennan, C. V., 1.
- Emerald property: Hedley, M. S., 1.
- Pinchi Lake mercury belt: Armstrong, J. E., 2, 3.
- Sheep Creek gold-quartz veins: Walker, J. F., 1.
- California, Belridge oil field: Wharton, J. B., Jr., 1.
- Bradley-San Miguel dist.: Taliaferro, 4.
- Cantua-Vallecitos area: Atwill, E. R., 2.
- Cargo Muchacho Mts.: Henshaw, P. C., 2.
- Chino oil field: Krueger, M. L., 1.
- Coalinga oil field: Chambers, L. S., 1.
- Coast Range, late Pleist.: Bailey, T. L., 1.
- Crocker Flat landslide area: Simonson, R. R., 1.
- Death Valley area: Stose, G. W., 2.
- Del Valle oil field: Tabet, L. A., 1.
- East Coalinga Extension field: Kaplow, E. J., 1.
- Edison oil field: Edwards, E. C., 4.
- Fairfield Knolls gas field: Kirby, J. M., 2.
- Fruitvale oil field: Miller, R. H., 1.
- Greeley oil field: Winham, W. P., 1.
- Halfmoon Bay dist.: Crandall, R. R., 1.
- Kettleman Hills oil field: Oil and Gas, Jour., 1.
- La Goleta gas field: Swayze, R. O., 1.
- Lawndale oil field: Reese, R. G., 2.
- Los Angeles City oil field: Soper, E. K., 1.
- Montebello oil field: Stolz, H. P., 3.

## Folding—Continued.

## California—Continued.

- Morgan Hill area: Gilbert, C. M., 1.  
 Mount Diablo region: Cross, C. M., 1.  
 Newhall oil field: Kew, W. S. W., 1.  
 Northwest Wilmington oil field: Cabeen, W. R., 1.  
 Point Arena-Fort Rose area: Weaver, C. E., 2.  
 Republic area, Midway-Sunset oil field: Young, U., 1.  
 Salt Lake oil field: Soper, E. K., 2.  
 Santa Ana Mts.: Popenoe, W. P., 3.  
 Santa Maria Valley oil field: Canfield, C. R., 1.  
 Semitropic gas field: Valentine, W. W., 1.  
 Sierra Nevada, manganese deposits: Taliaferro, 6.  
 Northeast of Visalia: Durrell, C., 2.  
 Sites area: Kirby, J. M., 4.  
 Torrance oil field: Cabeen, W. R., 1; Davis, E. L., 1.  
 Ventura region: Putnam, W. C., 1; Thoms, C. C., 1.  
 West Montebello field: Stolz, H. P., 1.  
 Williams, Twenty-five Hills areas, Midway-Sunset field: Hillis, D. L., 1.  
 Canada, Canadian Shield structures: Jolliffe, A. W., 1.  
 Oil and gas fields: Hume, G. S., 2.  
 Sydney coal field: Gray, F. W., 1.  
 Central America, NW.: Mullerried, 5.  
 Colorado, Greasewood field: Lavington, C. S., 1.  
 Leadville dist.: Loughlin, G. F., 1.  
 Cuba, geology and oil prosp.: Palmer, R. H., 1.  
 Georgia, gold deposits: Park, C. F., Jr., 3.  
 Idaho, Bannock Range: Ludlum, J. C., 2.  
 Blackbird dist.: Anderson, A. L., 4.  
 Murray dist.: Shenon, P. J., 2.  
 Ore control by rock structure: McKinstry, H. E., 2.  
 Salmon copper area: Anderson, A. L., 5.  
 Illinois, Fox River area: Willman, H. B., 2.  
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 Iron ranges, Lake Superior dist.: Royce, S., 1.  
 Kansas, Forest City Basin: Lee, W., 2.  
 Hamilton, Kearny Cos.: McLaughlin, T. G., 2.  
 Laramie River Valley, Colo.-Wyo.: Beckwith, R. H., 1.  
 Maine, Aroostook Co.: White, W. S., 1.  
 Manitoba, Gunnar mine: Lord, C. S., 1.  
 McVeigh Lake area: Bateman, J. D., 1.  
 Sherritt-Gordon mine: Derry, D. R., 1.  
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 Mexico, Cortis Canyon area: Humphrey, W. E., 1.  
 El Alamo mine, Baja Calif.: Antúñez Echegaray, F., 2.

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 Northern Mex.: Kellum, L. B., 1; King, P. B., 1.  
 Río Nazas valley, Coahuila: Waitz, P., 2.  
 Sierra Madre Oriental: Heim, A., 1.  
 Structural features, ore deposits: Schmitt, H. A., 1.  
 Minnesota, Thomson fm.: Schwartz, G. M., 1, 3.  
 Missouri, Cass and Jackson Cos., oil and gas res.: Clair, J. R., 1.  
 Fire clay dists.: McQueen, H. S., 2.  
 Montana, Chief Mtn., origin: Vokes, H. E., 7.  
 Dillon complex: Sinkler, H., 1.  
 Libby quad.: Gibson, R., 1.  
 Sawtooth Range: Deiss, C. F., 2.  
 Saypo quad.: Deiss, C. F., 1.  
 Sheep Creek dist.: McGuire, R. A., 1.  
 Three Forks area: Berry, G. W., 1.  
 Nevada, Nevada dist.: Roberts, R. J., 1.  
 Roberts Mts.: Merriam, C. W., 2.  
 Robinson mining dist.: Pennebaker, E. N., 1.  
 Rose Creek tungsten mine: Roberts, R. J., 2.  
 New Brunswick: Alcock, F. J., 3.  
 Newfoundland, Fleur-de-Lys area: Fuller, J. O., 1.  
 Port au Port Pen., colloform sulphide veins: Watson, K. D., 1.  
 New Hampshire, Cardigan-Rumney area: Fowler-Billings, K. S., 2.  
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 Ossipee Mts. area: Billings, M. P., 2.  
 Winnepesaukee quad.: Quinn, A. W., 1.  
 New Mexico, Cimarron Range: Smith, G. F., 2.  
 Magdalena mining dist.: Loughlin, G. F., 2.  
 New York, Adirondack magnetite: Alling, H. L., 1.  
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 Wellsville quad.: Woodruff, J. G., 1.  
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 Pegmatites: Kesler, T. L., 3.  
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 North Dakota, Dakota Basin: Hennen, R. V., 1.  
 Northwest Territories, Gordon to Great Slave Lakes: Henderson, J. F., 1.  
 Snare River-Ingray Lake area: Lord, C. S., 2.

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 Cap d'Or area: Douglas, G. V., 7.  
 New Ross area: Douglas, G. V., 5.  
 Pembroke area: Campbell, C. O., 1.  
 Ohio, Berea ss., Bedford sh., flow structures: Cooper, J. R., 1.  
 Oklahoma, Osage Co.: Bass, N. W., 2.  
 St. Clair ls. near Marble City: Ham, W. E., 3.  
 Ontario, Big Duck-Aguasabon Lakes area: Bartley, M. W., 1.  
 Caribou-Pikitungushi area: Gussow, W. C., 1.  
 Cuniptau nickel mine: Sandefur, B. T., 1.  
 Dryden-Wabigoon area: Satterly, J., 3.  
 Eagle Lake area: Moorhouse, W. W., 1.  
 Goldrock area: Thomson, Jas. E., 1.  
 Hutchison Lake area: Macdonald, R. D., 3.  
 Josephine mine area: Brown, E. L., 1.  
 Kenogamisis River area: Macdonald, R. D., 2.  
 McGarry, McVittie, Tps.: Thomson, Jas. E., 3.  
 Matachewan Consol. mine: Hopper, C. H., 1.  
 North Hastings area: Thomson, Jas. E., 1.  
 Mishibishu Lake area: Evans, J. E. L., 3.  
 Porcupine gold dist.: Hurst, M. E., 1.  
 Steep Rock Lake: Roberts, H. M., 1.  
 Thunder Bay dist.: Bruce, E. L., 4.  
 Timagami area: Moorhouse, W. W., 2.  
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 Oregon, central, Late Paleozoic fms.: Merriam, C. W., 3.  
 North-central: Hodge, R. T., 1.  
 Pacific Northwest, U. S.: Smith, W. D., 1.  
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 Quebec, Barby Lake area: Milner, R. L., 1.  
 Brock River area: Kindle, E. D., 1.  
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 Canadian Malartic mine: Derry, D. R., 3.  
 Eustis mine area: Douglas, G. V., 1.  
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 Gaspé Pen.: Alcock, F. A., 2; Jones, I. W., 1.  
 Matapédia Lake area: Aubert de la Rue, E., 1.  
 Olga-Mattagami area: Auger, P. E., 1.  
 Rouyn-Harricawaw belt: Hawley, J. E., 3.

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 West, Keewatin volcanics: Wilson, M. E., 2.  
 South Dakota, Black Hills pre-Camb. domes: Runner, J. J., 1.  
 Lead area: Dodge, T. A., 1.  
 Structural geology: Billings, M. P., 1.  
 Tennessee, anticline, Watts Bar Dam: Fox, P. P., 1.  
 Rome, Rutledge fms., Watts Bar Dam: Fox, P. P., 3.  
 Texas, Cross Cut-Blake dist.: Klinger, E. D., 1.  
 Hull-silk oil field: Thompson, E. I., 1.  
 Jackson Co. fields: Hornberger, J., Jr., 1.  
 Quitman Mts.: Huffington, R. M., 1.  
 Santiago Peak quad.: Eifler, G. K., Jr., 1.  
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 Shafter mining dist.: Ross, C. P., 7.  
 Texas-New Mexico, South Perm. Basin: King, R. E., 2.  
 Tri-State geology, Kans.-Okla.-Mo.: Fowler, G. M., 2.  
 United States, Basin and Range prov.: Nolan, T. B., 1.  
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 Rocky Mtn. prov.: Forrester, J. D., 1.  
 Utah, Ashbrook silver dist.: Peterson, V. E., 1.  
 Cedar Hills: Schoff, S. L., 2.  
 Cottonwood-American Fork area: Calkins, F. C., 2.  
 Virginia, Appalachian geosyncline: Lammers, E. C. H., 1.  
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 Clarke Co.: Butts, C., 3.  
 Elkton area: King, P. B., 3.  
 Frederick Co.: Butts, C., 3.  
 Lyndhurst-Vesuvius dist.: Knechtel, M. M., 2.  
 Walker Mtn., S. end: Butts, C., 2.  
 Washington, Olympic Pen.: Park, C. F., Jr., 1.  
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 Tucannon River area: Hunting, M. T., 2.  
 West Virginia: Woodward, H. P., 1.  
 Limestone structures: Price, P. H., 3.  
 Manganese and iron areas: Reeves, F., 1.  
 Wyoming, Cache Creek area, Gros Ventre Mts.: Nelson, V. E., 1.  
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 Late Paleozoic, in SE.: Knight, S. H., 3.

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X-ray studies, foliated rocks: Fairbairn, H. W., 4.

Yukon, Wolf Creek area, St. Elias Range: Sharp, R. P., 7.

Footprints, Chugwater fm., Wyo.: Lull, R. S., 1.

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Antillesina Galloway & Heminway synonym of *Croboepullenia* Thalmann: Thalmann, H. E., 9.

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Pitkin ls.: Easton, W. H., 1.

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Kreyenhagen sh., Garza Creek: Cushman, J. A., 3.

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San Diego Co.: Hertlein, L. G., 1.

Santa Maria dist.: Woodring, 2.

Tertiary: Rothwell, W. T., Jr., 1.

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Central America, NW.: Mullerried, 5.

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   Tertiary: Olsson, A. A., 1.  
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   Fossil replacements, Finlay Mts.: Ham, W. O., Jr., 1.  
   Miocene: Garrett, J. P., Jr., 1.  
   Origin, Dockum congloms.: Roth, R. I., 3.  
   Permian Basin: Roth, R. I., 2.  
   Oklahoma, Cret.: Tappan, H. N., 1.  
   Shafter mining dist.: Ross, C. P., 7.  
   Yegua fm. type locality: Cushman, 2.  
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Paleozoics, NW.: Miss. G. Soc., 1.

Alaska, Nutzotin Mts. area: Moffit, F. H., 2.

Alberta: Allan, J. A., 1; Farmilo, A. W., 1.

East-central: Hume, G. S., 1.

Foothills area: Hage, C. O., 1; Hake, B. F., 1.

Marble Mtn. area: Beach, H. H., 1.

Moose Mtn. area: MacNeil, D. J., 1.

Moose Mtn.-Morley area: Beach, H. H., 3.

American Pennsylvanian: Newell, N. D., 2.

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## Geologic formations—Continued.

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- East Coyote Hills oil field: Dudley, P. H., 1.  
 Edison oil field: Kasline, F. E., 1.  
 Eocene, Santa Ynez Mts.: Kelley, F. R., 1.  
 Greeley oil field: Updike, F. H., 1.  
 Humboldt Co.: MacGinitie, H. D., 1.  
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 Kettleman Hills oil field: Galloway, J., 1.  
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 Point Arena-Fort Ross area: Weaver, C. E., 2.  
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 Rincon oil field: Stewart, R. E., 1.  
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 Santa Maria dist.: Woodring, 2.  
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 Santa Maria Valley oil field: Canfield, C. R., 1.  
 Scenery: Willard, D. E., 1.  
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 Soledad quad.: Schombel, L. F., 1.  
 Southern: Popenoe, W. P., 1.  
 Tejon fm., type locality: Marks, J. G., 1.  
 Torrance field: Davis, E. L., 1.  
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 Central America: Weaver, C. E., 1.  
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- Georgia, Coastal Plain: Cooke, C. W., 5.  
 Sand-Lookout Mtn. area: Sullivan, J. W., 2.  
 Hawaii, Maui Is.: Stearns, H. T., 3.  
 Idaho, Bannock Range: Ludlum, J. C., 2.  
 Thaynes fm., Bear Lake Valley: Kummel, B., Jr., 2.  
 Illinois, Fox River area: Willman, H. B., 4.  
 Marseilles, Ottawa, Streator quads.: Willman, H. B., 2.  
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 Outlines of geology: Keyes, 25.  
 Southern: Bell, A. H., 6.  
 Wildcat drilling since 1936: Carter, C. W., 1.  
 Indiana, Devonian: Dawson, T. A., 1.  
 Indianapolis area: McGuinness, C. L., 1.  
 Middle Dev.: Campbell, G., 1.  
 St. Louis and Ste. Genevieve lss.: McGrain, P., 2.  
 Kansas, Ellis, Russell Cos. oil fields: Frye, J. C., 5.  
 Ford Co.: Waite, H. A., 1.  
 Geology: Keyes, C. R., 5.  
 Hamilton, Kearny Cos.: McLaughlin, T. G., 3.  
 Meade Co.: Frye, J. C., 4.  
 Morton Co.: McLaughlin, T. G., 1.  
 Patterson pool: Hubley, M. D., 1.  
 Peace Creek oil field: Kornfield, J. A., 1.  
 Kansas-Oklahoma, Hugoton field: Garlough, J. L., 1.  
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 Laramie River Valley, Colo.-Wyo.: Beckwith, R. H., 1.  
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 Louisiana, Anse la Butte dome: Bates, F. W., 1.  
 Vernon Parish: Welch, R. N., 1.  
 Maine, Aroostook Co.: White, W. S., 1.  
 Manitoba, McVeigh Lake area: Bateman, J. D., 1.  
 Massachusetts, Conn. Valley: Jahns, R. H., 1.  
 Mexico, Mesozoic: Mullerried, 4.  
 Orogenesis and relief: Robles Ramos, R., 1.  
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 Thomson fm.: Schwartz, G. M., 3.  
 Mississippi, Adams Co.: Vestal, F. E., 2.  
 Camp Van Dorn area: Brown, G. F., 2.  
 Choctaw Co.: Vestal, F. E., 2.  
 Clay Co.: Bergquist, H. R., 2.  
 Montgomery Co.: Priddy, R. R., 2.  
 Pontotoc Co.: Priddy, R. R., 3.  
 Scott Co.: Bergquist, H. R., 1.  
 Union Co.: Conant, L. C., 1.

Geologic formations—Continued.

Missouri, Cass and Jackson Cos., oil and gas res.: Clair, J. R., 1.  
 Fortune fm.: Grohskopf, J. F., 1.  
 Northwestern: Greene, F. C., 2.  
 Ordovician glades: Erickson, R. O., 1.  
 Stoddard Co.: Stewart, D. R., 1.  
 Montana, Big Snowy Mts.: Sloss, L. L., 2.  
 Sawtooth Range: Deiss, C. F., 2.  
 Saypo quad.: Deiss, C. F., 1.  
 Three Forks area: Berry, G. W., 1.  
 Nevada, Roberts Mts.: Merriam, C. W., 2.  
 Three Kids dist.: Hunt, C. B., 1.  
 New Brunswick: Alcock, F. J., 3.  
 New Hampshire, Cardigan-Rumney area: Fowler-Billings, K. S., 2.  
 New Mexico, Carlsbad area: Lang, W. T. B., 1.  
 Magdalena mining dist.: Loughlin, G. F., 2.  
 Pennsylvanian: Thompson, M. L., 2.  
 San Andrés ls.: Keyes, 6.  
 New York, Lake George area: Newland, D. H., 1.  
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 Oil and gas fields: Hartnagel, C. A., 1.  
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 North America, Lake Ontario homocline: Kay, G. M., 2.  
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 Dakota Basin: Hennen, R. V., 1.  
 Morton Co.: Laird, W. M., 2.  
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 Northwest Territories, Snare River-Ingray Lake area: Lord, C. S., 2.  
 Nova Scotia, New Campbellton area: Douglas, G. V., 3.  
 Ohio, Mississippian: Holden, F. T., 1, 2.  
 Oil and gas fields: Cottingham, K., 1.  
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 Oklahoma, Arbuckle fm.: Decker, C. E., 1.  
 Cimarron Co., Mesozoic: Stovall, J. W., 1.  
 Ground water: Dott, R. H., 1.  
 St. Clair ls. near Marble City: Ham, W. E., 3.  
 Ontario, Big Duck-Aguasabon Lakes area: Bartley, M. W., 1.  
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 Eagle Lake area: Moorhouse, W. W., 1.  
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 Gorham Tp.: Macdonald, R. D., 1.  
 Goudreau-Lochalsh area: Bruce, E. L., 3.  
 Haliburton area: Satterly, J., 4.

Geologic formations—Continued.

Ontario—Continued.  
 Hutchison Lake area: Macdonald, R. D., 3.  
 Kenogamisis River area: Macdonald, R. D., 2.  
 Langmuir-Sheraton area: Berry, L. G., 2.  
 Little Long Lac gold area: Armstrong, H. S., 1.  
 London area Paleozoics: Caley, J. F., 1.  
 Mishibishu Lake area: Evans, J. E. L., 3.  
 North Hastings area: Thomson, Jas. E., 4.  
 Ottawa-Bonnechere graben area: Kay, G. M., 2.  
 Red Lake area: Horwood, H. C., 1.  
 Rowlandson Lake area: Prest, V. K., 1.  
 Sedimentary basins: Wilson, A. E., 1.  
 Steep Rock Lake: Roberts, H. M., 1.  
 Sudbury dist.: Cooke, H. C., 3; Fairbairn, H. W., 3.  
 Windigo-North Caribou Lakes: Satterly, J., 2.  
 Wunnummin Lake area: Prest, V. K., 2.  
 Oregon, SE. coast: Twenhofel, 7.  
 Pacific Northwest, U. S.: Freeman, O. W., 1; Smith, W. D., 1.  
 Pennsylvania, central: Kay, G. M., 5.  
 Harrisburg area: Cloos, E., 2.  
 Lehigh Co.: Miller, B. L., 1.  
 Martinsburg fm., Lehigh Co.: Willard, B., 1.  
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 Petroleum source beds: Trask, P. D., 3.  
 Quebec, Barry Lake area: Milner, R. L., 1.  
 Dubuison Tp.: Norman, G. W. H., 1.  
 Eustis mine area: Douglas, G. V., 1.  
 Flavian Lake area: Robinson, W. G., 1.  
 Gaspé Pen.: Alcock, F. J., 2.  
 Halliwell mine area: MacKenzie, G. S., 1.  
 Kitchigama Lake area: Longley, W. W., 2.  
 Lake Wakeham area: Claveau, J., 3.  
 Matapédia Lake area: Aubert de la Rue, E., 1.  
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 Romaine River area: Retty, J. A., 1.  
 South Dakota, Chamberlain area: Gries, J. P., 1.  
 Lead area: Dodge, T. A., 1.  
 Medicine Butte anticline: Petsch, B. C., 1.  
 Pierre sh.: Gries, J. P., 2.  
 Tennessee, central: Wilson, C. W., Jr., 1.  
 Middle, oil and gas: Born, K. E., 2.  
 Texas, Barnhart field: Cole, C. T., 2.  
 Embar field: Cole, C. T., 4.  
 Jackson Co. fields: Hornberger, J., Jr., 1.  
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## Geologic formations—Continued.

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 Wasson field: Schneider, W. T., 1.  
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 United states, east and central: Schuchert, C., 1.  
 Great Basin area: Wheeler, H. E., 1.  
 Lower Miss. River Basin, Sil.: Ball, J. R., 2.  
 Utah, Ashbrook silver dist.: Peterson, V. E., 1.  
 Cottonwood-American Fork area: Calkins, F. C., 2.  
 Uinta Basin: Barb, C. F., 2.  
 Vanadium deposits: Fischer, R. P., 1.  
 Virginia, Early Grove field: Averitt, P., 1.  
 Elkton area: King, P. B., 3.  
 Lyndhurst-Vesuvius dist.: Knechtel, M. M., 2.  
 Tazewell Co.: Cooper, B. N., 1.  
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 Washington, Metaline quad.: Park, C. F., Jr., 4.  
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 Oil and gas fields: Reger, D. B., 2.  
 Rock salt deposits: Martens, J. H. C., 3.  
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- Alaska, Gerstle River dist.: Moffit, F. H., 1.  
 Nabesna area: Wayland, R. G., 2.  
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 Nutzotin Mts. area: Moffit, F. H., 2.  
 Perennially frozen ground: Taber, S., 1.  
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 Bermudas: Moore, H. B., 1.  
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 Imperial carbon dioxide gas field: Rook, S. H., 1.  
 Scenery: Willard, D. E., 1.  
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 California-Oregon Juras.: Taliaferro, J., 1.  
 Coal lands, SE. Kans.: Hall, H. H., 1.  
 Colorado, Greasewood field: Lavington, C. S., 1.

## Geologic history—Continued.

- Costa Rica, Virilla Canyon, Meseta Central: Crosby, I. B., 2.  
 Earth, changing: Allen, J. Stuart, 1.  
 Earth sciences: Swinnerton, A. C., 3.  
 Earth's history: Quirke, T. T., 1.  
 General: Merriam, J. C., 1.  
 Gulf region, N., Cent. Am., Cuba: Imlay, R. W., 5.  
 Illinois, Marseilles, Ottawa quads: Willman, H. B., 2.  
 Outlines of geology: Keyes, 25.  
 Streator quad.: Robinson, L. C., 1; Willman, H. B., 2.  
 Inter-period boundaries: Werner, W. C., 1.  
 Jamaica: Trechmann, C. T., 1.  
 Kansas, Ellis, Russell Cos. oil fields: Frye, J. C., 5.  
 Ford Co.: Waite, H. A., 1.  
 Hamilton, Kearny Cos.: McLaughlin, T. G., 2.  
 Meade Co.: Frye, J. C., 4.  
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 Southeast coal lands: Hall, H. H., 1.  
 Wherry pool: McNeil, H. E., 1.  
 Kentucky: McFarlan, A. C., 2.  
 Big Sinking field: Freeman, L. B., 1.  
 Maryland, Pataposc State Park: Mather, L. B., Jr., 1.  
 Massachusetts, Conn. River Valley: Bain, G. W., 1.  
 Mexico, Sierra Madre Oriental: Heim, A., 1.  
 Valley of Tixtla: Mullerried, 9.  
 Mississippi, Adams Co.: Vestal, F. E., 1.  
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 Newfoundland, Fleur-de-Lys area: Fuller, J. O., 1.  
 New Hampshire, Mt. Cube area: Hadley, J. B., 2.  
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 New York, Lake George area: Newland, D. H., 1.  
 Wellsville quad.: Woodruff, J. G., 1.  
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 Oklahoma, Dora pool: Ingham, W. I., 1.  
 Ontario, Ottawa-Bonnechere graben area: Kay, G. M., 2.  
 Oregon, north-central: Hodge, E. T., 1.  
 Portland area: Treasher, R. C., 2.  
 Oregon-California, Juras.: Taliaferro, J., 1.  
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 Permian, west Tex.-N. Mex.: King, P. B., 2.  
 South Dakota, White River Valley: Rothrock, E. P., 2.  
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## Geologic history—Continued

- Texas, Bowers field: Brown, A. B., 1.  
 Fort Worth-Midland area: Scott, G., 1.  
 Payton pool: Gile, R. E., 1.  
 Quitman Mts.: Huffington, R. M., 1.  
 United States, Rocky Mtn. oil and gas fields: Dobbin, C. E., 2.  
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 Alabama, Birmingham area: Poor, R. S., 1.  
   Paleozoics: Miss. G. Soc., 1.  
   Selma, Ripley deposits: Monroe, W. H., 1.  
 Alaska, Admiralty Is.: Reed, J. C., 4.  
   Baranof Is.: Guild, P. W., 2; Reed, J. C., 3.  
   Bohemia Basin, Yakobi Is.: Reed, J. C., 2.  
   Chicagof Is.: Pecora, W. T., 2; Reed, J. C., 2.  
   Eagle-Circle dist.: Mertie, J. B., Jr., 1.  
   Gerstle River dist.: Moffit, F. H., 1.  
   Kenai Pen.: Guild, P. W., 1.  
   Kennecott deposits: Bateman, A. M., 2.  
   Nabesna area: Wayland, R. G., 2.  
   Nutzotin Mts. area: Moffit, F. H., 2.  
   Portage Pass area: Barnes, F. F., 1.  
   Seward Pen.: Alaska Plann. Coun., 1.  
   Stampede Creek area: White, D. E., 1.  
 Alberta: Allan, J. A., 1.  
   Bassano area: Stewart, J. S., 1.  
   Bragg Creek area: Canada G. S., 1.  
   Brooks area: Canada G. S., 1.  
   East central: Hume, G. S., 1.  
   Foothills: Hage, C. O., 1; Hake, B. F., 1.  
   Glaciation: Rutherford, R. L., 1.  
   Innisfree area: Canada G. S., 1.  
   Jumpingpound area: Canada G. S., 1.  
   Keewatin end moraines: Bretz, J. H., 2.  
   Kityscoty area: Canada G. S., 1.  
   Marble Mtn. area: Beach, H. H., 1.  
   Moose Mtn. area: MacNeil, D. J., 1.  
   Moose Mtn.-Morley area: Beach, H. H., 2.  
   Pekisko area: Hume, G. S., 3.  
   Redcliff area: Canada G. S., 1.  
 Arizona, Ajo copper dist.: Gilluly, J., 1.  
   Bisbee dist.: Rove, O. N., 1.  
   Hopi Buttes area: Hack, J. T., 2.  
   Slate Mtn.: Mintz, Y., 1.  
   Uinkaret volcanic field: Koons, E. D., 2.  
 Arkansas: Branner, G. C., 4.  
   Cotton Valley fm.: Thigpen, C. H., 1.  
   Magnolia oil field: Carpenter, C. B., 1.  
   Montgomery Co.: Arkansas G. S., 1.  
   Oil and gas fields: Anderson, R. J., 1.  
   Pike Co.: Gallagher, D., 1; Herold, P. G., 1.

## Geologic maps—Continued.

- Black River fms., N. Y., Ontario: Young, F. P., Jr., 1.  
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   Brown Hill: McLearn, F. H., 1.  
   Manson Creek area: Lang, A. H., 1.  
   Pinchi Lake mercury belt: Armstrong, J. E., 2, 3.  
   Princeton area: Rice, H. M. A., 1.  
   Takla area: Armstrong, J. E., 1.  
   Tungsten deposits: Stevenson, J. S., 3.  
   Vancouver Is.: Joubin, F. R., 1.  
 California, Arroyo Grande (Edna) oil field: Krueger, M. L., 2.  
   Berryessa Valley: Anderson, F. M., 1.  
   Bradley-San Miguel dist.: Taliaferro, 4.  
   Caliente Range area: Eaton, J. E., 1.  
   Cargo Muchacho Mts.: Henshaw, P. C., 2.  
   Charleston School quad.: Schenck, H. G., 4.  
   Confidence dist.: Little, J. M., 1.  
   Coso Mts. Hot Springs: Fraser, H. J., 2.  
   Coso quicksilver dist.: Ross, C. P., 6.  
   Cretaceous of Calif.: Jenkins, O. P., 3.  
   Crocker Flat landslide area: Simonson, R. R., 1.  
   Darwin Hills tungsten area: Wilson, L. K., 1.  
   Del Puerto area: Hawkes, H. E., Jr., 1.  
   Devils Den oil field: Van Couvering, M., 1.  
   East Cat Canyon oil field: Cross, R. K., 1.  
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   East San Gabriel Mts.: Alf, R. M., 1.  
   Economic mineral maps: Jenkins, O. P., 1.  
   Eocene, Santa Ynez Mts.: Kelley, F. R., 1.  
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   Gato Ridge area, Cat Canyon oil field: Cross, R. K., 2.  
   Ghost Canyon tungsten deposits: Little, J. M., 3.  
   Huasna oil area: Taliaferro, N. L., 2.  
   Humboldt Co.: McGinitie, H. D., 1.  
   Los Angeles City oil field: Soper, E. K., 1.  
   Martinez Creek area: Curran, J. F., 1.  
   Miocene, Round Mtn. silt: Keen, A. M., 1.  
   Morgan Hill area: Gilbert, C. M., 1.  
   Mother Lode, Eldorado, Amador Cos.: Whitehead, W. L., 1.  
   Mount Diablo area: Clark, B. L., 2.  
   New oil fields and reserves: Kribbas, G. R., 3.  
   Park dist.: Bailey, E. H., 2.  
   Paskenta region: Rist, R. L., 1.  
   Paymaster dist.: Hadley, J. B., 1.  
   Petaluma area: Johnson, F. A., 1.

## Geologic maps—Continued.

## California—Continued.

- Point Arena-Fort Ross area: Weaver, C. E., 2.  
 Potrero Hills gas field: Tolman, F. B., 1.  
 Riverside Co.: Webb, R. W., 1.  
 Rumsey Hills area: Kirby, J. M., 3.  
 San Benito quad.: Wilson, I. F., 1.  
 San Diego Co.: Hertlein, L. G., 1.  
 Santa Ana Mts.: Popenoe, W. P., 3.  
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 Scenery: Willard, D. E., 1.  
 Sespe oil field: Clements, T., 1.  
 Sierra Nevada near Bishop: Lemmon, D. M., 1.  
 Sierra Nevada NE. of Visalia: Durrell, C., 2.  
 Simi oil field: Stipp, T. F., 1.  
 Soledad quad.: Schombel, L. F., 1.  
 South Mtn. oil field: Snedden, L. B., 1.  
 Southern: Popenoe, W. P., 1.  
 Stayton dist.: Bailey, E. H., 1.  
 Tungsten area NE. of Visalia: Jenkins, W. C., 1.  
 Twin Lakes area: Chesterman, C. W., 1.  
 Vaqueros fm. type locality: Thorup, R. R., 1.  
 Ventura region: Putnam, W. C., 1.  
 Welsh tungsten deposits: Little, J. M., 2.  
 Canada, Laurentian area: Mauffette, P., 1.  
 Maritime provinces: Stewart, J. S., 2.  
 National Parks, Rockies and Selkirks: MacKay, B. R., 1.  
 Oil and gas fields: Hume, G. S., 2.  
 Reconnaissance mapping: Hume, G. S., 2.  
 Sydney coal field: Gray, F. W., 1.  
 Canadian Shield Archean sedimentation: Pettijohn, F. J., 1.  
 Carolina tin-spodumene belt: Kesler, T. L., 2.  
 Colorado, Alma dist.: Singewald, Q. D., 1.  
 Arkansas River gorge: Kessler, F. C., 1.  
 Aspen dist.: Vanderwilt, J. W., 2.  
 Beaver-Tarryall area, Park Co.: Singewald, Q. D., 2.  
 Denver Basin: Brown, R. W., 4.  
 Front Range: Bray, J. M., 2.  
 Front Range mineral belt: Lovering, T. S., 2.  
 Gold Hill area: Goddard, E. N., 1.  
 Gore area: Brill, K. G., Jr., 1.  
 Iron Hill alkalic rocks: Larsen, E. S., 1.  
 Jamestown dist.: Bray, J. M., 1, 3.  
 Vanadium deposits: Fischer, R. P., 1.  
 Connecticut, nickel sulphides, Mt. Prospect: Cameron, E. N., 1.  
 Cuba: Thayer, T. P., 1.  
 Florida area, Camaguey: Broderman, J., 5.  
 Geology and oil prosp.: Palmer, R. H., 1.  
 Pinar del Rio Prov.: Vermunt, L. W. J., 1.  
 Vento Valley: Brodermann, J., 1.

## Geologic maps—Continued.

- Florida, Everglades: Parker, G. G., 1.  
 Holmes Co.: Vernon, R. O., 1.  
 Southern, natural features: Davis, J. H., Jr., 1.  
 Washington Co.: Vernon, R. O., 1.  
 Galisteo-Tonogue area, N. Mex.: Stearns, C. E., 2.  
 Georgia, Coastal Plain: Cooke, C. W., 5.  
 Gold deposits: Park, C. F., Jr., 3.  
 Georgia-North Carolina olivine deposits: Hunter, C. E., 1.  
 Greenland, Traill Is.: Schaub, H. P., 1.  
 Hawaii, Maui Is.: Stearns, H. T., 3.  
 History of devel.: Ireland, H. A., 2.  
 Idaho, Asotin Stage, Snake River Canyon: Lupton, R. L., 1.  
 Bannock Range: Ludlum, J. O., 2.  
 Latah Co.: Forrester, J. D., 4, 5.  
 Meyers Cover area: Anderson, A. L., 6.  
 Pocatello area: Ludlum, J. C., 1.  
 Rocky Bar dist.: Anderson, A. L., 7.  
 Illinois, agricultural lss.: Lamar, J. E., 2.  
 Chicago area: Bretz, J. H., 3.  
 Fluorspar deposits: Bastin, E. S., 1.  
 Fox River area: Willman, H. B., 4.  
 High-purity dolomites: Willman, H. B., 3.  
 Marseilles, Ottawa, Streator quads.: Willman, H. B., 2.  
 Southern: Krause, A., 1.  
 Indiana, geology and highway eng.: Woods, K. B., 1.  
 Indianapolis area: McGuinness, C. L., 1.  
 Jamaica Guy's Hill road sec.: Matley, C. A., 1.  
 Kansas, Ford Co.: Waite, H. A., 1.  
 Forest City Basin: Lee, W., 2.  
 Geology: Keyes, C. R., 5.  
 Hamilton, Kearny Cos.: McLaughlin, T. G., 2.  
 Meade Co.: Frye, J. C., 4.  
 Morton Co.: McLaughlin, T. G., 1.  
 Oil and gas fields: Moore, R. C., 7.  
 Peace Creek oil field: Kornfeld, J. A., 1.  
 Kentucky: McFarlan, A. C., 2.  
 Labrador, Nain area: Wheeler, E. P., 2d, 1.  
 Laramie River Valley, Colo.-Wyo.: Beckwith, R. H., 1.  
 Louisiana, Vernon Parish: Welch, R. N., 1.  
 Maine, Aroostook Co.: White, W. S., 1.  
 Southeast, ore deposits: Li, C.-Y., 1.  
 Vitrophyre dike, Cape Neddick: Haff, J. C., 3.  
 Manitoba, Athapapuskow Lake area: Buckingham, A. F., 1.  
 Beresford Lake area: Stockwell, C. H., 1.  
 Gem Lake area: Stockwell, C. H., 2.  
 Gunnar mine: Lord, C. S., 1.  
 Rice Lake area: Stockwell, C. H., 3.  
 Sheritt-Gordon mine: Derry, D. R., 1.  
 Maryland, Patapsco State Park: Mather, L. B., Jr., 1.  
 Piedmont: Chapman, R. W., 1.

## Geologic maps—Continued.

- Massachusetts, Conn. River Valley: Bain, G. W., 1.  
 Connecticut Valley: Jahns, R. H., 1.  
 Dracut area: Dennen, W. H., 1.  
 Governors Is., Boston Harbor: Lee, F. W., 1.  
 Mexico: Flores, T., 1.  
 Coahuila, E.: Mullerried, 1.  
 Northern, tectonics: King, P. B., 1.  
 Northeastern: Porch, E. L., Jr., 1.  
 Orogenesis and relief: Robles Ramos, R., 1.  
 Pachuca dist.: Wissler, E., 1.  
 San Antonio mine, Chihuahua: Hewitt, W. P., 1.  
 Sierra Madre Oriental: Heim, A., 1.  
 Structural features, ore deposits: Schmitt, H. A., 1.  
 Tin deposits: Foshag, W. F., 1.  
 Valley of Tixtla: Mullerried, 9.  
 Valsequillo canal area: Alvarez Carvaja, M., 1.  
 Michigan, Menominee, Calumet dists., Huronian: Pettijohn, P. J., 3.  
 Menominee range, Dickinson Co.: Dutton, C. E., 1.  
 Wyandotte-Winona and Cherokee areas: Spiroff, K., 1.  
 Minnesota: Emmons, W. H., 2.  
 Dolomitic mottling Platteville ls.: Griffin, R. H., 1.  
 Mississippi, Adams Co.: Vestal, F. E., 1.  
 Camp McCain area: Brown, G. F., 1.  
 Choctaw Co.: Vestal, F. E., 2.  
 Claiborne: Thomas, E. P., 1.  
 Clay Co.: Bergquist, H. R., 2.  
 Montgomery Co.: Priddy, R. R., 2.  
 Pontotoc Co.: Priddy, R. R., 3.  
 Scott Co.: Bergquist, H. R., 1.  
 Tallahatchie Co.: Priddy, R. R., 1.  
 Union Co.: Conant, L. C., 1.  
 Missouri, Cass and Jackson Cos., oil and gas res.: Clair, J. R., 1.  
 Fire clay dists.: McQueen, H. S., 2.  
 Forest City Basin field: Potter, P. G., 1.  
 Fredericktown area: McQueen, H. S., 1.  
 Joplin dist.: Missouri G. S., 1.  
 Stoddard Co.: Stewart, D. R., 1.  
 Montana, Dillon complex: Sinkler, H., 1.  
 Flathead mine: Shenon, P. J., 1.  
 Jefferson City area: Forrester, J. D., 3.  
 Libby quad.: Gibson, R., 1.  
 Livingston ig. rocks: Parsons, W. H., 1.  
 Quartz Hill dist.: Taylor, A. V., Jr., 1.  
 Rocky Boy stock: Pecora, W. T., 3.  
 Three Forks area: Berry, G. W., 1.  
 Monterrey, Mex., to Laredo, Tex.: S. Tex. G. Soc., 3.  
 Nebraska, geol. sections: Condra, G. E., 1.  
 Nevada, Lander Co.: Fries, C. Jr., 1.  
 Majuba Hill area: Smith, Ward C., 1.  
 Nevada dist.: Roberts, R. J., 1.  
 Nightingale dist.: Smith, W. C., 2.  
 Roberts Mts.: Merriam, C. W., 2.

## Geologic maps—Continued.

- Nevada—Continued.  
 Robinson mining dist.: Pennebaker, E. N., 1.  
 Rose Creek tungsten mine: Roberts, R. J., 2.  
 Wild Horse dist.: Dane, C. H., 1.  
 Ruby Mts., S.: Sharp, R. P., 2.  
 Three Kids dist.: Hunt, C. B., 1.  
 New Brunswick: Alcock, F. J., 3; Rose, B., 1.  
 Lepreau-Musquash area: Wright, W. J., 1.  
 Long Beach, King's Co.: Alcock, F. J., 1.  
 Reserve Brook ore deposits: MacKenzie, G. S., 2.  
 New England-Hudson Valley area: Longwell, 4.  
 Newfoundland, Baie Verte area: Watson, K. D., 1, 2.  
 Fleur-de-Lys area: Fuller, J. O., 1.  
 Port au Port Pen.: Watson, K. D., 3.  
 Southwest: Dorf, E., 3.  
 Western, Carb.: Betz, F., Jr., 2.  
 New Hampshire: Olson, J. C., 1.  
 Cardigan quad.: Fowler-Billings, K. S., 1.  
 Cardigan-Rumney area: Fowler-Billings, K. S., 2.  
 Claremont-Newport area: Chapman, C. A., 1.  
 Franconia mine: Verron, H. J., 1.  
 Mt. Cube area: Hadley, J. B., 2.  
 Ossipee Mts. area: Billings, M. P., 2.  
 Pliny area: Chapman, R. W., 2.  
 Quartz: Meyers, T. R., 1.  
 Winnepesaukee quad.: Quinn, A. W., 1.  
 New Jersey area: Woollard, G. P., 2.  
 Triassic: Shainin, V. E., 1.  
 New Jersey-Pennsylvania soil survey: Wolfe, P. E., 1.  
 New Mexico: Bates, R. L., 1.  
 Central mining dist.: Schmitt, H. A., 1.  
 Cerro Colorado: Wright, H. E., Jr., 1.  
 Cimarron Range: Smith, J. F., Jr., 1.  
 Iron Mts. area: Glass, J. J., 1.  
 Magdalena mining dist.: Loughlin, G. F., 2.  
 Pecos Basin: Morgan, A. M., 1.  
 New York, Cortlandt complex: Shand, S. J., 1.  
 Edwards-Balmat zinc dist.: Brown, J. S., 1.  
 Lake George area: Newland, D. H., 1.  
 Lake Sanford area: Balsley, J. R., Jr., 1.  
 Oil and gas fields: Hartnagel, C. A., 1.  
 Wellsville quad.: Woodruff, J. G., 1.  
 North America. Allegheny synclinorium devel.: Kay, G. M., 3.  
 Chromite deposits: Sampson, E., 1.  
 Glacial anticyclones and continental glaciers: Hobbs, W. H., 3.  
 Great Lakes area: Martin, H. M. M., 1.  
 Lake Ontario homocline: Kay, G. M., 2.

## Geologic maps—Continued.

- North Carolina, barite deposits: Stuckey, J. L., 2.  
 Chromite deposits: Hunter, C. E., 2.  
 North Dakota: Kline, V. H., 1; Speer, P. R., 1.  
 Cannonball fm.: Fox, S. K., Jr., 1.  
 Morton Co.: Laird, W. M., 2.  
 Turtle River State Park: Laird, W. M., 3.  
 Northwest Territories, Great Bear Lake dist.: Kidd, D. F., 1.  
 Gordon to Great Slave Lakes: Henderson, J. F., 1.  
 Snare River-Ingray Lake area: Lord, C. S., 2.  
 Nova Scotia, Pembroke area: Campbell, C. O., 1.  
 Ohio: Stout, W. E., 2.  
 Clark Co.: Harker, D. H., 1.  
 Fostoria quad.: Shaffer, P. R., 1.  
 Mill Creek Valley: Shoecraft, Drury, and McNamee, 1.  
 Mississippian: Holden, F. T., 2.  
 Plant distribution and geology: Cross, A. T., 1.  
 Oklahoma, Burbank, South Burbank oil fields: Bass, N. W., 1.  
 Cimarron Co.: Schoff, S. L., 1; Stovall, J. W., 1.  
 Ground water: Dott, R. H., 1.  
 McAlester coal bed: Dott, R. H., 2.  
 Osage Co.: Bass, N. W., 2.  
 St. Clair ls. near Marble City: Ham, W. E., 3.  
 Ontario, Bancroft intrusives: Chayes, F., 1.  
 Big Duck-Aguasabon Lakes area: Bartley, M. W., 1.  
 Caribou-Pikitiigushi area: Gussow, W. C., 1.  
 Cobalt: Moore, E. S., 1.  
 Dryden-Wabigoon area: Satterly, J., 1, 3.  
 Eagle Lake area: Moorhouse, W. W., 1.  
 Eastern Crow River area: Evans, J. E. L., 1.  
 Eau Clair mica deposits: Lang, A. H., 3.  
 Elgin area: Canada G. S., 1.  
 Fort Hope-Martin Falls area: Prest, V. K., 3.  
 Garnet-Cunningham area: Meen, V. B., 1.  
 Goldrock area: Thomson, Jas. E., 1.  
 Gorham Tp.: Macdonald, R. D., 1.  
 Goudreau-Lochalsh area: Bruce, E. L., 3.  
 Haliburton area: Satterly, J., 4.  
 Huron area: Canada G. S., 1.  
 Hutchison Lake area: Macdonald, R. D., 3.  
 Josephine mine area: Brown, E. L., 1.  
 Kenogamisis River area: Macdonald, R. D., 2.  
 Langmuir-Sheraton area: Berry, L. G., 2.  
 London area Paleozoics: Caley, J. F., 1.  
 McGarry, McVittie Tps., Larder Lake area: Thomson, Jas. E., 3.  
 Matachewan mine: Derry, D. R., 2; Hopper, C. H., 1.

## Geologic maps—Continued.

## Ontario—Continued.

- Mishibishu Lake area: Evans, J. E. L., 3.  
 North Hastings area: Thomson, Jas. E., 4.  
 Ottawa-Bonnechere graben area: Kay, G. M., 2.  
 Porcupine gold dist.: Hurst, M. E., 1.  
 Rennie, Stover, Lesson, Brackin Tps.: Bruce, E. L., 5.  
 Rowan Lake: Thomson, Jas. E., 2.  
 Roylandson Lake area: Prest, V. K., 1.  
 Sedimentary basins: Wilson, A. E., 1.  
 Steep Rock Lake: Roberts, H. M., 1.  
 Sudbury dist.: Cooke, H. C., 3; Fairbairn, H. W., 3.  
 Thunder Bay dist.: Bruce, E. L., 4.  
 Timagami area: Moorhouse, W. W., 2, 3.  
 Trans-Canada highway, Longlac-Hearst: Evans, J. E. L., 2.  
 Windigo-North Caribou Lakes: Satterly, J., 2.  
 Wunnummin Lakes area: Prest, V. K., 2.  
 Opalite dist., Oreg.-Nev.: Yates, R. G., 1.  
 Oregon: Treasher, R. C., 1.  
 Central, late Paleozoic fms.: Merriam, C. W., 3.  
 Crater Lake Nat. Park: Williams, H., 1.  
 Josephine Co.: Oreg. Dept. Geol. and Min. Industries, 1.  
 Nickel Mtn. area: Pecora, W. T., 1.  
 North-central: Hodge, E. T., 1.  
 Portland area: Treasher, R. C., 2.  
 Snake-Imnaha Rivers jct. area: Libbey, F. W., 2.  
 Southern coast: Brown, R. E., 1.  
 Steens and Pueblo Mts.: Ross, C. P., 3.  
 Tin, none, at Juniper Ridge: Harrison, H. C., 1.  
 Tyrrell area: Lowry, W. D., 1.  
 Wallowa batholith: Krauskopf, K. B., 1.  
 Willamette Valley: Piper, A. M., 1.  
 Ouachita Mts., Ark.-Okla.: Miser, H. D., 2.  
 Pennsylvania, Brookville quad.: Graeber, C. K., 1.  
 Faults: McLaughlin, D. B., 1.  
 Harrisburg area: Cloos, E., 2.  
 Lehigh Co.: Miller, B. L., 1.  
 Manganese minerals: Foote, R. M., 3.  
 Ordovician clastic sed. rocks: Willard, B., 3.  
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 Quebec, apatite belt, W. Portland Tp.: Moorhouse, W. W., 5.  
 Barry Lake area: Milner, R. L., 1.  
 Brock River area: Kindie, E. D., 1.  
 Cadillac-Malartic dist.: Flaherty, G. F., 1.  
 Cadillac synclinal belt: Norman, G. W. H., 3.  
 Cadillac Tp., gold deposits: Gunning, H. C., 1.  
 Dubuissou Tp.: Norman, G. W. H., 1.  
 Eastman area: Shaw, G., 1.  
 Eustis mine area: Douglas, G. V., 1.



## Geologic maps—Continued.

## Quebec—Continued.

- Federal area, Gaspé: Gill, J. E., 2.  
 Flavrian Lake area: Robinson, W. G., 1.  
 Forget Lake area: Longley, W. W., 1.  
 Gaspé Pen.: Alcock, F. J., 2.  
 Halliwell mine area: MacKenzie, G. S., 1.  
 Keewatin volcanics: Wilson, M. E., 2.  
 Kitchigami Lake area: Longley, W. W., 2.  
 Lake Forgues to Johan Beetz on St. Lawrence: Claveau, J., 1.  
 Lake Wakeham area: Claveau, J., 3.  
 Mansonville area: Ambrose, J. W., 1.  
 Matapédia Lake area: Aubert de la Rue, E., 1.  
 Mishagomish Lake area: Canada G. S., 1.  
 Olga-Mattagami area: Auger, P. E., 1.  
 St. Jean-Beloeil areas: Clark, T. H., 2.  
 Southern: Canada, G. S., 1.  
 Vassan-Dubuisson area: Norman, G. W. H., 2.  
 Research, geol., and co-operation: Bucher, W. H., 2.  
 Rodessa field, Ark.-La.-Tex.: Hill, H. B., 1.  
 San Francisco Mtn., Ariz., multiple glaciation, Pleist.: Sharp, R. P., 4.  
 Saskatchewan, Cypress Lake area: Furnival, G. M., 1.  
 South Carolina, Chesterfield Co.: Fries., C., Jr., 2.  
 South Dakota, Black Hills pre-Camb. domes: Runner, J. J., 1.  
 Custer dist.: Fisher, D. J., 1.  
 Medicine Butte anticline: Petsch, B. C., 1.  
 Pierre sh.: Gries, J. P., 2.  
 Tennessee: Reichert, S. O., 2.  
 Embreeville dist.: Reichert, S. O., 1.  
 Kentucky Dam: Fox, P. P., 2.  
 Rome, Rutledge fms., Watts Bar Dam: Fox, P. P., 3.  
 Watts Bar Dam: Fox, P. P., 1.  
 Texas, Balmoral area: White, W. N., 3.  
 Eagle Mts.: Evans, G. L., 5.  
 Edwards ls.: Sayre, A. N., 1.  
 Fort Worth-Midland area: Scott, G., 1.  
 Gillespie Co.: Barnes, V. E., 2.  
 Gonzales Co.: Chelf, C. R., 1.  
 Llano Co.: Chelf, C. R., 3.  
 Luling-Powell oil fields: Oil and Gas Jour., 1.  
 Mabelle Draw Perm. area: Read, W. F., 1.  
 Permian Basin: Roth, R. I., 2.  
 Quitman Mts.: Huffington, R. M., 1.  
 Shafter mining dist.: Ross, C. P., 7.  
 Terlingua quicksilver dist.: Ross, C. P., 2.  
 Texas-New Mexico, South Perm. Basin: King, R. E., 2.  
 United States, Dakota Basin: Ballard, N., 2.  
 Eastern and central: Schuchert, C., 1.  
 Oil reserves, 1942: Howard, H. V., 8.

## Geologic maps—Continued.

## United States—Continued.

- Rocky Mtn. oil and gas fields: Dobbin, C. E., 2.  
 Utah, Ashbrook dist.: Peterson, V. E., 1.  
 Cottonwood-American Fork area: Calkins, F. C., 2.  
 West Tintic mining dist.: Stringham, B. F., 1.  
 Virginia, Appalachian Valley: Butts, C., 1.  
 Cedar Creek Valley: Monroe, W. H., 2.  
 Elkton area: King, P. B., 3.  
 Irish Creek area: Koschmann, A. H., 2.  
 Lyndhurst-Vesuvius dist.: Knechtel, M. M., 2.  
 Tazewell Co.: Cooper, B. N., 1.  
 Walker Mtn. S. end: Dutta, C., 2.  
 Washington, Blewett iron deposit, Chelan Co.: Broughton, W. A., 3.  
 Buckhorn iron deposits: Broughton, W. A., 2.  
 Metaline quad.: Park, C. F., Jr., 4.  
 Olympic Pen.: Park, C. F., Jr., 1.  
 Silver Hill dist.: Page, L. R., 1.  
 West Virginia: Woodward, H. P., 1.  
 Manganese and iron areas: Reeves, F., 1.  
 Southeastern: Reeves, F., 1.  
 Wisconsin, N.-cent., glacial border drift: Hole, F. D., 1.  
 Wyoming, Cache Creek area, Gros Ventre Mts.: Nelson, V. E., 1.  
 Chugwater Creek, Laramie, and North Laramie River Valleys: Edwards, A. R., 1.  
 Grand Teton Nat. Park: Horberg, L., 1.  
 Gros Ventre and N. Hoback Ranges: Nelson, V. E., 2.  
 Niobrara, Hot Springs Cos., oil and gas fields: Scouts, Rocky Mtn. Region, 1.  
 Rocks, soils, and selenium: Knight, S. H., 1.  
 Yukon, Wolf Creek area, St. Elias Range: Sharp, R. P., 7.  
 Geologic structure and water: Palmer, H. S., 1.  
 Geologic structure effect on radio reception: Howell, B. F., Jr., 1.  
 Geologic terminology, wrong usage: Washburne, C. W., 1.  
 Geologic terms, common, for engineers: Runner, D. G., 1.  
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 Earth, age: Allen, J. Stuart, 1.  
 Helium age measurement, magnetite index: Hurley, P. M., 1.  
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 Measurement: Lance, A. C., 1.  
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 Northeast: Keevil, N. B., 4.

## Geologic time—Continued.

- Northwest Territories, Yellowknife area: Keevil, N. B., 3.
- Nuclear physics application: Goodman, C., 1.
- Ontario, Red Lake area: Horwood, H. C., 1.
- Pelecypoda, geol. range: Gardner, J. A., 1.
- Post-Wisconsin geology: Carroll, D. L., 5.
- Pre-Cambrian oldest fossil horizon, Calif.: Keyes, 26.
- Time relations, ocean sediments: Piggot, C. S., 2.
- Varves, ice-age, age: Gillette, H. P., 3.
- Geologic union now: Croneis, C. G., 5.
- Geologic warfare: Croneis, C. G., 7.
- Geologist and the nation: Williams, M. Y., 3.
- Geologist in public works: Berkey, C. P., 2.
- Geologist in the war: Aurin, F. L., 1; Price, W. A., 2.
- Geologists and geophysicists in war work: Denison, A. R., 2.
- Geologists in war service: Bryan, K., 7.
- Geologists' work on water for war: Meinzer, O. E., 9.
- Geology and lab. manual: Field, R. M., 3.
- Geology and man: Ball, J. R., 1.
- Geology and scholarship in U. S.: Barwick, A. R., 1.
- Geology and war: Price, P. H., 6.
- Geology, application to strategy and tactics: Russell, L. S., 3.
- Geology, applied to engineering: Nickell, F. A., 1.
- Applied to petroleum: Illing, V. C., 1.
- Geology for mountaineers: Ney, C. S., 1.
- Geology, importance: Butler, B. T., 1.
- Geology in highway engineering: Huntting, M. T., 4.
- Geology in Oregon, history of: Lowell, W. R., 2.
- Geology in war: Heald, K. C., 1.
- Geology in war and peace: Croneis, C. G., 3; Howard, W. V., 3.
- Geology museum, building up: Hoare, J. M., 1.
- Geology, role in first World War: Johnson, D. W., 3.
- Geology students: Levorsen, A. I., 9.
- Geology, use by engineers: Ries, H., 1.
- Geomorphic unconformity: Donnelly, M., 1.
- Geomorphology. See also Physiographic geology.
- Aerial photos. and their application: Smith, H. T. U., 1.
- Colorado, origin of scenery: Pearl, R. M., 1.
- General: Engeln, O. D. von, 1.
- Geophysical abstracts: Ayvazoglou, 1, 2.
- Geophysical education: Bradford, D. C., 1.

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- Geophysical prospecting.
- Alabama, Hatchetigbee anticline survey: McCollum, E. V., 1.
- Analysis, abnormal reflections: Deacon, L. E., 1.
- Arkansas, bauxite explor.: Gillin, J. A., 1.
- Calculation, depth magnetic deposit: Sen, J., 1.
- Canada: Brant, A. A., 1.
- Classification, decimal system: Heiland, C. A., 1.
- Computation, dips below unconformity: Dix, C. H., 1.
- Cuba, chromite: Cumings, W. L., 2.
- Earth: Ney, C. H., 1.
- Electric methods in: Evjen, H. M., 1.
- Electrical earth resistivity surveys: Hagan, W. W., 2.
- Electrical resistivity apparatus: Stouder, R. E., 1.
- Fault location by elec. prosp.: Hawley, P. F., 1.
- Florida, structure and gravity: Campbell, R. B., 1.
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- Geologist in the war: Aurin, F. L., 1.
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- Geophysicists' service: Peacock, H. E., 1.
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- Gravimeter: Clewell, D. H., 1.
- Gravity data, quantitative interpretation: Skeels, D. C., 1.
- Gravity-gradient profiles, measuring: Heiland, C. A., 3.
- Ground-water explor.: Bays, C. A., 1.
- Gulf of Mexico oil explor.: Covarrubias, L. F., 1.
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- Iowa field: Eby, J. B., 4.
- Mexico, southern: Tirado Osorio, M., 1.
- Michigan, Wyandotte-Winona and Cherokee areas: Spiroff, K., 1.
- Micromagnetics, method: Jenny, W. P., 2.
- Mississippi, salt depths by seismograph: Swartz, C. A., 2.
- Missouri, gravimetric map: Missouri G. S., 2.
- Multiple branches in seismic reflections: Widess, M. B., 1.
- Natural potentials in sed. rocks: Dickey, P. A., 2.

## Geophysical prospecting—Continued.

- New England, seismic prosp.: Linehan, D., 2.  
 New Jersey area: Woollard, G. P., 2.  
 New Mexico, Monument oil field: England, C. C., 1.  
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- Variations, earth's crustal layers: Gutenberg, 7.  
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 Areas described.  
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 Economic geology.  
 Coastal Plain: Cooke, C. W., 5.  
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## Georgia—Continued.

*Mineralogy.*

- Gold deposits: Park, C. F., Jr., 3.  
 Hydroxylapatite: Mitchell, L., 2.  
 Kaolin: Mitchell, L., 1.  
 Kyanite, Graves Mtn.: Watkins, J. H., 1.  
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*Paleontology.*

- Coastal Plain: Cooke, C. W., 5.  
 Fauna, Maryville fm.: Resser, C. E., 3.  
 Sand-Lookout Mtn. area: Sullivan, J. W., 2.

*Petrology.*

- Concretions, Pottsville: Sullivan, J. W., 1.  
 Dolomites, magnesian ls.: Furcron, A. S., 1.  
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- Gold deposits: Park, C. F., Jr., 3.

*Physiographic geology.*

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- Ground-water quality: Lamar, W. L., 1.  
 Warm Springs: Salomon-Calvi, 1.

## Geysers. See also Underground water.

- Action experiments: Hills, T. M., 1.  
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## Gillespie.

- Alaska, crystal structure: Pabst, A., 3.  
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- Alaska, Chicagof mining dist.: Reed, J. C., 1.  
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 Matanuska Valley: Martin, P. F., 1.  
 Military Highway, British Columbia-Yukon: Denny, C. S., 1.  
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 Perennially frozen ground: Taber, S., 1.  
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 East-central: Hume, G. S., 1.  
 Keewatin end moraines: Bretz, J. H., 2.

## Glacial geology—Continued.

- Arctic America, Baffin Is.: Manning, T. H., 1.  
 Arizona, San Francisco Mtn.: Sharp, R. P., 4.  
 Aspects of modern geology: Bastin, E. S., 2.  
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 California, San Gabriel Mts.: Williams, J. E., 1.  
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 Climatic change: Russell, R. J., 1.  
 Colorado, Beaver-Tarryall area, Park Co.: Singewald, Q. D., 2.  
 Origin of scenery: Pearl, R. M., 1.  
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 Eskers, origin: Hanson, G. F., 1.  
 Florida, S., nat. features: Davis, J. H., Jr., 1.  
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 Illinois, Du Page Co.: Mason, A. C., 1.  
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 Will Co.: Horberg, L., 3.  
 Indiana, Devil's Backbone and Hog Trough, origin: Wickwire, G. T., 1.  
 Geology and highway engineering: Woods, K. B., 1.  
 Indianapolis area: McGuinness, C. L., 1.  
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 Greene Co.: Tapper, W. B., 1.  
 Illinoian, post-Illinoian geology: Graham, J. B., 1.  
 Iowan till, Wisconsin outwash: Hobbs, W. H., 8.

## Glacial geology—Continued.

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- Mankato lobe Wisconsin drift Plain:  
Gwynne, C. S., 1.  
Varved Pleist. sediments, Cedar Rapids:  
Wilson, L. R., 4.  
Wind work: Leverett, F., 2.  
Kansas, Forest City Basin: Lee, W., 2.  
Maine, Mount Desert Is. rocks: Chadwick, G. H., 2.  
Massachusetts, Boston area: Johnson, F., 2.  
Boylston St. Boston, fish weir: Johnson, F., 1.  
Cape Cod Bay: Hough, J. L., 1.  
Cape Cod Pleist.: Mather, K. F., 2.  
Cape Cod tills: Sayles, R. W., 1.  
Concord quad. two tills: Moss, J. H., 1.  
Connecticut River Valley: Bain, G. W., 1; Jahns, R. H., 1.  
Dracut area: Dennen, W. H., 1.  
Michigan: Bergquist, S. G., 1.  
Northeast, drumlin area: Bergquist, S. G., 2.  
Mississippi River: Leverett, F., 3.  
Missouri, fire clay dists.: McQueen, H. S., 2.  
Nebraskan-Kansan drift boundary:  
Holmes, C. D., 1.  
Montana, Boulder Glacier, Beartooth Mts., Pleist.: Bevan, A. C., 9.  
Cut Bank field: Blixt, J. E., 4.  
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Glacier Nat. Park: Alden, W. C., 1.  
Sawtooth Range: Deiss, C. F., 2.  
Saypo quad.: Deiss, C. F., 1.  
Snake Butte boulder train: Knechtel, M. M., 1.  
Nebraska, geol. secs.: Condra, G. E., 1.  
Nevada, Ruby Mts.: Sharp, R. P., 2.  
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New Brunswick: Alcock, F. J., 3; Rose, B., 3.  
New England, granite sheet structure:  
Jahns, R. H., 3.  
New Hampshire, Cardigan-Rumney area:  
Fowler-Billings, K. S., 2.  
Winnepesaukee quad.: Quinn, A. W., 1.  
New York, balanced rocks: Albee, A., 1.  
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Lake George area: Newland, D. H., 1.  
Wellsville quad.: Woodruff, J. G., 1.  
New York City, subsurface explor.:  
Wheeler, G., 1.  
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Pleistocene: Flint, R. F., 5.  
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North Dakota, Morton Co.: Laird, W. M., 2.

## Glacial geology—Continued.

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- Turtle Mts. manganese: Hendricks, T. A., 1.  
Turtle River State Park: Laird, W. M., 3.  
Northwest Territories: Anonymous, 24.  
Outpost Is., Great Slave Lake: Riley, C., 1.  
Snare River-Ingray Lake area: Lord, C. S., 2.  
Nova Scotia, northern: Wickenden, R. T. D., 1.  
Ohio, Clark Co.: Harker, W. H., 1.  
Fostoria quad.: Shaffer, P. R., 1.  
Gravel outwash, Chillicothe: Leverett, F., 1.  
Illinoian, Wisconsin drift: White, G. W., 1.  
Killbuck Valley: Hubbard, G. D., 1.  
Large glacial erratics: Rutherford, R. L., 2.  
Plant distrib. and geology: Cross, A. T., 1.  
Pre-Illinoian: Ireland, H. A., 1.  
Pro-glacial lake: Wolfe, J. N., 1.  
Tilted postglacial beds: Hubbard, G. D., 2.  
Western: Stout, W. E., 1.  
Ontario, Big Duck-Aguasabon Lakes area:  
Bartley, M. W., 1.  
Dryden-Wabigoon area: Satterly, J., 3.  
Drumlins: Putnam, D. F., 1.  
Eagle Lake area: Moorhouse, W. W., 1.  
Eastern Crow River area: Evans, J. E. L., 1.  
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Legget, R. F., 1.  
Gorham Tp.: Macdonald, R. D., 1.  
Goudreau-Lochalsh area: Bruce, E. L., 3.  
Hutchison Lake area: Macdonald, R. D., 3.  
Kenogamisis River area: Macdonald, R. D., 2.  
London area Paleozoics: Caley, J. F., 1.  
Moraines: Chapman, L. J., 1.  
Rowlandson Lake area: Prest, V. K., 1.  
Steepprock area: Rose, E. R., 1.  
Trans-Canada highway, Longlac-Hearst:  
Evans, J. E. L., 2.  
Windigo-North Caribou Lakes: Satterly, J., 2.  
Wunnummin Lakes area: Prest, V. K., 2.  
Oregon, north-cent.: Hodge, E. T., 1.  
Portland area: Treasher, R. C., 2.  
Origin of loess: Penniston, J. B., 1.  
Pennsylvania, Eagles Mere Lake origin:  
Ashley, G. H., 3.  
Lehigh Co.: Miller, B. L., 1.  
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## Glacial geology—Continued.

- Quebec, Barry Lake area: Milner, R. L., 1.  
 Brock River area: Kindle, E. D., 1.  
 Châteauguay area: Mailloux, A., 1.  
 Forget Lake area: Longley, W. W., 1.  
 Gaspé Pen.: Alcock, F. J., 2; Flint, R. F., 3.  
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 Matapédia Lake area: Aubert de la Rue, E., 1.  
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 Saskatchewan, Big Muddy Valley: Houldsworth, E., 1.  
 Soil mechanics and foundations: Plummer, F. L., 1.  
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 Striae, Lake George area, N. Y.: Newland, D. H., 1.  
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 Utah, Cottonwood-American Fork area: Calkins, F. C., 2.  
 Varves, ice-age, age: Gillette, H. P., 3.  
 Vermont, Champlain Valley: Chapman, D. H., 1.  
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 Vermont Valley: Gordon, C. E., 1.  
 West Charleston abandoned valley: Doll, C. G., 1.  
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 Metaline quad.: Park, C. F., Jr., 4.  
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 Northwest flank Gros Ventre Mts.: Swenson, F. A., 2.  
 Teton Mts.: Baker, V. R., 1; Edmund, R. W., 1.  
 Glacial lakes. See also Beaches; Lakes, extinct; Shore lines; Terraces.  
 Alberta, Keewatin end moraines: Bretz, J. H., 2.  
 Condon Lake, Oreg.: Hodge, E. T., 1.

## Glacial lakes—Continued.

- Lake Algonquin, N. Am.: Martin, H. M. M., 1; Putnam, D. F., 1; Thwaites, F. T., 2.  
 Lake Arkona, N. Am.: Martin, H. M. M., 1.  
 Lake Calvin, Iowa: Leverett, D., 3.  
 Lake Cardston, Alberta: Bretz, J. H., 2.  
 Lake Chicago, N. Am.: Martin, H. M. M., 1.  
 Lake Dakota: Rothrock, E. P., 5.  
 Lake Duluth, N. Am.: Martin, H. M. M., 1.  
 Lake Elktion, N. Am.: Martin, H. M. M., 1.  
 Lake Iroquois: Martin, H. M. M., 1; Putnam, D. F., 1.  
 Lake Leverett, Wash.: Hobbs, W. H., 5.  
 Lake Maumee, N. Am.: Martin, H. M. M., 1.  
 Lake Missoula, Mont.: Pardee, J. T., 1.  
 Lake Newberry, N. Am.: Martin, H. M. M., 1.  
 Lake Nipissing, Wis.: Thwaites, F. T., 2.  
 Lake Oshkosh, Wis.: Thwaites, F. T., 2.  
 Lake Saginaw, N. Am.: Martin, H. M. M., 1.  
 Lake Schomberg, Ontario: Putnam, D. F., 1.  
 Lake Spokane, Wash.-Idaho: Large, T., 1.  
 Lake Tonowanda, N. Am.: Martin, H. M. M., 1.  
 Lake Vermont, Vt.: Chapman, D. H., 1.  
 Lake Warren, N. Am.: Martin, H. M. M., 1.  
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 Massachusetts, Conn., River Valley: Bain, G. W., 1.  
 Milk River Lake, Alberta: Bretz, J. H., 2.  
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 Nevada, Pyramid Lake: Lomas, M., 1.  
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- Alaska: Field, W. O., Jr., 1.  
 Black Rapids Glacier: Moffit, F. H., 1.  
 Gerstle River dist.: Moffit, F. H., 1.  
 Muir Glacier retreat: Flint, R. F., 2.  
 Podzol fm. time, Mendenhall Glacier area: Chandler, R. F., Jr., 1.  
 Portage Pass area: Barnes, F. F., 1.  
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 Boulder Glacier, Mont., Pleist., Beartooth Mts.: Bevan, A. C., 9.  
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 Canada, Nat. Parks, Rockies and Selkirks: MacKay, B. R., 1.  
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 Eliot Glacier, Mt. Hood, Oreg., movement, ablation: Matthes, F. E., 5.  
 General: Matthes, F. E., 1, 2; Pond, W. F., 1.  
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 Pleistocene: Hobbs, W. H., 5.  
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## Glaucinite.

- Molecular form: Harvey, C. O., 1.  
 North Carolina, Coastal Plain: Richards, H. G., 2.

## Glaucophane, Pinchi Lake area, British Columbia: Freeze, A. C., 1.

## Gneiss.

- Alabama, Pinckneyville quartz-diorite complex: Gault, H. R., 1.  
 Arctic America, Baffin Is.: Manning, T. H., 1.  
 Arizona, Ajo copper dist.: Gilluly, J., 1.  
 Greenland, Skaergaard intrus. elements: Wager, L. R., 1.  
 Labrador, Nain area: Wheeler, E. P., 2d, 2.  
 Maryland, Piedmont: Chapman, R. W., 1.  
 Michigan, Menominee, Calumet dists., Huronian: Pettijohn, F. J., 3.  
 Montana, heavy mins.: Gwynne, C. S., 3.

## Gneiss—Continued.

- Newfoundland, Fleur-de-Lys area: Fuller, J. O., 1.  
 New Hampshire, Mt. Cube area: Hadley, J. B., 2.  
 New York, Lake George area: Newland, D. H., 1.  
 Ontario, Hutchison Lake area: Macdonald, R. D., 3.  
 Sudbury dist. older rocks: Cooke, H. C., 3.  
 Pennsylvania, Lehigh Co., pre-Camb.: Fraser, D. M., 1.  
 Quebec, Barry Lake area: Milner, R. L., 1.  
 Grenville Prov.: Faessler, C., 2.  
 South Dakota, Black Hills pre-Camb. domes: Runner, J. J., 1.  
 Gnomonic projections, hexagonal system: Ramsdell, L. S., 2.

## Goethite.

- Crystallography of: Nuffield, E. W., 1.  
 General: Peacock, M. A., 4.  
 Goleta oil field, Calif.: Vickery, F. P., 1.  
 Gold.

- Alaska, Chicagof mining dist.: Reed, J. C., 1.  
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 Nabesna area: Wayland, R. G., 2.  
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 Arizona, lode deposits: Wilson, E. D., 1.  
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 Bralorne mines: Joralemon, I. B., 1.  
 Britannia mines: Ebbutt, F., 1.  
 Eldorado prospect: Brennan, C. V., 1.  
 Gold-quartz veins, O.K. Mtn.: Stevenson, J. S., 2.  
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 San Benito quad.: Wilson, I. F., 1.  
 Santa Cruz Co.: Hubbard, H. G., 1.  
 Canada, minor ig. intrus.: Moorhouse, W. W., 4.  
 Prospects: Baker, M. B., 1.  
 Rock alterations by hydrothermal solutions: Bruce, E. L., 2.  
 Colorado, Alma dist.: Singewald, Q. D., 1.  
 Beaver-Tarryall area, Park Co.: Singewald, Q. D., 2.  
 Craig-Bags placer area: Prömmel, H. W. C., 1.

## Gold—Continued.

## Colorado—Continued.

- Cripple Creek dist.: Koschmann, A. H., 1.  
 Front Range min. belt: Lovering, T. S., 2.  
 Leadville dist.: Loughlin, G. F., 1.  
 Comstock Lode, Nev., history: Smith, G. H., 1.  
 Deposition: White, W. H., 1.  
 Alkali sulphide theory: Smith, E. G., 4.  
 Georgia: Park, C. F., Jr., 3.  
 Idaho, Blackbird dist.: Anderson, A. L., 4.  
 Boise Basin: Anderson, A. L., 1.  
 Dixie dist.: Roberts, R. J., 3.  
 Elk City dist.: Shenon, P. J., 3.  
 Metal, coal mining dists.: Ross, C. P., 1.  
 Murray dist.: Shenon, P. J., 2.  
 Rocky Bar dist.: Anderson, A. L., 7.  
 Warren dist. veins: Reed, J. C., 5.  
 Yellow Pine mine, Stibnite: Bradley, J. D., 1.  
 Manitoba, Gunnar mine: Lord, C. S., 1.  
 Herb Lake area: Warren, H. V., 3.  
 McVeigh Lake area: Bateman, J. D., 1.  
 Sherritt-Gordon mine: Derry, D. R., 1.  
 Mexico, Alistos deposits: Krieger, P., 1.  
 El Alamo mine, Baja Calif.: Antúnez Echegaray, F., 2.  
 Fresno mine veins: Stone, J. B., 1.  
 San Antonio mine, Chihuahua: Hewitt, W. P., 1.  
 Montana, Libby quad.: Gibson, R., 1.  
 Sheep Creek dist.: McGuire, R. A., 1.  
 Nevada, crystals in silicified wood: Gianella, V. P., 2.  
 Nevada dist.: Roberts, R. J., 1.  
 New Mexico, Magdalena mining dist.: Loughlin, G. F., 2.  
 North America, pyrometamorphic ore deposits: Knopf, A., 1.  
 Structural features of ore deposits: Newhouse, W. H., 2.  
 Vein deposits: White, W. H., 1.  
 Northwest Territories: Anonymous, 24.  
 Snare River-Ingray Lake area: Lord, C. S., 2.  
 Nova Scotia: Rickard, T. A., 1.  
 Ontario, Big Duck-Aguasabon Lakes area: Bartley, M. W., 1.  
 Dobie area quantitative relations: Thomson, J. Ellis, 2.  
 Dryden-Wabigoon area: Satterly, J., 3.  
 Eagle Lake area: Moorhouse, W. W., 1.  
 Fort Hope-Martin Falls area: Prest, V. K., 3.  
 Goldrock area: Thomson, Jas. E., 1.  
 Gold-silver ratios in ores: Bruce, E. L., 6.  
 Gorham Tp.: Macdonald, R. D., 1.  
 Goudreau-Lochalsh area: Bruce, E. L., 3.  
 Haliburton area: Satterly, J., 4.  
 Hutchison Lake area: Macdonald, R. D., 3.  
 Kerr-Addison mine ores: Thomson, J. Ellis, 1.  
 Langmuir-Sheraton area: Berry, L. G., 2.

## Gold—Continued.

## Ontario—Continued.

- Little Long Lac gold area: Armstrong, H. S., 1.  
 McGarry, McVittie Tps., Larder Lake area: Thomson, Jas. E., 3.  
 Matachewan mines: Derry, D. R., 2;  
 Hopper, C. H., 1.  
 Mineralization, dikes, stocks: Moorhouse, W. W., 4.  
 Mishibishu Lake area: Evans, J. E. L., 3.  
 Porcupine dist.: Hurst, M. E., 1.  
 Rennie, Stover, Leeson, Brackin Tps.: Bruce, E. L., 5.  
 Rowan Lake: Thomson, Jas. E., 2.  
 Thunder Bay dist.: Bruce, E. L., 4.  
 Timagami area: Moorhouse, W. W., 2.  
 Oregon, paragenesis: Lowell, W. R., 1.  
 Wallowa batholith: Krauskopf, K. B., 1.  
 Quebec, Barry Lake area: Milner, R. L., 1.  
 Cadillac-Malartic dist.: Flaherty, G. F., 1.  
 Cadillac Tp.: Gunning, H. C., 1.  
 Canadian Malartic mine: Derry, D. R., 3.  
 Dubuisson Tp.: Norman, G. W. H., 1.  
 Eustis mine area: Douglas, G. V., 1.  
 Flavrian Lake area: Robinson, W. G., 1.  
 Halliwell mine area: MacKenzie, G. S., 1.  
 Rouyn-Harricana belt: Hawley, J. E., 3.  
 South Dakota: Connolly, J. P., 1.  
 Utah, Cottonwood-American Fork area: Calkins, F. C., 2.  
 West Tintic mining dist.: Stringham, B. F., 1.  
 Vein deposits, mechanism and environment, N. Am.: White, W. H., 1.  
 Washington, Metaline quad.: Park, C. F., Jr., 4.  
 Snohomish Co. min. properties: Broughton, W. A., 1.  
 Wenatchee-Ellensburg-Yakima area: Glover, S. L., 2.  
 Yukon, Alaska Highway area min. poss.: Thomas, L. O., 1.  
 Gouge not positive fault evidence: Buwalda, J. P., 1.  
 Grabens, San Antonio mine, Mex.: Hewitt, W. P., 1.  
 Granite. See also Building stone.  
 Alabama, Pinckneyville quartz-diorite complex: Gault, H. R., 1.  
 Alaska, Nutzotin Mts. area: Moffit, F. H., 2.  
 Arctic America, Baffin Is.: Manning, T. H., 1.  
 California, Cargo Muchacho Mts.: Henshaw, P. C., 2.  
 Confidence dist.: Little, J. M., 1.  
 Coso Mts. Hot Springs: Fraser, H. J., 2.  
 Santa Cruz Co.: Hubbard, H. G., 1.  
 Canada, north bank St. Lawrence, Berisimis to Matamec: Faessler, C., 1.  
 Canadian Shield Archean sedimentation: Pettijohn, F. J., 1.



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- Colorado, Gold Hill area: Goddard, E. N., 1.  
 Correlation, Colorado-Wyoming: Boos, M. F., 1.  
 Granite and ore: Anderson, A. L., 3.  
 Idaho, orbicular rock, Buffalo Hump: Goodspeed, G. E., 1.  
 Maine, Mount Desert Is.: Chadwick, G. H., 2.  
   Southeastern ore deposits: Li, C.-Y., 1.  
 Massachusetts, Dracut area: Dennen, W. H., 1.  
 Michigan, Menominee, Calumet dists., Huronian: Pettijohn, F. J., 3.  
 New Brunswick: Rose, B., 1.  
 New England, granite sheet structure: Jahns, R. H., 3.  
   Spectrographic analysis: Shimer, J. A., 1.  
 New Hampshire, Cardigan-Rumney area: Fowler-Billings, K. S., 2.  
 New Mexico, Magdalena mining dist.: Loughlin, G. F., 2.  
 New York, Adirondack anorthosite: Miller, W. J., 2.  
   Lake George area: Newland, D. H., 1.  
 North Carolina, Whiteside granite: Sharpe, L. K., 1.  
 Nova Scotia, New Campbellton area: Douglas, G. V., 3.  
   New Ross area: Douglas, G. V., 4.  
 Ontario, Bancroft intrusives: Chayes, F., 1.  
   Rennie, Stover, Leeson, Brackin Tps.: Bruce, E. L., 5.  
   Southeast intrusives: Harrison, J. M., 1.  
 Sudbury dist.: Cooke, H. C., 3.  
 Timagami area: Moorhouse, W. W., 3.  
 Pennsylvania, Wissahickon fm. type locality: Postel, A. W., 2.  
 Quebec, Barry Lake area: Milner, R. L., 1.  
   Grenville Prov.: Faessler, C., 2.  
   Halliwell mine area: MacKenzie, G. S., 1.  
   Kitchigama Lake area: Longley, W. W., 2.  
   Lake Forgues to Johan Beetz on St. Lawrence: Claveau, J., 1.  
   Matapédia Lake area: Aubert de la Rue, E., 1.  
 South Dakota, Black Hills pre-Camb. domes: Runner, J. J., 1.  
 United States, graphic: Schaller, W. T., 4.  
 Utah, Ashbrook silver dist.: Peterson, V. E., 1.  
   West Tintic mining dist.: Stringham, B. F., 1.  
 Virginia, Piedmont: Pegau, A. A., 1.  
 Wisconsin, Baxter hollow granite cupola: Gates, R. M., 1.

## Granodiorite.

- California, Darwin Hills tungsten area: Wilson, L. K., 1.  
 Helium age inv., Yellowknife, Northwest Terr.: Keevil, N. B., 3.  
 Jamaica: Trechmann, C. T., 1.  
 Rhode Island, Bradford dike: Quinn, A. W., 2.

## Granodiorite—Continued.

- Utah, Cottonwood: Stringham, B. F., 2.  
 Virginia, Irish Creek area: Koschmann, A. H., 2.  
   Origin: Pegau, A. A., 2.  
 Graphic representation, chemical weathering: Reiche, P., 2.  
 Graphite.  
   North America, pyrometasmatic ore deposits: Knopf, A., 1.  
   Texas, Llano Co.: Chelf, C. R., 3.  
   United States: Currier, L. W., 3.  
 Graptolitoidea. See also Invertebrata (general).  
   Alabama, Cherokee Co.: Cloud, P. E., Jr., 3.  
   Athens fauna, Va.: Fischer, A. G., 1.  
   Medusaegraptus, Ord., N. Y.: Ruedemann, R., 2.  
   Nevada, Roberts Mts.: Merriam, C. W., 2.  
   New Jersey faunas, Camb.: Howell, B. F., 11.  
   New York, Ulster Co., Ord.: Howell, B. F., 3.  
   Oklahoma, Ord.: Decker, C. E., 6.  
   South Dakota, Missn.: Ruedemann, R., 5.  
   Viola well core: Decker, C. E., 2.  
   Texas, Ord.: Decker, C. E., 5.  
   Silurian zone: Decker, C. E., 3.  
   Virginia, Appalachian Valley: Butts, C., 1.  
   Washington, Metaline quad.: Park, C. F., Jr., 4.  
 Gravel.  
   Alaska, Gerstle River dist.: Moffit, F. H., 1.  
   Perennially frozen ground: Taber, S., 1.  
   California, San Benito quad.: Wilson, I. F., 1.  
   Santa Cruz Co.: Hubbard, H. G., 1.  
   Canada, Laurentian area: Mauffette, P., 1.  
   Canadian Shield Archean sedimentation: Pettijohn, F. J., 1.  
   Florida: Vernon, R. O., 3.  
   Georgia, Coastal Plain: Cooke, C. W., 5.  
   Idaho, orbicular rock, Buffalo Hump: Laurence: Claveau, J., 1.  
   Idaho, Rocky Bar dist.: Anderson, A. L., 7.  
   Illinois: Willman, H. B., 1.  
   Marseilles, Ottawa quads.: Willman, H. B., 2.  
   Streator quad.: Robinson, L. C., 1; Willman, H. B., 2.  
   Iowa, Loveland Pleist. fm.: Kay, G. F., 1.  
   Kansas: Moore, R. C., 1.  
   Ellis, Russell Cos. oil fields: Frye, J. C., 5.  
   Louisiana, Vernon Parish: Welch, R. N., 1.  
   Maryland, Patapsco State Park: Mather, L. B., Jr., 1.  
   Massachusetts, Cape Cod tills: Sayles, R. W., 1.  
   Connecticut Valley: Jahns, R. H., 1.  
   Minnesota: Emmons, W. H., 2.

## Gravel—Continued.

- Mississippi, Adams Co.: Vestal, F. E., 1.  
 Clay Co.: Bergquist, H. R., 2.  
 Mississippi River, size distrib.: Trask, P. D., 2.  
 Nevada, Three Kids dist.: Hunt, C. B., 1.  
 New Hampshire, Cardigan-Rumney area: Fowler-Billings, K. S., 2.  
 New York, Lake George area: Newland, D. H., 1.  
 Wellsville quad.: Woodruff, J. G., 1.  
 New York City rocks: Walovnick, S., 1.  
 North Carolina, Coastal Plain: Richards, H. G., 2.  
 Square gravel: Hawkins, A. C., 3.  
 Ontario, Big Duck-Aguasabon Lakes area: Bartley, M. W., 1.  
 Dryden-Wabigoon area: Satterly, J., 3.  
 Gorham Tp.: Macdonald, R. D., 1.  
 Goudreau-Lochalsh area: Bruce, E. L., 3.  
 Kenogamisis River area: Macdonald, R. D., 2.  
 Steeprock area: Rose, E. R., 1.  
 Pennsylvania, Brookville quad.: Graeber, C. K., 1.  
 Lehigh Co. min. res.: Miller, B. L., 3.  
 Quebec, Lake Wakeham area: Claveau, J., 3.  
 Matapédia Lake area: Aubert de la Rue, E., 1.  
 Texas, Santiago Peak quad.: Eifler, G. K., Jr., 1.  
 Virginia, Elkton area: King, P. B., 3.  
 Eocene: Gildersleeve, B., 1.  
 Lyndhurst-Vesuvius dist.: Knechtel, M. M., 2.  
 Washington, Wenatchee-Ellensburg-Yakima area: Glover, S. L., 2.  
 Gravimeter: Clewell, D. H., 1.  
 Gravitation, exponential law, effects on seismic and tectonic phenomena: Shneiderov, 1.  
 Gravity anomalies.  
 Alabama, Hatchetigbee anticline survey: McCollum, E. V., 1.  
 Computation: Siegert, A. J. F., 1.  
 Florida, structure and gravity: Campbell, R. B., 1.  
 Hawaii, and meridian reflections: Duerksen, J. A., 1.  
 Mexico, orogenesis and relief: Robles Ramos, R., 1.  
 Missouri, gravimetric map: Missouri, G. S., 2.  
 New England-Hudson Valley area: Longwell, 4.  
 New Jersey area correl.: Woollard, G. P., 2.  
 North America, transcontinental profile: Nettleton, L. L. 3; Woollard, G. P., 1.  
 North Carolina, chromite deposits: Hunter, C. E., 2.  
 Sedimentary basins: Skeels, D. C., 2.  
 Structure, gravity fields, Caribbean area: Hess, H. H., 1.

## Gravity—Continued.

- Tri-State zinc-lead dist.: Jakosky, 1, 2.  
 Gravity data, quantitative interpretation: Skeels, D. C., 1.  
 Gravity-gradient profiles, measuring: Heiland, C. A., 3.  
 Graywacke.  
 Alaska, Chicagof Is.: Pecora, W. T., 2.  
 Portage Pass area: Barnes, F. F., 1.  
 Yakobi Is.: Kennedy, G. C., 1.  
 Canadian Shield Archean sedimentation: Pettijohn, F. J., 1.  
 Minnesota, Thomson fm.: Schwartz, G. M., 1, 3.  
 Northwest Territories, Gordon to Great Slave Lakes: Henderson, J. F., 1.  
 Ontario, Sudbury dist. older rocks: Cooke, H. C., 3.  
 Quebec, Barry Lake area: Milner, R. L., 1.  
 Great Ice Age, Ill.: Ball, J. R., 3.  
 Greeley oil field, Calif.: Updike, F. H., 1; Winham, T. S., 1.  
 Greenland.  
*Historical geology.*  
 Age, Perm. fish-bearing strata: Westoll, T. S., 1.  
 Landslide, early Tert.: Stauber, H., 1.  
 Traill Is.: Schaub, H. P., 1.  
*Paleontology.*  
 Belemnites, Cret.: Swinnerton, H. H., 1.  
 Fauna, Tert.: Sorgenfrei, T., 1.  
 Foraminifera, Camb., Ella Is.: Howell, B. F., 6.  
 Paleoniscids, Carb.: Moy-Thomas, J. A., 1.  
 Permian fish-bearing strata: Westoll, T. S., 1.  
*Petrology.*  
 Skaergaard intrus., elements: Wager, L. R., 1.  
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*Physical geology.*  
 Landslide, early Tert.: Stauber, H., 1.  
 Skaergaard intrus.: Wager, L. R., 1.  
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*Physiographic geology.*  
 Glacial anticyclone: Hobbs, W. H., 2.  
 Glaciers and perennial snow: Church, J. E., 1.  
 Ice sheets: Demorest, M. H., 3.  
 Traill Is.: Schaub, H. P., 1.  
 Wind and soil: Hobbs, W. H., 6.  
 Greensand, Eocene. Va.: Gildersleeve, B., 1.  
 Greenstone, Baie Verte area, Newfoundland: Watson, K. D., 2.  
 Graphite.  
 Crystallography: McConnell, D., 1.  
 South Dakota: McConnell, D., 1.  
 Grossularite, Ark.: McConnell, D., 1.  
 Ground-ice melting, Alaska: Rockie, W. A., 1.  
 Ground water. See also Underground water, general; Geysers; Mineral waters; Springs; Thermal waters.

## Ground water—Continued.

- Alabama, Cret. area, fluorite: Carlston, C. W., 2.  
 Tennessee Valley region: Harper, R. M., 1.  
 Alberta: Allan, J. A., 1.  
 Arizona, Hopi Indians environment changes: McCann, F. T., 1.  
 Base-exchange and sulphate reduction, Atlantic and Gulf Coasts: Foster, M. D., 1.  
 Bedrock map, E. Ill.: Horberg, L., 2.  
 Bibliography, oil-field waters: Case, L. C., 1.  
 California, Los Angeles Basin: Morse, R. R., 1.  
 Carolina Bays, origin: Johnson, D. W., 1.  
 Chemistry of: Foster, M. D., 1.  
 Colorado, San Luis Valley: Pearl, R. M., 3.  
 Connecticut, invs.: Ferris, J. G., 1.  
 Cuba, Florida area, Camaguey: Broderman, J., 5.  
 Habana Prov.: Broderman, J., 2, 3.  
 Pinar del Río: Broderman, J., 4.  
 Vento Valley: Broderman, J., 1.  
 Density, ground-water in ore deposition: Cederstrom, D. J., 3.  
 Differential density factor: Brown, J. S., 2; McKnight, E. T., 1.  
 Electrical earth resistivity surveys: Hagan, W. W., 2.  
 Exploration methods: Bays, C. A., 1.  
 Florida, Everglades: Parker, G. G., 1.  
 Peninsula, solution: Stubbs, S. A., 1.  
 Southern, nat. features: Davis, J. H., Jr., 1.  
 Fluctuations, natural: Merriam, C. F., 1.  
 General: Meinzer, O. E., 2, 3; Thompson, D. G., 1.  
 Geological warfare: Croneis, C. G., 7.  
 Geologists' work on water for war: Meinzer, O. E., 9.  
 Geophysics in war: Heiland, C. A., 2.  
 Georgia, quality of: Lamar, W. L., 1.  
 Hawaii: Meinzer, O. E., 4; Wentworth, C. K., 1.  
 Geologic structure and water: Palmer, H. S., 1.  
 Maui Is.: Stearns, H. T., 3.  
 Puna Olaa Mill well: Duncan, G., 1.  
 Hydrology: Meinzer, O. E., 1.  
 Limestone terranes: Swinnerton, A. C., 2.  
 Volcanic terranes: Stearns, H. T., 1.  
 Hydrothermal deposits, origin: Behre, C. H., Jr., 2.  
 Illinois, Chicago-Joliet-Chicago Heights area: Buswell, A. M., 2.  
 East of Joliet: Horberg, L., 2.  
 Joliet area: Buswell, A. M., 1, 2.  
 Marseilles, Ottawa, Streator quads.: Willman, H. B., 2.  
 Southern: Krause, A., 1.  
 Surveys for: Buswell, A. M., 3.  
 Wells in coal basin: Taylor, E. F., 1.

## Ground water—Continued.

- Iowa, bogs: Carter, C., 1.  
 Plugging abandoned wells: Hershey, H. G., 1.  
 Kansas: Lohman, S. W., 1, 2; Moore, R. C., 1.  
 Deep water well, Cherokee Co.: Abernathy, G. E., 1.  
 Ellis, Russell Cos. oil fields: Frye, J. C., 5.  
 Ford Co.: Waite, H. A., 1.  
 Hamilton, Kearny Cos.: McLaughlin, T. G., 2.  
 Meade Co.: Frye, J. C., 4.  
 Morton Co.: McLaughlin, T. G., 1.  
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 Mexico, Gogorron Hacienda: Waitz, P., 3.  
 Matanzas: Fernández Simón, A., 1.  
 Río Nazas Valley, Coahuila: Waitz, P., 2.  
 Sonoran arroyos: Waitz, P., 1.  
 Valley of Tixtla: Mullerried, 9.  
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 Minnesota: Emmons, W. H., 2; Speer, P. R., 1.  
 Mississippi, Adams Co.: Vestal, F. E., 1.  
 Camp McCain area: Brown, G. F., 1.  
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 Scott Co.: Bergquist, H. R., 1.  
 Montana, oil-field waters: Crawford, J. G., 1.  
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 New Mexico, Pecos Basin solution: Morgan, A. M., 1.  
 New York, Wellsville quad.: Woodruff, J. G., 1.  
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 North Carolina, Elizabeth City wells: Berry, E. Willard, 4.  
 North Dakota: Speer, P. R., 1.  
 Dakota ss, water supply: Wenzel, L. K., 2.  
 Nova Scotia, New Campbellton area: Douglas, G. V., 3.  
 Ohio: Stout, W. E., 2.  
 Clark Co.: Harker, D. H., 1.  
 Mill Creek Valley: Shoecraft, Drury, and McNamee, 1.  
 Oklahoma: Dott, R. H., 1.  
 Cimarron Co.: Schoff, S. L., 1.  
 Ontario, Sturgeon River gold mines: Bruce, E. L., 1.  
 Oregon, Willamette Valley: Piper, A. M., 1.  
 Pecos River Valley, Tex.-N. Mex.: Theis, C. V., 1.  
 Pennsylvania, Brookville quad.: Graeber, C. K., 1.

## Ground water—Continued.

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- Lancaster Co.: Foose, R. M., 2.  
 Lehigh Co.: Miller, B. L., 1.  
 Permeability, water-bearing materials:  
 Wenzel, L. K., 1.  
 Physical changes from water: Twenhofel,  
 W. H., 2.  
 Soil mechanics and foundations: Plum-  
 mer, F. L., 1.  
 South Carolina, Coastal Plain: Berry, E.  
 Willard, 2.  
 South Dakota: Rothrock, E. P., 5; Sea-  
 right, W. V., 1; Speer, P. R., 1.  
 City of Miller: Rothrock, E. P., 1.  
 Medicine Butte anticline: Petsch, B.  
 C., 1.  
 Rapid City area: Gries, J. P., 3.  
 White River Valley: Rothrock, E. P., 2.  
 Texas: Tex. Bd. Water Eng., 2.  
 Balmoral area: White, W. N., 3.  
 Edwards ls.: Sayre, A. N., 1.  
 Edwards ls. rivers: Burr, J. G., 1.  
 Floods, recharging: Babcock, H. M., 1.  
 High Plains: White, W. N., 1.  
 Houston area: Rose, A. N., 1; White,  
 W. N., 2.  
 Howard Co.: Tex. Bd. Water Eng., 1.  
 Young Co.: Criswell, D. R., 1.  
 Turtle Mts., N. Dak.-Manitoba: Greenlee,  
 A. L., 1.  
 United States: Meinzer, O. E., 4. 6.  
 Limestone caves: Bretz, J. H., 1.  
 Salty coastal waters: Foster, M. D., 2.  
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 Gleason, G. B., 1.  
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 D. J., 6.  
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 strom, D. J., 5.  
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 strom, D. J., 4.  
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 A. C., 5.  
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 W. M., 2.  
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 Carreño, A., 1.  
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 S., 1.  
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 R., Jr., 1.  
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 wards, A. R., 1.

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 Behre, C. H., Jr., 2.

Growth of an ice sheet: Hobbs, W. H., 4.

Gumbotil, Audubon Co., Iowa: Yoho, W. H., 1.  
 Gypsum.

- Manitoba, quartz concretions: Brownell,  
 G. M., 1.  
 New York, Lockport dolomite: Jensen,  
 D. E., 1.  
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 E., 2.  
 North Dakota, Morton Co.: Mitchell, R.  
 H., 1.  
 Ontario, London area Paleozoics: Caley,  
 J. F., 1.  
 Quebec, Calumet mines: Osborne, F. F., 1.  
 Texas, Gillespie Co.: Barnes, V. E., 2.  
 Virginia, war minerals: Bevan, A. C., 2.

Haiti. See also West Indies.

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Pseudorbitoides: Vaughan, T. W., 3.

Halfmoon Bay dist., Calif.: Crandall, R.  
 R., 1.

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- Manitoba, crystal molds in boulder: Leith,  
 E. I., 1.  
 New Mexico, Pecos Basin solution: Mor-  
 gan, A. M., 1.

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 ander, L. T., 1.

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 erals: Crook, T. H., 1.

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Maui Is.: Stearns, H. T., 3.

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- Geochen, goose: Wetmore, A., 5.  
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- Maui Is.: Stearns, H. T., 3.  
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 A., 2.

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- Avalanches, soil, Oahu: Wentworth, C.  
 K., 2.  
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 E., 1.  
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 tions: Duerksen, J. A., 1.  
 Ground tilt, Kilauea Volcano: Waesche,  
 H. H., 1.  
 Haleakala Crater, Maui, origin: Stearns,  
 H. T., 2.  
 Halemaumau, lava surgings and explo-  
 sive eruptions, 1924: Finch, R. H., 3.  
 Kilauea ash deposits: Finch, R. H., 2.  
 Lava flows in Puna: Macdonald, G. A., 1.  
 Lava rivers and their channels: Finch,  
 R. H., 4.  
 Maui Is.: Stearns, H. T., 3.  
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 1; Macdonald, G. A., 3; Wingate,  
 E. G., 1.

## Hawaii—Continued.

*Physical geology.*—Continued.

Mauna Loa lava flows, viscosity: Finch, R. H., 5.

Seismic prelude, Mauna Loa 1942 eruption: Finch, R. H., 6.

*Physiographic geology.*

Maui Is.: Stearns, H. T., 3.

Oahu Valley sculpture: Cotton, C. A., 1.

*Underground water.*

Geologic structure and water: Palmer, H. S., 1.

Glacial spring: Wentworth, C. K., 4.

Ground water: Meinzer, O. E., 4.

Maui Is.: Stearns, H. T., 3.

Water supply: Wentworth, C. K., 1.

Well, Olaa Mill, Puna: Duncan, G., 1.

## Heavy minerals. See also Mineralogy.

Beach sands, Atlantic and Gulf Coast: Wilbur, R. O., 1.

Canadian Shield, olivine diabase: Lewis, C. R., 1.

Colorado, Denver Basin sediments: Curtis, B. F., 1.

Detrital mineral grains, slides of: Herbert, P., Jr., 1.

Florida beach sands: Phelps, W. B., 1.

Illinois, Fox River area: Willman, H. B., 4.

Mexico, Chihuahua volcanics: Sidwell, R., 2.

Tin deposits: Foshag, W. F., 1.

Missouri, Dev. sands: Gruner, T. M., 1.

Montana, granite gneiss: Gwynne, C. S., 3.

New Mexico, transp., deposit: Rittenhouse, G., 4.

North America, Gulf of Mexico sedimentary provs.: Goldstein, A., Jr., 1.

North Dakota, Morton Co.: Laird, W. M., 2.

Ohio, Cedar Point beach sands: Lundahl, A. C., 1.

Oklahoma, soil identification: Buchanan, W. H., 1.

Oregon, chromiferous sands, origin: Griggs, A. B., 1.

Southwest coast, black sands: Twenhofel, 7.

Rhode Island, Bradford granodiorite dike: Quinn, A. W., 2.

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Texas Gulf Coast, sand sources: Bullard, F. M., 1.

United States, rare metals in ig. rocks: Sandell, E. B., 1.

Virginia, Sil. ss.: Bierer, J. H., 1.

Helietites, Wyandotte cave, Ind.: McGrain, P., 1.

## Helium.

Age of solar system, measurement: Evans, R. D., 2.

Colorado, Trinidad area: Floyd, E., 2.

## Helium—Continued.

Granite intrusives, Calif.: Larsen, E. S., 2.

Index, unreliability: Keevil, N. B., 1.

Kansas: Moore, R. C., 1.

Massachusetts, Essex Co. granite: Keevil, N. B., 2.

North America, helium indexes, minerals and rocks: Keevil, N. B., 7.

Northeast: Keevil, N. B., 4.

Northwest Territories, Yellowknife area: Keevil, N. B., 3.

Origin and occurrence: Blau, M., 1.

Helvite, Iron Mtn. area, N. Mex.: Glass, J. J., 1.

## Hematite. See also Iron.

Alabama, Birmingham dist.: DeSoller, T. C., 1.

Banded ores: Dunn, J. A., 1.

Georgia, Sand-lookout Mtn. area: Sullivan, J. W., 2.

Maine, Arcootook Co.: White, W. S., 1.

Minnesota, Soudan mine: Anonymous, 26.

Missouri, sinks: Pough, F. H., 2.

Nova Scotia, New Ross area: Douglas, G. V., 4.

Ontario, Dobie area quantitative relations: Thomson, J. Ellis, 2.

Josephine mine area: Brown, E. L., 1.

Steep Rock Lake: Roberts, H. M., 1.

Steeple area: Rose, E. R., 1.

Pennsylvania, Lehigh Co. min. res.: Miller, B. L., 3.

West Virginia, SE.: Reeves, F., 1.

Hemimorphite, S. Calif.: Murdoch, J., 1.

Hetaerolite, N. J.: Frondel, C., 1.

High-cristobalite, crystallography: Lukesh, J. S., 1.

Historical (stratigraphic) geology. For areal see names of States; different systems; Correlations; Geologic formations, tables.

Aerial photographs, use and interpretation: Desjardins, L. H., 1; Eardley, A. J., 1; Smith, H. T. U., 1, 2.

Biogenic laws applied to stratigraphy: Mathews, A. A. L., 1.

Colorado group: Keyes, 32.

Continents, geophys., geol. study of: Thom, W. T., Jr., 2.

Cretaceous-Tertiary boundary: Dorf, 2.

Dip and strike from 2 not parallel drill cores, lacking key beds: Bucher, W. H., 3.

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Earth's history: Quirke, T. T., 1.

Errors, measuring strata: Secrist, M. H., 1.

General: Miller, W. J., 1.

Geochemical prosp.: Rosaire, E. E., 1.

Integration, geology, physics, chemistry, to solve earth-problems: Kelly, S. F., 1.

Oligocene, status: Durham, J. W., 6.

## Historical geology—Continued.

- Ontario, Goudreau-Lochalsh area: Bruce E. L., 3.  
 Kenogamis River area: Macdonald, R. D., 2.  
 Ore deposits as related to structural features: Newhouse, W. H., 1.  
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 American geology, 1850-1900: Willis, B., 1.  
 British Columbia metal mining: British Columbia Dept. Mines, 1.  
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 Coal, early devel., Pa.: Robinson, C. W., 1.  
 Colorado, Arkansas River gorge: Kessler, F. C., 1.  
 Comstock Lode, Nev.: Smith, G. H., 1.  
 Cottonwood-American Fork mining dist., Utah: Calkins, F. C., 2.  
 Cuba, Prov. Habana geol. work: Sánchez Roig, M., 2.  
 Florida earthquakes: Campbell, R. B., 1.  
 Geologic maps, development of: Ireland, H. A., 2.  
 Illinois coal industry devel.: Leighton, M. M., 2.  
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 Iowa field, La., geophys. prosp.: Eby, J. B., 4.  
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 Kentucky River Valley lead mines: Jillson, W. R., 1.  
 Mineral clubs: Dake, H. C., 8.  
 National Research Council and co-op. geol. research: Bucher, W. H., 2.  
 Oregon, geology in: Lowell, W. R., 2.  
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 Oil devel.: Bonine, C. A., 1.  
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 Potash, Perm., Tex.: Woods, A. F., 1.  
 Tennessee, middle, oil and gas devel.: Born, K. E., 2.  
 Texas, oil industry: Barbour, G. B., 1.  
 United States water-well drilling: Carleton, C. W., 1.
- Hitchcock oil and gas field, Tex.: Halbouty, M. T., 2.
- Holothuroidea, microfauna, Gulf Coast: Howe, H. V., 2.
- Virginia, Appalachian Valley: Butts, C., 1.

Honduras. See also Central América.

*Paleontology.*

- Mammalia, Reptilia, Quat., Tert.: McGrew, F. O., 1.
- Hornblende.  
 California, Sierra Nevada NE. of Visalia: Durrell, C., 2.  
 Costa Rica: Dóndoli, C., 1.  
 New York, Cortlandt complex: Shand, S. J., 1.
- Hornfels, Darwin Hills, Calif.: Wilson, L. K., 1.
- Hot springs. See also Thermal waters.  
 California, Coso Mts. Hot Springs: Fraser, H. J., 2.  
 Coso quicksilver dist.: Ross, C. P., 6.  
 Costa Rica, Cartago and Coris Valleys: Segura Paguaga, A., 1.  
 Massachusetts, Conn. River Valley: Bain, G. W., 1.  
 United States, Rocky Mtn. Prov.: Forrester, J. D., 1.
- Howlite, Death Valley, Calif.: Funk, B. G., 1.
- Huasna oil area, Calif.: King, V. L., 1; Taliaferro, 3.
- Hugoton gas field, Kans.: Carlough, J. L., 1.
- Hull-Silk oil field, Tex.: Thompson, E. I., 1.
- Huntington Beach oil field, Calif.: Carriel, J. T., 1; Weaver, D. K., 1.
- Hureaulite, crystallography, Calif.: Murdoch, J., 3.
- Hydrohetaerolite, Colo.: Frondel, C., 1.
- Hydrology, ls. terranes: Swinnerton, A. C., 2.
- Hydrothermal alteration.  
 British Columbia, Red Rose tungsten mine: Stevenson, J. S., 7.  
 California, Coast Ranges manganese deposits: Taliaferro, 5.  
 Canada, Steep Rock Lake, Michipicoten deposits: Quirke, T. T., 4.  
 Lake Superior area replacement iron deposits: Roberts, H. M., 2.  
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- Hydroxylapatite, Ga.: Mitchell, L., 2.
- Hydrozoa. See also Coelenterata: Invertebrata (general).  
 Archaeolafœa, Ord., N.Y.: Howell, B. F., 12.  
 Faunas, Sil., W. Va.: Woodward, H. P., 1.  
 Montana, Three Forks area: Berry, G. W., 1.  
 Oklahoma: Decker, C. E., 7.  
 Palaeoscia, Ord., Ohio: Caster, K. E., 2.  
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- Ice flow within glaciers, types: Demorest, M. H., 2.
- Ice sheets: Demorest, M. H., 3.

## Idaho.

*Areas described.*

- Antimony deposits, Meyers Cove: Anderson, A. L., 6.  
 Cobalt deposits, Blackbird dist.: Anderson, A. L., 4.  
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 Rocky Bar dist.: Anderson, A. L., 7.

*Economic geology.*

- Antimony deposits, Meyers Cove: Anderson, A. L., 6.  
 Boise Basin: Anderson, A. L., 1.  
 Cobalt, Blackbird dist.: Anderson, A. L., 4.  
 Copper, Salmon area: Anderson, A. L., 5.  
 Dixie dist.: Roberts, R. J., 3.  
 Elk City dist. veins: Shenon, P. J., 3.  
 Fluorspar deposits, Meyers Cove: Anderson, A. L., 6.  
 Metal, coal mining dists.: Ross, C. P., 1.  
 Mica, beryl, Latah Co.: Forrester, J. D., 4.  
 Mining industry, 1941-42: Campbell, A., 1.  
 Murray dist.: Shenon, P. J., 2.  
 Ore controlled by structure: McKinstry, H. E., 2.  
 Rocky Bar dist.: Anderson, A. L., 7.  
 Sillimanite, Latah Co.: Forrester, J. D., 5.  
 Vanadium, Phosphoria fm.: Rubey, W., 1.  
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 Yellow Pine mine, Stibnite: Bradley, J. D., 1.

*Historical geology.*

- Bannock Range: Ludlum, J. C., 2.  
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 Eo-Triassic correls.: Newell, N. D., 1.  
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 Pre-Cambrian, Pocatello: Ludlum, J. C., 1.  
 Rock Bar dist.: Anderson, A. L., 7.  
 Shoshone area: Harrington, R. R., 2.  
 Sillimanite deposits, Latah Co.: Forrester, J. D., 5.  
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 Thaynes fm., Bear Lake Valley: Kummel, B., Jr., 2.  
 Three Forks fauna in Lost River Range: Baldwin, E. M., 1.  
 Yellow Pine mine, Stibnite: Bradley, J. D., 1.

*Mineralogy.*

- Antimony deposits, Meyers Cove: Anderson, A. L., 6.  
 Boise Basin: Anderson, A. L., 1.  
 Boulangerite: Palache, C., 1.  
 Cobalt, Blackbird dist.: Anderson, A. L., 4.  
 Copper, Salmon area: Anderson, A. L., 5.  
 Elk City dist. veins: Shenon, P. J., 3.

## Idaho—Continued.

*Mineralogy—Continued.*

- Endomorphism, Idaho batholith: Anderson, A. L., 2.  
 Fluorspar deposits, Meyers Cove: Anderson, A. L., 6.  
 Metal, coal mining dists.: Ross, C. P., 1.  
 Mica, beryl, Latah Co.: Forrester, J. D., 4.  
 Murray dist.: Shenon, P. J., 2.  
 Ore control by rock structure: McKinstry, H. E., 2.  
 Rocky Bar dist.: Anderson, A. L., 7.  
 Sillimanite, Latah Co.: Forrester, J. D., 5.  
 Vanadium, Phosphoria fm.: Rubey, W., 1.  
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*Paleontology.*

- Bog, peat, Purcell Trench: Hansen, H. P., 11.  
 Latah Petrified Forests: Dake, H. C., 6.  
 Thaynes fm., Bear Lake Valley: Kummel, B., Jr., 2.  
 Three Forks fauna in Lost River Range: Baldwin, E. M., 1.

*Petrology.*

- Dixie dist.: Roberts, R. J., 3.  
 Endomorphism, Idaho batholith: Anderson, A. L., 2.  
 Orbicular rock, Buffalo Hump: Goodspeed, G. E., 1.  
 Rocky Bar dist.: Anderson, A. L., 7.  
 Shoshone area: Harrington, E. R., 2.

*Physical geology.*

- Antimony deposit, Meyers Cove: Anderson, A. L., 6.  
 Bannock Range: Ludlum, J. C., 2.  
 Boise Basin: Anderson, A. L., 1.  
 Cobalt deposits, Blackbird dist.: Anderson, A. L., 4.  
 Copper deposits, Salmon area: Anderson, A. L., 5.  
 Dixie dist.: Roberts, R. J., 3.  
 Elk City dist.: Shenon, P. J., 3.  
 Endomorphism, Idaho batholith: Anderson, A. L., 2.  
 Fluorspar deposits, Meyers Cove: Anderson, A. L., 6.  
 Granite and ore: Anderson, A. L., 3.  
 Murray dist.: Shenon, P. J., 2.  
 Orbicular rock, Buffalo Hump: Goodspeed, G. E., 1.  
 Ore control by rock structure: McKinstry, H. E., 2.  
 Rocky Bar dist.: Anderson, A. L., 7.  
 Snake River Canyon, Asotin Stage: Lupper, R. L., 1.  
 Vanadium, Phosphoria fm.: Rubey, W., 1.  
 Warren dist.: Reed, J. C., 5.  
 Yellow Pine mine, Stibnite: Bradley, J. D., 1.

*Physiographic geology.*

- Bannock Range: Ludlum, J. C., 2.

## Idaho—Continued.

*Physiographic geology*—Continued.

- Dixie dist.: Roberts, R. J., 3.  
 Lake Spokane, glacial lake: Large, T., 1.  
 Salmon area copper deposits: Anderson, A. L., 5.  
 Shoshone area: Harrington, E. R., 2.  
 Snake River Canyon, Asotin Stage: Lupher, R. L., 1.

Idocrase, morphology: Tremblay, J. A., 1.

Igneous and volcanic rocks. See also Batholiths; Dikes; Intrusions; Laccoliths; Magmas; Petrology.

Alabama, Pinckneyville quartz-diorite complex: Gault, H. R., 1.

Alaska, Admiralty Is.: Reed, J. C., 4.

Baranof Is.: Guild, P. W., 2.

Bohemia Basin, Yakobi Is.: Reed, J. C., 2.

Chicagof Is.: Pecora, W. T., 2.

Chicagof mining dist.: Reed, J. C., 1.

Eagle-Circle dist.: Mertie, J. B., Jr., 1.

Gerstle River dist.: Moffit, F. H., 1.

Kenai Pen.: Guild, P. W., 1.

Kennecott deposits: Bateman, A. M., 2.

Matanuska Valley: Martin, P. F., 1.

Nabesna area: Wayland, R. G., 2.

Nutzotin Mts. area: Moffit, F. H., 2.

Portage Pass area: Barnes, F. F., 1.

Seward Pen.: Alaska Plann. Coun., 1.

Yakobi Is. nickel deposits: Kennedy, G. C., 1.

Arctic America, Baffin Is.: Manning, T. H., 1.

Arizona, Ajo copper dist.: Gilluly, J., 1.

Bisbee dist.: Rove, O. N., 1.

Cored bombs from volcanic cones: Brady, L. F., 1.

Grand Canyon lavas, Toroweap: McKee, E. D., 1.

Hopi Buttes area: Hack, J. T., 2.

Oatman-Katherine dists.: Lausen, C., 1.

Slate Mtn.: Mintz, Y., 1.

Tombstone dist.: Butler, B. S., 1.

Arkansas, Alexander quad.: Strahler, A. N., 1.

British Columbia: Gunning, H. C., 2.

Dolly Varden mine: Warren, H. V., 1.

Eldorado prospect: Brennan, C. V., 1.

Gold-quartz veins, O. K. Mtn.: Stevenson, J. S., 2.

Pinchi Lake mercury belt: Armstrong, J. E., 3.

Southern: Davis, N. F. G., 1.

Vancouver Is.: Joubin, F. R., 1.

California, Berryessa Valley: Anderson, F. M., 1.

Bradley-San Miguel dist.: Taliaferro, 4.

Cargo Muchacho Mts.: Henshaw, P. C., 2.

Conejo oil field: May, J. C., 1.

Confidence dist.: Little, J. M., 1.

Cored bombs from volcanic cones: Brady, L. F., 1.

Coso Mts. Hot Springs: Fraser, H. J., 2.

## Igneous and volcanic rocks—Continued.

## California—Continued.

Coso quicksilver dist.: Ross, C. P., 6.

Crocker Flat landslide area: Simonson, R. R., 1.

Franciscan-Knoxville problem: Taliaferro, 2.

Marysville (Sutter) Buttes gas field: Johnson, H. R., 1.

Middle Butte dist.: Fraser, H. J., 4.

Park dist.: Bailey, E. H., 2.

Petaluma area: Johnson, F. A., 1.

Point Arena-Fort Ross area: Weaver, C. E., 2.

San Gabriel Mts.: Williams, J. E., 1.

Sierra Nevada manganese deposits: Taliaferro, 6.

Sierra Nevada, near Bishop: Lemmon, D. M., 1.

Sierra Nevada NE. of Visalia: Durrell, C., 2.

Stayton dist.: Bailey, E. H., 1.

Sutter (Marysville) Buttes field: Stalder, W., 1.

Twin Lakes area: Chesterman, C. W., 1.

Welsh tungsten deposits: Little, J. M., 2.

Canada, gold: Moorehouse, W. W., 4.

Laurentian area: Mauffette, P., 1.

North bank St. Lawrence, Bersimis to Matamec: Faessler, C., 1.

Rock alterations by hydrothermal solutions: Bruce, E. L., 2.

Canadian Shield, Archean sedimentation: Pettijohn, F. J., 1.

Cascade Range: Williams, H., 1.

Central America: Mullerried, 5; Weaver, C. E., 1.

Colorado, Beaver-Tarryall area, Park Co.: Singewald, Q. D., 2.

Centennial Cone dike: Waldschmidt, W. A., 1.

Cripple Creek dist.: Koschmann, A. H., 1.

Gold Hill area: Goddard, E. N., 1.

Iron Hill alkalic rocks: Larsen, E. S., 1.

Jamestown dist.: Bray, J. M., 1, 3.

Leadville dist.: Loughlin, G. F., 1.

Tertiary, Front Range: Bray, J. M., 2.

Trinidad area: Floyd, E., 1.

Composition: Daly, R. A., 2.

Connecticut, nickel sulphides, Mt. Prospect: Cameron, E. N., 1.

Costa Rica, Virilla Canyon, Meseta Central: Crosby, I. B., 2.

Cuba, geology and oil prosp.: Palmer, R. H., 1.

Manganese deposits: Park, C. F., Jr., 2.

Pinar del Río Prov.: Vermunt, L. W. J., 1.

Elasticity at high temperatures and pressures: Birch, A. F., 2.

Eruptive rocks: Shand, S. J., 3.

Granite and ore: Anderson, A. L., 3.



## Igneous and volcanic rocks—Continued.

- Greenland, Skaergaard intrus. elements:  
 Wager, L. R., 1.  
 Traill Is.: Schaub, H. P., 1.  
 Ground-water chemistry: Foster, M. D., 1.  
 Hawaii, Maui Is.: Stearns, H. T., 3.  
 Idaho, Asotin Stage Snake River Canyon: Lupton, R. L., 1.  
 Idaho batholith: Anderson, A. L., 2.  
 Pocatello area: Ludlum, J. C., 1.  
 Rocky Bar dist.: Anderson, A. L., 7.  
 Shoshone area: Harrington, E. R., 2.  
 Illinois, fluorspar deposits: Bastin, E. S., 1.  
 Marseilles, Ottawa, Streator quads.: Willman, H. B., 2.  
 Omaha oil pool: English, R. M., 1.  
 Iron ranges, Lake Superior dist.: Royce, S., 1.  
 Labrador, Nain area: Wheeler, E. P., 2d, 1.  
 Lake Superior area replacement iron deposits: Roberts, H. M., 2.  
 Laramie River Valley, Colo.-Wyo.: Beckwith, R. H., 1.  
 Lesser Antilles, soil from volcanic rocks: Hardy, F., 1.  
 Lithology of sea-floor off Calif.: Emery, K. O., 1.  
 Maine, Frenchman's Bay: Chadwick, G. H., 4.  
 Mount Desert Is.: Chadwick, G. H., 2, 3.  
 Mount Desert rock ser.: Chadwick, G. H., 3.  
 Southeastern ore deposits: Li, C.-Y., 1.  
 Vitrophyre dike, Cape Neddick: Haff, J. C., 3.  
 Manitoba, Bird River area: Bateman, J. D., 2.  
 Gunnar mine: Lord, C. S., 1.  
 McVeigh Lake area: Bateman, J. D., 1.  
 Rock alteration and ore deposits, San Antonio mine: Bragg, J. G., 1.  
 Maryland, Patapsco State Park: Mather, L. B., Jr., 1.  
 Piedmont: Chapman, R. W., 1.  
 Massachusetts, Ayer granodiorite origin: Jahns, R. H., 2.  
 Connecticut River Valley: Bain, G. W., 1.  
 Dracut area: Dennen, W. H., 1.  
 Pelham gneiss dome: Balk, R., 1.  
 Mexico, Alistos, gold-nickel deposit: Krieger, P., 1.  
 Chihuahua volcanics: Sidwell, R., 2.  
 Coahuila: Mullerried, 1.  
 El Alamo mine, Baja, Calif.: Ant6nez Echegaray, F., 2.  
 Fresnillo mine veins: Stone, J. B., 1.  
 Guadalajara: D6az, S., 1.  
 La Angostura dam area: Vicente Orcozco, J., 1.  
 Northern: Kellum, L. B., 1; King, P. B., 1.  
 Orogenesis and relief: Robles Ramos, R., 1.

## Igneous and volcanic rocks—Continued.

- Mexico—Continued.  
 Pachuca dist.: Wisser, E., 1.  
 Pilares dist.: Ant6nez Echegaray, F., 1.  
 San Antonio mine, Chihuahua: Hewitt, W. P., 1.  
 Sierra Madre Oriental: Heim, A., 1; Mullerried, 2.  
 Tin deposits: Foshag, W. F., 1.  
 Valley of Tixtla: Mullerried, 2.  
 Valsequillo canal area: Alvarez Carvajal, M., 1.  
 Minnesota, Keweenaw extrusives metamorphosed: Schwartz, G. M., 5.  
 Thomson fm.: Schwartz, G. M., 3.  
 Missouri, Fredericktown area: McQueen, H. S., 1.  
 Montana, Dillon complex: Sinkler, H., 1.  
 Libby quad.: Gibson, R., 1.  
 Livingston ig. rocks: Parsons, W. H., 1, 2.  
 Rocky Boy stock: Pecora, W. T., 3.  
 Three Forks area: Berry, G. W., 1.  
 Neo-volcanism in Mexico: Robles Rom6s, R., 3.  
 Nevada, Lander Co.: Fries, C., Jr., 1.  
 Majuba Hill area: Smith, Ward C., 1.  
 Nevada dist.: Roberts, R. J., 1.  
 Nightingale dist.: Smith, Ward C., 2.  
 Roberts Mts.: Merriam, C. W., 2.  
 Rose Creek tungsten mine: Roberts, R. J., 2.  
 Ruby Mts.: Sharp, R. P., 2.  
 Three Kids dist.: Hunt, C. B., 1.  
 New Brunswick: Alcock, F. J., 3.  
 Lepreau-Musquash area: Wright, W. J., 1.  
 Long Reach, King's Co.: Alcock, F. J., 1.  
 New England-Hudson Valley area: Longwell, 4.  
 Newfoundland, Baie Verte area: Watson, K. D., 2.  
 Fleur-de-Lys area: Fuller, J. O., 1.  
 St. Lawrence dist.: Van Alstine, R. E., 1.  
 New Hampshire: Olson, J. C., 1.  
 Cardigan-Rumney area: Fowler-Billings, K. S., 2.  
 Claremont-Newport area: Chapman, C. A., 1.  
 Franconia mine: Verrow, H. J., 1.  
 Mt. Cube area: Hadley, J. B., 2.  
 Ossipee Mts. area: Billings, M. P., 2.  
 Pliny area: Chapman, R. W., 2.  
 Winnepesaukee quad.: Quinn, A. W., 1.  
 New Mexico, Cimarron Range: Smith, J. F., Jr., 1.  
 Extrusive, related rocks: Collins, R. F., 1.  
 Magdalena mining dist.: Loughlin, G. F., 2.  
 New York, Lake George area: Newland, D. H., 1.

## Igneous and volcanic rocks—Continued.

## New York—Continued.

- Lake Sanford area: Stephenson, R. C., 1.  
 Lamprophyric dikes, Manhattan schist, New York City: Colony, R. J., 1.  
 New York City: Colony, R. J., 1;  
 Walovnick, S., 1.  
 Vanadium, magnetite-ilmenite deposits, Lake Sanford: Balsley, J. R., Jr., 1.  
 North America, helium indexes, minerals and rocks: Keevil, N. B., 7.  
 North Carolina, chromite deposits: Hunter, C. E., 2.  
 Spruce Pine dist.: Kesler, T. L., 1.  
 North Dakota, Turtle River State Park: Laird, W. M., 3.  
 Northwest Territories: Anonymous, 24.  
 Snare River-Ingray Lake area: Lord, C. S., 2.  
 Nova Scotia, Cap d'Or area: Douglas, G. V., 7.  
 New Campbellton area: Douglas, G. V., 3.  
 New Ross area: Douglas, G. V., 4, 5.  
 Nuclear physics application: Goodman, C., 1.  
 Oklahoma, Osage Co.: Bass, N. W., 2.  
 Ontario, Bancroft intrusives: Chayes, F., 1.  
 Big Duck-Aguasabon Lakes area: Bartley, M. W., 1.  
 Caribou-Pikitungushi area: Gussow, W. C., 1.  
 Crow River area: Evans, E. L., 1.  
 Cuniptau nickel mine: Sandefur, B. T., 1.  
 Dryden-Wabigoon area: Satterly, J., 1, 3.  
 Eagle Lake area: Moorhouse, W. W., 1.  
 Fort Hope-Martin Falls area: Prest, V. K., 3.  
 Garnet-Cunningham area: Meen, V. B., 1.  
 Gold mineralization, porphyry: Moorhouse, W. W., 4.  
 Goldrock area: Thomson, Jas. E., 1.  
 Gorham Tp.: Macdonald, R. D., 1.  
 Goudreau-Lochalsh area: Bruce, E. L., 3.  
 Haliburton area: Satterly, J., 4.  
 Hutchison Lake area: Macdonald, R. D., 3.  
 Josephine mine area: Brown, E. L., 1.  
 Kenogamisis River area: Macdonald, R. D., 2.  
 Langmuir-Sheraton area: Berry, L. G., 2.  
 McGarry, McVittie Tps., Larder Lake area: Thomson, Jas. E., 3.  
 Matachewan mine: Derry, D. R., 2;  
 Hopper, C. H., 1.  
 Mishibishu Lake area: Evans, J. E. L., 3.  
 North Hastings area: Thomson, Jas. E., 4.

## Igneous and volcanic rocks—Continued.

## Ontario—Continued.

- Poohbah Lake: Allen, C. C., 1.  
 Rennie, Stover, Leeson, Brackin Tps.: Bruce, E. L., 5.  
 Rowan Lake: Thomson, Jas. E., 2.  
 Rowlandson Lake area: Prest, V. K., 1.  
 Steeprock Lake area: Roberts, H. M., 1.  
 Sudbury dist.: Cooke, H. C., 3; Fairbairn, H. W., 3.  
 Sturgeon River gold mines: Bruce, E. L., 1.  
 Thunder Bay dist.: Bruce, E. L., 4.  
 Timagami area: Moorhouse, W. W., 2, 3.  
 Trans-Canada highway, Longlac-Hearst: Evans, J. E. L., 2.  
 Windigo-North Caribou Lakes: Satterly, J., 2.  
 Wunnummin Lake area: Prest, V. K., 2.  
 Oregon, gold and copper ores: Lowell, W. R., 1.  
 Juniper Ridge: Allen, J. E., 1.  
 Nickel Mtn. area: Pecora, W. T., 1.  
 North-central: Hodge, E. T., 1.  
 No tin at Juniper Ridge: Harrison, H. C., 1.  
 Portland area: Treasher, R. C., 2.  
 Snake-Imnaha Rivers jct. area: Libby, F. W., 2.  
 Steens and Pueblo Mts.: Ross, C. P., 3.  
 Tyrrell area: Lowry, W. D., 1.  
 Wallowa batholith: Krauskopf, K. B., 1.  
 Oregon-California, Jurassic: Taliaferro, 1.  
 Pacific Northwest, U. S.: Smith, W. D., 1.  
 Panama, Tert.: Olsson, A. A., 1.  
 Parícutin volcano, Mex., 1943: De La O. Carreño, A., 1.  
 Pennsylvania, Lehigh Co.: Miller, B. L., 1.  
 Lehigh Co., pre-Camb.: Fraser, D. M., 1.  
 Lehigh Co., Trias.: Wherry, E. T., 1.  
 Spring Mtn.: Myers, R. E., 3.  
 Wissahickon fm. type locality: Postel, A. W., 2.  
 Permian, west-Tex.-N. Mex.: King, P. B., 2.  
 Petrology and silicate technology: Bowen, N. L., 1.  
 Physical constants: Birch, A. F., 1.  
 Quebec, apatite belt, W. Portland Tp.: Moorhouse, W. W., 5.  
 Barry Lake area: Milner, R. L., 1.  
 Brock River area: Kindle, E. D., 1.  
 Dubuison Tp.: Norman, G. W. H., 1.  
 Eustis mine area: Douglas, G. V., 1.  
 Federal area, Gaspé: Gill, J. E., 2.  
 Flavrian Lake area: Robinson, W. G., 1.  
 Forget Lake area: Longley, W. W., 1.  
 Gaspé Pen.: Alcock, F. J., 2.  
 Halliwell mine area: MacKenzie, G. S., 1.  
 Island of St. Paul, St. Lawrence River: Morin, L. G., 1.  
 Keewatin volcanics: Wilson, M. E., 2.

## Igneous and volcanic rocks—Continued.

## Quebec—Continued.

- Kitchigama Lake area: Longley, W. W., 2.  
 Lake Forgues to Johan Beetz on St. Lawrence: Claveau, J., 1.  
 Lake Wakeham area: Claveau, J., 3.  
 Noranda, etc., dists.: Wilson, M. E., 1.  
 Olga-Mattagami area: Auger, P. E., 1.  
 Romaine River area: Retty, J. A., 1.  
 St. Jean-Beloeil areas: Clark, T. H., 2.  
 Rhode Island, Bradford dike: Quinn, A. W., 2.  
 Sediment composition: Krynine, P. D., 4.  
 Soil mechanics and foundations: Plummer, F. L., 1.  
 South Carolina, sillimanite: Smith, L. L., 1.  
 South Dakota, Black Hills pre-Camb. domes, origin: Runner, J. J., 1.  
 Lead area: Dodge, T. A., 1.  
 Medicine Butte anticline: Petsch, B. C., 1.  
 Structural geology: Billings, M. P., 1.  
 Texas, Crosbyton anomaly: McLemore, E. W., 1.  
 Quitman Mts.: Huffington, R. M., 1.  
 Santiago Peak quad.: Eifler, G. K., Jr., 1.  
 Shafter mining dist.: Ross, C. P., 7.  
 Terlingua dist. analcite: Lonsdale, J. T., 1.  
 Terlingua quicksilver dist.: Ross, C. P., 2.  
 United States, Basin and Range prov.: Nolan, T. B., 1.  
 Columbia basins and plateaus: Freeman, O. W., 2.  
 Dakota Basin: Ballard, N., 2.  
 Rare metals in: Sandell, E. B., 1.  
 Ring-dikes: Billings, M. P., 3.  
 Rocky Mtn. prov.: Forrester, J. D., 1.  
 Utah, Ashbrook silver dist.: Peterson, V. E., 1.  
 Cottonwood-American Fork area: Calkins, F. C., 2.  
 West Tintic mining dist.: Stringham, B. F., 1.  
 Vermont talc and asbestos deposits: Bain, G. W., 2.  
 Virginia, Appalachian Valley: Butts, C., 1.  
 Buchanan-Cove Mtn.-Jennings Creek field trip: Holden, R. J., 1.  
 Irish Creek area: Koschmann, A. H., 2.  
 Washington, Blewett iron deposits, Chelan Co.: Broughton, W. A., 3.  
 Buckhorn iron deposits: Broughton, W. A., 2.  
 Metaline quad.: Park, C. F., Jr., 4.  
 Olympic Pen.: Park, C. F., Jr., 1; Anonymous, 1.  
 Silver Hill dist.: Page, L. R., 1.  
 Tucannon River area: Huntting, M. T., 2.  
 Wisconsin, Baxter Hollow granite cupola: Gates, R. M., 1.

## Igneous and volcanic rocks—Continued.

- Wyoming, Cache Creek area, Gros Ventre Mts.: Nelson, V. E., 1.  
 Grand Teton Nat. Park: Horberg, L., 1.  
 Rocks, soils, and selenium: Knight, S. H., 1.  
 Teton Mts.: Edmund, R. W., 1.  
 Yukon, Wolf Creek area, St. Elias Range: Sharp, R. P., 7.  
 Ijolite, Iron Hill alkaline rocks, Colo.: Larsen, E. S., 1.  
 Iles oil field, Colo.: Bass, N. W., 3.  
 Illinois Basin oil fields, U. S.: Hake, B. F., 2.  
 Illinois.  
 Development, Geol. Survey: Leighton, M. M., 2.  
 Areas described.  
 Marseilles quad.: Willman, H. B., 2.  
 Ottawa quad.: Willman, H. B., 2.  
 Streator quad.: Willman, H. B., 2.  
 Economic geology.  
 Carbon-ratio theory, status: Bell, A. H., 1.  
 Clay, halloysite: Lamar, J. E., 1.  
 Crude oils, chem. characteristics and geol. occurrence: Rees, O. W., 1.  
 Dolomite, high-purity: Willman, H. B., 3.  
 Feldspar in sands: Willman, H. B., 1.  
 Fluorspar deposits: Bastin, E. S., 1.  
 Ground-water surveys: Buswell, A. M., 3.  
 Herrin (No. 6) coal bed, oil and gas poss.: Payne, J. N., 1.  
 Structure: Payne, J. N., 1.  
 Interior Basin oil fields: Bell, A. H., 2; Hake, B. F., 2.  
 Lead mines, Galena: Mauntel, H. W., 1.  
 Limestone, agri. res.: Lamar, J. E., 2.  
 Marseilles quad.: Willman, H. B., 2.  
 Mineral resources: Leighton, M. M., 1.  
 Oil fields: Bell, A. H., 4.  
 Omaha oil pool: English, R. M., 1.  
 Ottawa quad.: Willman, H. B., 2.  
 Petroleum and gas, 1941: Bell, A. H., 3, 4.  
 Petroleum devel., recent: Millison, C., 1.  
 Streator quad.: Robinson, L. C., 1; Willman, H. B., 2.  
 Structure, base of Kinderhook-New Albany sh.: Bell, A. H., 6.  
 Structure and oil poss., SE. Ill.: Easton, W. H., 5.  
 Wabash River Valley oil and gas: Cohee, G. V., 1.  
 Water flooding of oil sands: Squires, F., 1.  
 Wells in coal basin: Taylor, E. F., 1.  
 Wildcat drilling since 1936: Carter, C. W., 1.  
 Historical geology.  
 Buried bedrock valleys E. of Joliet: Horberg, L., 2.  
 Carbon-ratio theory, status: Bell, A. H., 1.  
 Chester type secs., SE. Ill.: Tippie, F. E., 1.  
 Chicago area geol. maps: Bretz, J. H., 3.

## Illinois—Continued.

*Historical geology*—Continued.

- Crude oils, chem. characteristics and geol. occurrence: Rees, O. W., 1.
- Dolomite, high-purity: Willman, H. B., 3.
- Fluorspar deposits: Bastin, E. S., 1.
- Fusuline Penn. beds: Weller, J. M., 5.
- Glen Dean ls. key horizon: Cohoe, G. V., 2.
- Herrin (No. 6) coal bed structures: Payne, J. N., 1.
- Key beds, Penn. sec., Ill.-Ind.: Alexander, J. W., 1.
- Kinderhook-New Albany strata: Workman, L. E., 1.
- Levias, Renault fms., Hardin Co.: Tippie, F. E., 2.
- Limestones, agri. res.: Lamar, J. E., 2.
- Louisville vs. New Albany black shs.: Keyes, C. R., 7.
- Marseilles quad.: Willman, H. B., 2.
- Oil fields: Bell, A. H., 4.
- Ordovician Fox River area: Willman, H. B., 4.
- Ostracoda, Chester index: Cooper, C. L., 3.
- Ottawa quad.: Willman, H. B., 2.
- Outlines of geology: Keyes, 25.
- Pennsylvanian, Carlinville quad.: Ball, J. R., 4.
- Correlations: Weller, J. M., 2.
- Petroleum devel., recent: Millison, C., 1.
- Pre-Pennsylvanian surface: Smith, M. H., 1.
- Rhythms, Penn. cyclothems: Weller, J. M., 4.
- Streator quad.: Robinson, L. C., 1; Willman, H. B., 2.
- Structure and oil poss., SE. Ill.: Easton, W. H., 5.
- Structure, base of Kinderhook-New Albany sh.: Bell, A. H., 6.
- Trenton near Morris: Bieber, C. L., 1.
- Water flooding of oil sands: Squires, F., 1.
- Will Co., bedrock surface, glacial drift: Horberg, L., 3.
- Wittenberg shales: Keyes, 23.

*Mineralogy.*

- Geodes, Warsaw, with bituminous matter: Robertson, P., 1.
- Lead mines, Galena: Mauntel, H. W., 1.
- Marseilles quad.: Willman, H. B., 2.
- Ottawa quad.: Willman, H. B., 2.
- Streator quad.: Willman, H. B., 2.

*Paleontology.*

- Bryozoa, Chester: McFarlan, A. C., 1.
- Cherts, Niagaran, facies and origin: Lowenstam, H. A., 3.
- Coal-ball flora: Andrews, H. N., Jr., 2, 10.
- Conodonts: Du Bois, E. P., 1, 2.
- Fauna, Niagaran, Chicago area: Lowenstam, H. A., 2.
- Flora, Carb., coal-balls: Andrews, H. N., Jr., 2, 10.
- Foerstediscus, Ord.: Branson, C. C., 1.
- Fossil zones, Penn.: Wilson, G. M., 1.

## Illinois—Continued.

*Paleontology*—Continued.

- Fructifications, filicean: Andrews, H. N., Jr., 9.
- Fusulinidae, Penn.: Dunbar, C. O., 6.
- Gametophyte and cones: Pannell, E., 2.
- Geodes, Warsaw, with bituminous matter: Robertson, P., 1.
- Heterangium, Carb.: Andrews, H. N., Jr., 4.
- Imitoceras, Carb.: Miller, A. K., 2.
- Key beds, Penn. sec. Ill.-Ind.: Alexander, J. W., 1.
- Lepidocarbon, coal balls: Andrews, H. N., Jr., 3.
- Lepidodendron, Carb.: Pannell, E., 1.
- Marseilles quad.: Willman, H. B., 2.
- Microfauna, Glen Dean ls.: Coryell, H. N., 1.
- Mycorrhizome, Carb.: Andrews, H. N., Jr., 7.
- Oreohelix, Copperas Creek: Morrison, J. P. E., 1.
- Ostracoda, Chester index: Cooper, C. L., 3.
- Ottawa quad.: Willman, H. B., 2.
- Paleocoryne attached to Fenestella: Elias, M. K., 5.
- Pennsylvanian, Carlinville quad.: Ball, J. R., 4.
- Rafinesquina sinclairi for R. elongata: Salmon, E. S., 2.
- Stipitopteris, Carb.: Lenz, L. W., 1.
- Streator quad.: Willman, H. B., 2.
- Yuma, Folsom artifacts: Renaud, E. B., 2.

*Petrology.*

- Bethel ss.: Pye, W. D., 3.
- Cherts, Niagaran, facies and origin: Lowenstam, H. A., 3.
- Dolomite, high-purity: Willman, H. B., 3.
- Herrin (No. 6) coal bed structure: Payne, J. N., 1.
- Key beds, Penn. sec., Ill.-Ind.: Alexander, J. W., 1.
- Levias, Renault fms., insoluble residues: Tippie, F. E., 2.
- Limestone, agri. res.: Lamar, J. E., 2.
- Marseilles quad.: Willman, H. B., 2.
- Ordovician, Fox River area: Willman, H. B., 4.
- Ottawa quad.: Willman, H. B., 2.
- Streator quad.: Willman, H. B., 2.

*Physical geology.*

- Fluorspar deposits: Bastin, E. S., 1.
- Omaha oil pool: English, R. M., 1.
- Ordovician, Fox River area: Willman, H. B., 4.
- Periglacial involutions, NE. Ill.: Sharp, R. P., 1.
- Pre-Pennsylvanian surface: Smith, M. H., 1.
- Sedimentation, accelerated, Galena River Valley: Adams, C., 1.

*Physiographic geology.*

- Great Ice Age: Ball, J. R., 3.
- Marseilles quad.: Willman, H. B., 2.

## Illinois—Continued.

*Physiographic geology*—Continued.

- Ottawa quad.: Willman, H. B., 2.  
 Periglacial involutions, NE. Ill.: Sharp, R. P., 1.  
 Pre-glacial Teays Valley: Fidler, M. M., 1.  
 Streator quad.: Robinson, L. C., 1; Willman, H. B., 2.  
 Thickness, glacial drift, Du Page Co.: Mason, A. C., 1.  
 Will Co., bedrock surface, glacial drift: Horberg, L., 3.

*Underground water.*

- Buried bedrock valleys E. of Joliet, and water: Horberg, L., 2.  
 Ground-water, Chicago-Joliet-Chicago Heights area: Buswell, A. M., 2.  
 Explorations for: Bays, C. A., 1.  
 Surveys: Buswell, A. M., 3.  
 Joliet area water supply: Buswell, A. M., 1.  
 Marseilles quad.: Willman, H. B., 2.  
 Ottawa quad.: Willman, H. B., 2.  
 Streator quad.: Robinson, L. C., 1; Willman, H. B., 2.  
 Water, S. Ill.: Krause, A., 1.  
 Wells in coal basin: Taylor, E. F., 1.

Illinium, radioactivity: Brimm, E. O., 1.

Illite, bleaching clays: Schroter, G. A., 1.

## Ilmenite.

- Florida: Vernon, R. O., 3.  
 Massachusetts, Dracut area: Dennen, W. H., 1.  
 New York, Lake Sanford area: Balsley, J. R., Jr., 1.  
 North Carolina, Coastal Plain: Richards, H. G., 2.  
 Ontario, Dobie area quantitative relations: Ellis, 2.  
 Quebec, orientation St. Urbain iron deposit: Tuttle, O. F., 1.  
 Romaine River area: Retty, J. A., 1.  
 Rare-element prosp. in pegmatites: Quirke, T. T., 2.

Ilsemanite, Colo.: Goldring, E. D., 1.

Imaginary submarine canyons: Shepard, F. P., 5.

Index fossils. See also Foraminifera: Petroleum.

- California, Franciscan ls., Mendocino Co.: Thalman, H. E., 8.  
 Martinez fm., age: Watson, E. A., 1.  
 Cenozoic fms., Atlantic, Gulf Coastal Plain and Caribbean region: Cooke, C. W., 4.  
 Collecting microfossils: Schenck, H. G., 3.  
 Economic paleontology and mineralogy: Driver, H. L., 2.  
 Fish scales: David, L. R., 2.  
 Foraminifera, Tert., Calif.: Adams, B. C., 1.  
 Foraminifera-Ostracoda show Fredericksburg-Washita boundary, Tex.: Lozo, F. E., Jr., 1.

## Index fossils—Continued.

- Galodea, Tert., Pacific Coast, U. S.: Durham, J. W., 2.  
 Globotruncana, Cret., Kans., Tex.: Thalman, H. E., 5.  
 Hantkenina and sub-genera: Thalman, H. E., 3.  
 Illinois, Chester Ostracoda: Cooper, C. L., 3.  
 Indiana, St. Louis and Ste. Genevieve lss.: McGrain, P., 2.  
 Louisiana, Anse la Butte dome: Bates, F. W., 1.  
 Microfauna, Glen Dean ls., Ill.: Coryell, H. N., 1.  
 Gulf Coast: Howe, H. V., 2.  
 Microfossils, Tert., Gulf Coast: Howe, H. V., 2.  
 Micropaleontology and oil explor.: Croncis, C. G., 1.  
 Micropaleontology labs. and oil: Schenck, H. G., 5.  
 Montana, Sawtooth Range: Deiss, C. F., 2.  
 North America, Cactocrinus proboscoidalis: Keyes, 15.  
 Ostracoda, Paleozoic: Cooper, C. L., 1.  
 Paleontology of oil and gas: Hanna, M. A., 1.  
 Paleontology, use by oil industry: Howe, H. V., 2.  
 Pennsylvania, Ord. clastic sed. rocks: Willard, B., 2.  
 Petroleum explor. methods: Campbell, R. B., 2.  
 Sedimentary petrology, aid to oil discovery: Sidwell, R., 2.  
 Texas, Halymenites: Patterson, J. M., 2.  
 United States, E., Hamilton correls.: Cooper, G. A., 1.  
 Great Basin area: Wheeler, H. E., 1.  
 Utah, Cottonwood-American Fork area: Calkins, F. C., 2.  
 Wyoming-Idaho Eo-Trias, correls.: Newell, N. D., 1.

## Indiana.

Report Div. Geology: Esarey, R. E., 1.

*Economic geology.*

- Eastern Interior Basin, oil and gas, 1941: Bell, A. H., 2.  
 Electric logs in subsurface studies: Cohee, G. V., 3.  
 Fort Branch coal field: Schenck, Herman G., 1.  
 Illinois Basin oil fields: Hake, B. F., 2.  
 Interior Basin, oil, 1941: Bell, A. H., 2.  
 Salem ls.: Rhoe Chapter, S. G. E., 1.  
 Wabash River Valley oil and gas: Cohee, G. V., 1.

*Historical geology.*

- Application, geology to highway eng.: Woods, K. B., 1.  
 Devil's Backbone and Hog Trough: Wickwire, G. T., 1.  
 Devonian: Campbell, G., 1; Dawson, T. A., 1.

## Indiana—Continued.

*Historical geology*—Continued.

- Electric earth resistivity surveys: Hagan, W. W., 2.  
 Electric logs in subsurface studies: Cohee, G. V., 3.  
 Ground-water res., Indianapolis area: McGinness, C. L., 1.  
 Key beds, Penn. sec., Ill.-Ind.: Alexander, J. W., 1.  
 Louisville vs. New Albany black shales: Keyes, C. R., 7.  
 St. Louis and Ste. Genevieve lss., Harrison Co.: McGrain, P., 2.  
 St. Louis-lower Chester sec., Putnam Co.: Smith, E. R., 2.

*Mineralogy.*

- Marcasite, "pencil": Smith, E. R., 1.

*Paleontology.*

- Cephalopoda, Sil.: Flower, R. H., 6.  
 Cyrtocerina, Cincinnati: Flower, R. H., 7.  
 Devonian, Middle: Campbell, G., 1.  
 Gyraacanthus, Upper Missn.: Wells, J. W., 10.  
 Key beds, Penn. sec., Ill.-Ind.: Alexander, J. W., 1.  
 Lepidostrobos, Penn., Orange Co.: Hoskins, J. H., 2.  
 Pollen profiles, extinct lake: Potzger, J. E., 6.  
 Pollen study of 3 bogs: Keller, C. O., 1.  
 Rayonoceras, phragmocones: Flower, R. H., 6.  
 St. Louis and Ste. Genevieve lss., Harrison Co.: McGrain, P., 2.  
 Salem ls.: Rhoe Chapter, S. G. E., 1.

*Petrology.*

- Devonian, Middle: Campbell, G., 1.  
 Helictites, Wyandotte Cave: McGrain, P., 1.  
 Key beds, Penn. sec., Ill.-Ind.: Alexander, J. W., 1.  
 St. Louis and Ste. Genevieve lss., Harrison Co.: McGrain, P., 2.  
 Salem ls.: Rhoe Chapter, S. G. E., 1.

*Physical geology.*

- Helictites, Wyandotte Cave: McGrain, P., 1.  
 St. Louis and Ste. Genevieve lss., Harrison Co.: McGrain, P., 2.

*Physiographic geology.*

- Application, geol. to highway eng.: Woods, K. B., 1.  
 Devil's Backbone and Hog Trough: Wickwire, G. T., 1.  
 Ground-water res., Indianapolis area: McGinness, C. L., 1.  
 Pre-glacial Teays Valley: Fidar, M. M., 1.  
 Regional rainfalls and erosion: Visher, S. S., 1.  
 St. Louis and Ste. Genevieve fms., Harrison Co.: McGrain, P., 2.  
 Wabash River, island fm. and channel filling: Brune, G. M., 1.

## Indiana—Continued.

*Underground water.*

- Electric earth resistivity surveys: Hagan, W. W., 2.  
 Ground-water res., Indianapolis area: McGinness, C. L., 1.

*Inesite.*

- Study of: Richmond, W. E., Jr., 1.  
 Washington: Richmond, W. E., Jr., 1.  
 Inglewood oil field, Calif.: Driver, H. L., 1.

*Insecta.*

- Antiquity, social insects: Bequaert, J. C., 1; Brown, R. W., 1.  
 Buena, Lyd Hyt Pond, Conn.: Hutchison, G. E., 1.  
 Cerambycidae, Tert., Colo.: Linsley, E. Gorton, 1.  
 Kansas, Perm.: Carpenter, F. M., 1.  
 Osmylidae, Florissant shs., Colo.: Carpenter, F. M., 2.  
 Wings, origin: Forbes, W. T. M., 1.

*Insoluble residues.*

- Ground-water explor.: Bays, C. A., 1.  
 Illinois, Fox River area: Willman, H. B., 4.  
 Levias, Renault fms., Hardin Co.: Tipple, F. E., 2.  
 Iowa, Missouri-Virgil fms., correl.: Wenberg, E. H., 1.  
 Montana, Madison Group: Sloss, L. L., 1.  
 Texas, Ellenburger fm.: Cole, C. T., 3.  
 Virginia, Cambro-Ord. lss.: Tolley, C. D., 1.  
 Devonian lss.: Jones, H. D., Jr., 1.  
 Silurian lss.: Jones, H. D., Jr., 1.

- Integration, geology, physics, chemistry, to solve earth problems: Kelly, S. F., 1.

- Inter-period boundaries: Werner, W. C., 1.

- Interpretation, cable-tool drilling logs: Swain, J. F., 1.

- Core analysis data: Schmidt, K. H., 1.

- Introduction to geology: Laverdière, J. W., 1.

- Introductory readings in geology: Whitcomb, L., 2.

- Intrusions. See also Batholiths; Dikes; Igneous and volcanic rocks; Laccoliths; Magmas.

- Alabama, Pinckneyville quartz-diorite complex: Gault, H. R., 1.

- Alaska, Admiralty Is.: Reed, J. C., 4.

- Baranof Is.: Guild, P. W., 2.

- Bohemia Basin, Yakobi Is.: Reed, J. C., 2.

- Chicago Is.: Pecora, W. T., 2.

- Chicago mining dist.: Reed, J. C., 1.

- Gerstle River dist.: Moffit, F. H., 1.

- Kenai Pen.: Guild, P. W., 1.

- Matanuska Valley: Martin, P. F., 1.

- Nabesna area: Wayland, R. G., 2.

- Nutzotin Mts. area: Moffit, F. H., 2.

- Seward Pen.: Alaska Plann. Coun., 1.

- Yakobi Is.: Kennedy, G. C., 1.

- Arizona, Bisbee dist.: Rove, O. N., 1.

- Slate Mtn.: Mintz, Y., 1.

## Intrusions—Continued.

- Arkansas, Alexander quad.: Strahler, A. N., 1.
- British Columbia: Gunning, H. C., 2.
- Bralorne mines: Joralemon, I. B., 1.
- Britannia mines: Ebbutt, F., 1.
- Copper Mtn.: Dolmage, V., 1.
- Dolly Varden mine: Warren, H. V., 1.
- Emerald property: Hedley, M. S., 1.
- Pinchi Lake mercury belt: Armstrong, J. E., 3.
- Red Rose tungsten mine: Stevenson, J. S., 7.
- Southern: Davis, N. F. G., 1.
- Sullivan mine: Pentland, A. G., 1.
- Vancouver Is.: Joubin, F. R., 1.
- California, Berryessa Valley: Anderson, F. M., 1.
- Cargo Muchacho Mts.: Henshaw, P. C., 2.
- Coast Ranges: Taliaferro, N. L., 5.
- Coast Range manganese deposits: Taliaferro, 5.
- Confidence dist.: Little, J. M., 1.
- Foliated dikes and xenoliths: Miller, W. J., 3.
- Franciscan-Knoxville problem: Taliaferro, 2.
- Granites: Larsen, E. S., 2.
- Marysville (Sutter) Buttes gas field: Johnson, H. R., 1.
- Middle Butte dist.: Fraser, H. J., 4.
- Mother Lode, Eldorado, Amador Cos.: Whitehead, W. L., 1.
- San Gabriel Mts.: Williams, J. E., 1.
- Sierra Nevada manganese deposits: Taliaferro, 6.
- Sierra Nevada near Bishop: Lemmon, D. M., 1.
- Sierra Nevada NE. of Visalia: Durrell, C., 2.
- Stayton dist.: Bailey, E. H., 1.
- Sutter (Marysville) Buttes field: Stalder, W., 1.
- Twin Lakes area: Chesterman, C. W., 1.
- Welsh tungsten deposits: Little, J. M., 2.
- Canada, gold: Moorhouse, W. W., 4.
- Laurentian area: Mauffette, P., 1.
- North bank St. Lawrence, Bersimis to Matamec: Faessler, C., 1.
- Colorado, Alma dist.: Singewald, Q. D., 1.
- Beaver-Tarryall area, Park Co.: Singewald, Q. D., 2.
- Boulder Co.: Bascom, W., 1.
- Centennial Cone dike: Waldschmidt, W. A., 1.
- Front Range mineral belt: Lovering, T. S., 2.
- Gold Hill area: Goddard, E. N., 1.
- Iron Hill alkalic rocks: Larsen, E. S., 1.
- Leadville dist.: Loughlin, G. F., 1.
- Connecticut, nickel sulphides, Mt. Prospect: Cameron, E. N., 1.
- Cuba, geology and oil prosp.: Palmer, R. H., 1.
- Viñales Is.: Imlay, R. W., 2.

## Intrusions—Continued.

- Granite and ore: Anderson, A. L., 3.
- Greenland, Skaergaard intrus. elements: Wager, L. R., 1.
- Traill Is.: Schaub, H. P., 1.
- Idaho batholith: Anderson, A. L., 2.
- Idaho, Blackbird dist.: Anderson, A. L., 4.
- Boise Basin: Anderson, A. L., 1.
- Dixie dist.: Roberts, R. J., 3.
- Elk City dist. veins: Shenon, P. J., 3.
- Ore control by rock structure: McKinstry, H. E., 2.
- Rocky Bar dist.: Anderson, A. L., 7.
- Illinois, Omaha oil pool: English, R. M., 1.
- Iron ranges, Lake Superior dist.: Royce, S., 1.
- Jamaica: Trechmann, C. T., 1.
- Labrador, Nain area: Wheeler, E. P., 2d, 1.
- Lake Superior area iron deposits: Roberts, H. M., 2.
- Maine, Frenchman's Bay: Chadwick, G. H., 4.
- Mount Desert Is. rocks: Chadwick, G. H., 2, 3.
- Southeast, ore deposits: Li, C.-Y., 1.
- Vitrophyre dikes, Cape Neddick: Haff, J. C., 3.
- Manitoba, Bird River area: Bateman, J. D., 2.
- Gunnar mine: Lord, C. S., 1.
- McVeigh Lake area: Bateman, J. D., 1.
- Massachusetts, Ayer granodiorite origin: Jahns, R. H., 2.
- Dracut area: Dennen, W. H., 1.
- Pelham gneiss dome: Balk, R., 1.
- Mexico, Alistos gold-nickel deposit: Krieger, P., 1.
- Northern tectonics: King, P. B., 1.
- Orogenesis and relief: Robles Ramos, R., 1.
- Pilares dist.: Antúnez Echegaray, F., 1.
- San Antonio mine, Chihuahua: Hewitt, W. P., 1.
- Structural features, ore deposits: Schmitt, H. A., 1.
- Tin deposits: Foshag, W. F., 1.
- Minnesota, Keweenaw: Schwartz, G. M., 5.
- Thomson fm.: Schwartz, G. M., 1, 3.
- Montana, Dillon complex: Sinkler, H., 1.
- Libby quad.: Gibson, R., 1.
- Livingston ig. rocks: Parsons, W. H., 1, 2.
- Sheep Creek dist.: McGuire, R. A., 1.
- Three Forks area: Berry, G. W., 1.
- Nepheline syenite pegmatites, Rocky Boy Stock: Pecora, W. T., 3.
- Nevada, Majuba Hill area: Smith, Ward, C., 1.
- Nevada dist.: Roberts, R. J., 1.
- Nightingale dist.: Smith, Ward C., 2.
- Robinson mining dist.: Pennebaker, E. N., 1.
- Rose Creek tungsten mine: Roberts, R. J., 1.
- Ruby Mts.: Sharp, R. P., 2.

## Intrusions—Continued.

- New Brunswick: Rose, B., 1.  
 Reserve Brook ore deposits: MacKenzie, G. S., 2.  
 Newfoundland, Baie Verte area: Watson, K. D., 2.  
 Fleur-de-Lys area: Fuller, J. O., 1.  
 New Hampshire, Cardigan-Rumney area: Fowler-Billings, K. S., 2.  
 Claremont-Newport area: Chapman, C. A., 1.  
 Mt. Cube area: Hadley, J. B., 2.  
 Ossipee Mts. area: Billings, M. P., 2.  
 Pliny area: Chapman, R. W., 2.  
 Winnepesaukee quad.: Quinn, A. W., 1.  
 New Mexico, Central mining dist.: Schmitt, H. A., 1.  
 Cimarron Range: Smith, J. F., Jr., 1.  
 Magdalena mining dist.: Loughlin, G. F., 2.  
 Questa dist.: Vanderwilt, J. W., 3.  
 Sierra Cuchillo: Jahns, R. H., 4.  
 New York, Adirondack anorthosite: Miller, W. J., 2.  
 Adirondack magnetite: Alling, H. L., 1.  
 Lake George area: Newland, D. H., 1.  
 Lake Sanford area: Stephenson, R. C., 1.  
 New York City, lamprophyric dikes, Manhattan schist: Colony, R. J., 1.  
 Vanadium, magnetite-ilmenite deposits, Lake Sanford: Balsley, J. R., Jr., 1.  
 North America, chromite deposits: Sampson, E., 1.  
 Pegmatites: Landes, K. K., 1.  
 Pyrometamorphic ore deposits: Knopf, A., 1.  
 North Carolina, Spruce Pine dist.: Kesler, T. L., 1.  
 Northwest Territories: Anonymous, 24.  
 Gordon to Great Slave Lakes: Henderson, J. F., 1.  
 Great Bear Lake dist.: Kidd, D. F., 1.  
 Snare River-Ingray Lake area: Lord, C. S., 2.  
 Nova Scotia, New Campbellton area: Douglas, G. V., 3.  
 New Ross area: Douglas, G. V., 4, 5.  
 Ontario, Bancroft intrusives: Chayes, F., 1.  
 Big Duck-Aguasabon Lakes area: Bartley, M. W., 1.  
 Caribou-Pikitiigushi area: Gussow, W. C., 1.  
 Cobalt: Moore, E. S., 1.  
 Crow River area: Evans, J. E. L., 1.  
 Cunitau nickel mine: Sandefur, B. T., 1.  
 Dryden-Wabigoon area: Satterly, J., 3.  
 Eagle Lake area: Moorhouse, W. W., 1.  
 Gold mineralization, porphyry: Moorhouse, W. W., 4.  
 Goldrock area: Thomson, Jas. E., 1.  
 Gorham Tp.: Macdonald, R. D., 1.  
 Goudreau-Lochalsh area: Bruce, E. L., 3.  
 Haliburton area: Satterly, J., 4.  
 Josephine mine area: Brown, E. L., 1.

## Intrusions—Continued.

- Ontario—Continued.  
 Langmuir-Sheraton area: Berry, L. G., 2.  
 Little Long Lac gold area: Armstrong, H. S., 1.  
 McGarry, McVittie Tps., Larder Lake area: Thomson, Jas. E., 3.  
 Matachewan mine: Derry, D. R., 2;  
 Hopper, C. H., 1.  
 Mishibishu Lake area: Evans, J. E. L., 3.  
 North Hastings area: Thomson, Jas. E., 4.  
 Poohbah Lake: Allen, C. C., 1.  
 Porcupine gold dist.: Hurst, M. E., 1.  
 Red Lake area: Horwood, H. C., 1.  
 Rennie, Stover, Leeson, Brackin Tps.: Bruce, E. L., 5.  
 Rowan Lake: Thomson, Jas. E., 2.  
 Southeastern: Harrison, J. M., 1.  
 Steeprock area: Rose, E. R., 1.  
 Steep Rock Lake area: Roberts, H. M., 1.  
 Sudbury dist.: Fairbairn, H. W., 3.  
 Thunder Bay dist.: Bruce, E. L., 4.  
 Timagami area: Moorhouse, W. W., 2, 3.  
 Trans-Canada highway, Longlac-Hearst: Evans, J. E. L., 2.  
 Windigo-North Caribou Lakes: Satterly, J., 2.  
 Wunnummin Lake area: Prest, V. K., 2.  
 Ore deposits, intrusive, structure, mineralogy: Butler, B. S., 1.  
 Oregon, gold and copper ores: Lowell, W. R., 1.  
 Juniper Ridge: Allen, J. E., 1.  
 Nickel Mtn. area: Pecora, W. T., 1.  
 Snake-Imnaha Rivers jct. area: Libbey, F. W., 2.  
 Wallowa batholith: Krauskopf, K. B., 1.  
 Pacific Northwest, U. S.: Smith, W. D., 1.  
 Pennsylvania, Lehigh Co. pre-Camb.: Fraser, D. M., 1.  
 Spring Mtn.: Myers, R. E., 3.  
 Wissahickon fm. type locality: Postel, A. W., 2.  
 Permian, west Tex.-N. Mex.: King, P. B., 2.  
 Quebec, Barry Lake area: Milner, R. L., 1.  
 Canadian Malartic mine: Derry, D. R., 3.  
 Dubuisson Tp.: Norman, G. W. H., 1.  
 Eustis mine area: Douglas, G. V., 1.  
 Federal area, Gaspé: Gill, J. E., 2.  
 Flavrian Lake area: Robinson, W. G., 1.  
 Forget Lake area: Longley, W. W., 1.  
 Gaspé deposits: Jones, I. W., 1.  
 Halliwell mine area: Mackenzie, G. S., 1.  
 Island of St. Paul, St. Lawrence River: Morin, L. G., 1.  
 Keewatin volcanics: Wilson, M. E., 2.  
 Kitchigama Lake area: Longley, W. W., 2.  
 Lake Forgues to Johan Beetz on St. Lawrence: Claveau, J., 1.  
 Lake Wakeham area: Claveau, J., 3.



## Intrusions—Continued.

## Quebec—Continued.

- Matapédia Lake area: Aubert de la Rue, E., 1.  
 Noranda, etc., dists.: Wilson, M. E., 1.  
 Olga-Mattagami area: Auger, P. E., 1.  
 Romaine River area: Retty, J. A., 1.  
 Rouyn-Harricaw belt: Hawley, J. E., 3.  
 Wakefield area: Ambrose, J. W., 2.  
 Rhodé Island, Bradford dike: Quinn, A. W., 2.  
 South Carolina, sillimanite: Smith, L. L., 1.  
 South Dakota, Black Hills pre-Camb. domes, origin: Runner, J. J., 1.  
 Custer dist.: Fisher, D. J., 1.  
 Lead area: Dodge, T. A., 1.  
 Structural geology: Billings, M. P., 1.  
 Texas, Crosbyton anomaly: McLemore, E. W., 1.  
 Quitman Mts.: Huffington, R. M., 1.  
 Shafter mining dist.: Ross, C. P., 7.  
 Terlingua quicksilver dist.: Ross, C. P., 2.  
 United States, Dakota Basin: Ballard, N., 2.  
 Ring-dikes: Billings, M. P., 3.  
 Rocky Mtn. oil and gas fields: Dobbin, C. E., 2.  
 Utah, Ashbrook silver dist.: Peterson, V. E., 1.  
 Cottonwood-American Fork area: Calkins, F. C., 2.  
 Henry Mts.: Hunt, C. B., 2.  
 West Tintic mining dist.: Stringham, B. F., 1.  
 Virginia, Grayson Co. pre-Camb.: Stose, A. J., 1.  
 Roseland titanium dist.: Ross, C. S., 1.  
 Washington, Blewett iron deposit, Chelan Co.: Broughton, W. A., 3.  
 Buckhorn iron deposits: Broughton, W. A., 2.  
 Metaline quad.: Park, C. F., Jr., 4.  
 Silver Hill dist.: Page, L. R., 1.  
 Wisconsin, Baxter Hollow granite cupola: Gates, R. M., 1.  
 Wyoming, Grand Teton Nat. Park: Horberg, L., 1.  
 Yukon, Wolf Creek area, St. Elias Range: Sharp, R. P., 7.

Intrusive vs. permissive vein emplacement: Farmin, R., 1.

Invertebrata (general). See also the classes of invertebrates.

- Alaska, Eagle-Circle dist.: Mertie, J. B., Jr., 1.  
 Alberta, east-central: Hume, G. S., 1.  
 Ancient life: Sánchez Roig, M., 1.  
 British Columbia, Brown Hill: McLearn, F. H., 1.  
 California, Coast Range, late Pleist.: Bailey, T. L., 1.  
 Potrero Hills gas field: Tolman, F. B., 1.

## Invertebrata—Continued.

## California—Continued.

- Santa Ana Mts.: Popenoe, W. P., 3.  
 Central America, NW.: Mullerried, 5.  
 Chaco Canyon, N. Mex., fauna: Vann, R. P., 1.  
 Collecting microfossils: Schenck, H. G., 3.  
 Colorado, Denver Basin: Brown, R. W., 4.  
 Pennsylvanian: Elias, M. K., 3.  
 Fauna, Orinda fm., Calif.: Richey, K. A., 1.  
 Faunas, Penn., Ky., Tenn., W. Va.: Summerson, C. H., 1.  
 Indiana, Salem ls.: Rhoe Chapter, S. G. E., 1.  
 Kansas, Haskell ls. nodules: Bridwell, A., 1.  
 Southeast, coal lands: Hall, H. H., 1.  
 Magdalena group fauna, N. Mex.: Bisbee, W. A., 1.  
 Missouri fire clay dists.: McQueen, H. S., 2.  
 New Mexico, Magdalena mining dist.: Loughlin, G. F., 2.  
 New York, Highland Mills fossils: Woldstein, H. R., 1.  
 North America, Lake Ontario homocline: Kay, G. M., 2.  
 Oklahoma, Cimarron Co.: Schoff, S. L., 1; Stovall, J. W., 1.  
 Ontario, Ottawa-Bonnechere graben area: Kay, G. M., 2.  
 Pennsylvania, Ord. clastic sed. rocks: Willard, B., 3.  
 Permian, west Tex.-N. Mex.: King, P. B., 2.  
 Plankton, Ord., N. Y.: Ruedemann, R., 4.  
 Pre-Cambrian oldest fossil horizon, Calif.: Keyes, 26.  
 Radiolarian chert, Ord., N. Y.: Ruedemann, R., 4.  
 Saskatchewan, Big Muddy Valley: Houldsworth, E., 1.  
 Texas: Evans, G. L., 1; Anonymous, 22.

Ionoluminescence: Buddhue, J. D., 2.

In meteorites: Buddhue, J. D., 2.

## Iowa.

## Historical geology.

- Atchison shs. fm.: Keyes, 22.  
 Audubon Co., Pleist.: Yoho, W. H., 1.  
 Cambrian, NE. Iowa: Schuldt, W. C., 1.  
 Carboniferous within Dev.: Stookey, S. W., 1.  
 Cedar Valley ls. cf. Hutchison fm.: Keyes, 2.  
 Correlations by insoluble residues, Missouri-Virgil fms.: Wenberg, E. H., 1.  
 Greene Co.: Tapper, W. B., 1.  
 Henrietta group unconformity: Cline, L. M., 1.  
 Illinoian, post-Illinoian geology: Graham, J. B., 1.  
 Loveland fm. Pleist.: Kay, G. F., 1.  
 Maryville lowland: Keyes, 1.  
 Osage group: Keyes, 30.

## Iowa—Continued.

*Historical geology—Continued.*

Pennsylvanian, Adams Co.: Wood, L. W., 1.

Correlations: Weller, J. M., 2.

Red Oak fault: Keyes, 19.

*Mineralogy.*

Correlations by insoluble residues, Missouri-Virgil fms.: Wenberg, E. H., 1.

*Paleontology.*

Ames peat bog: Gwynne, C. S., 2.

Bowmanites (Sphenophyllales), Carb.: Hoskins, J. H., 4.

Brachiopoda, Cedar Valley ls.: Stainbrook, M. A., 1.

Coal flora: Hoskins, J. H., 5.

Eo-Triassic, lower, correls.: Newell, N. D., 1.

Flowering plants, Carb.: Keyes, 3.

Foraminifera, Dev.: Cushman, 2.

Fossils, Peorian loess: Cameron, C. C., 1.

Lycopod leaves with *Lepidodendron* in coal balls: Wilson, L. R., 3.

Microfossils, Angus coal: Wilson, L. R., 9.

Mosses, Pleist., inter-glacial deposits: Steere, W. C., 1.

Ostracoda, Dev.: Cooper, C. L., 7.

Plants, Dev., cave deposits: Wilson, L. R., 1.

Plates, echinoderm, Maquoketa sh.: Spivey, R. C., 1.

Sphenophyllostachys in coal balls: Hoskins, J. H., 1.

Spiriferacea, Cedar Valley ls.: Stainbrook, M. A., 4.

Spores, bearing elater, Penn.: Wilson, L. R., 7.

Pennsylvanian coals: Wilson, L. R., 8.

Strophomenacea, Cedar Valley ls.: Stainbrook, M. A., 3.

Zygotocrinus, Carb.: Kirk, E., 5.

*Petrology.*

Cambrian, NE. Iowa: Schuldt, W. C., 1.

Loess: Cuthbert, F. L., 1.

Pennsylvanian, Adams Co.: Wood, L. W., 1.

*Physical geology.*

Deformation, SW. Iowa: Wenberg, E. H., 2.

Henrietta group unconformity: Cline, L. M., 1.

Maquoketa-Miss. River, sedimentation: Swenson, F. A., 1.

Red Oak fault: Keyes, 19.

Seismological records: Seeburger, M. M., 1.

*Physiographic geology.*

Audubon Co., Pleist.: Yoho, W. H., 1.

Greene Co.: Tapper, W. B., 1.

Illinoian, post-Illinoian geology: Graham, J. B., 1.

"Iowan" till, Wisconsin outwash: Hobbs, W. H., 8.

Lake Calvin glacial lake: Leverett, F., 3.

Mankato lobe, Wisconsin drift plain: Gwynne, C. S., 1.

## Iowa—Continued.

*Physiographic geology—Continued.*

Varved Pleist. sediments, Cedar Rapids: Wilson, L. R., 4.

Wind work and Iowan glaciation: Leverett, F., 2.

*Underground water.*

Bogs: Carter, C., 1.

Plugging abandoned wells: Hershey, H. G., 1.

Iowa oil field, La.: Eby, J. B., 4.

## Iron.

Alabama, Birmingham dist.: DeSollar, T. C., 1.

Chulafinnee dist.: Huddle, J. W., 1.

Alaska, Kasaan Pen.: Anonymous, 6.

Banded hematite ores: Dunn, J. A., 1.

Bravoite, Mo.: Rasor, C. A., 1.

British Columbia: Gunning, H. C., 2.

California, Santa Cruz Co.: Hubbard, H. G., 1.

Sierra Nevada area: Taliaferro, N. L., 6.

Canada, Canadian Shield Archean sedimentation: Pettijohn, F. J., 1.

Laurentian area: Mauffette, P., 1.

Prospects: Baker, M. B., 1.

Steep Rock Lake: Quirke, T. T., 4.

Carleton, Tucson, Ariz. meteorite: McGough, P. J., 1.

CaSiO<sub>3</sub>-diopside-akermanite relations: Schairer, J. F., 1.

Colorado, Beaver-Tarryall area, Park Co.: Singewald, Q. D., 2.

Lakewood area, Boulder Co.: Sample, R. D., 1.

San Luis Valley: Pearl, R. M., 3.

Georgia, Sand-Lookout Mtn. area: Sullivan, J. W., 2.

Heat effects on sulphides: Hawley, J. E., 2.

Idaho, metal, coal mining dists.: Ross, C. P., 1.

Iron ranges, Lake Superior dist.: Royce, S., 1.

Irwin-Ainsa, Tucson, Ariz., meteorite: McGough, P. J., 1.

Lake Superior area replacement deposits: Roberts, H. M., 2.

Meteorites, composition: Daly, R. A., 2.

Mexico, Vaquerias: Garcia, J. A., 2.

Michigan, Menominee range, Dickinson Co.: Dutton, C. E., 1.

Minerals in world affairs: Lovering, T. S., 3.

Minnesota, min. res.: Emmons, W. H., 2.

Soudan mine: Anonymous, 26.

Mississippi, Choctaw Co.: Vestal, F. E., 2.

Missouri, Pilot Knob: Harrison, C., 1.

Sinks: Pough, F. H., 2.

Newfoundland, Port au Port Pen.: Watson, K. D., 3.

War minerals: Snelgrove, A. K., 1.

New Hampshire, Franconia mine: Verrow, H. J., 1.

## Iron—Continued.

- New Mexico, Magdalena mining dist.:  
Loughlin, G. F., 2.
- New York: Anonymous, 20.  
Lake Sanford area: Balsley, J. R., Jr., 1.
- North America, pyrometamorphic ore deposits: Knopf, A., 1.
- Northwest Territories: Anonymous, 24.
- Nova Scotia, Nictaux South: Flynn, A. E., 1.
- Ontario, Dryden-Wabigoon area: Satterly, J., 3.  
Garnet-Cunningham area: Meen, V. B., 1.  
Haliburton area: Satterly, J., 4.  
Hematite, Steep Rock Lake: Tanton, T. L., 1.  
Josephine mine area: Brown, E. L., 1.  
Steeprock area: Rose, E. R., 1.  
Steep Rock Lake: Roberts, H. M., 1; Smith, F. G., 1.  
Thunder Bay dist.: Bruce, E. L., 4.  
Timagami area: Moorhouse, W. W., 2.
- Oregon, Snake-Imnaha Rivers jct. area: Libbey, F. W., 2.
- Pennsylvania, Lancaster Co.: Foose, R. M., 2.  
Lehigh Co., Hardyston fm.: Miller, B. L., 2.  
Lehigh Co. min. res.: Miller, B. L., 3.  
Lehigh Co. mines: Getz, A. J., 1.  
Reading Banks stalactites: Foose, R. M., 4.
- Soil color factors: Plice, M. J., 1.
- Tennessee, Perry, Lewis Cos.: Burchard, E. F., 1.
- United States, west: Burchard, E. F., 2.
- Virginia, Elkton area: King, P. B., 3.
- Lyndhurst-Vesuvius dist.: Knechtel, M. M., 2.
- Washington: Glover, S. L., 1; Washington Div. M. and M., 1.  
Blewett deposit, Chelan Co.: Broughton, W. A., 8.  
Buckhorn area: Broughton, W. A., 2.  
Snohomish Co. min. properties: Broughton, W. A., 1.  
Wenatchee-Ellensburg-Yakima area: Glover, S. L., 2.
- West Virginia: Woodward, H. P., 1, 2.  
Devonian: Woodward, H. P., 2.  
Silurian: Woodward, H. P., 1.  
Southeastern: Reeves, F., 1.
- Yukon, Alaska Highway area min. poss.: Thomas, L. O., 1.
- Island arcs, Caribbean area, gravity anomalies: Hess, H. H., 1.
- Islands formed in Wabash River, Ind.: Brune, G. M., 1.
- Isopach maps. See also Cartography; Geologic maps.
- Alberta, east-central: Hume, G. S., 1.  
Moose Mtn. area: MacNeil, D. J., 1.

## Isopach maps—Continued.

- Arkansas, Magnolia oil field: Carpenter, C. B., 1.  
Schuler field: Weeks, W. B., 1.  
Smackover ls. oil poss.: Thigpen, C. H., 2.  
Border-Red Coulee field, Mont.-Alberta: Erdmann, C. E., 1.
- California, Beverly Hills oil field: Soper, E. K., 3.  
Canal oil field: Williams, R. N., Jr., 1.  
Canal Strand fields: Walling, R. W., 1.  
Cretaceous: Jenkins, O. P., 3.  
East Coalinga Extension field: Kaplow, E. J., 1.  
East Coyote Hills oil field: Dudley, P. H., 1.  
Edison oil field: Kasline, F. E., 1.  
El Segundo oil field: Reese, R. G., 1.  
Elwood oil field: Hill, M. L., 2.  
Gibson area, Midway-Sunset oil field: Woodward, W. T., 2.  
Greeley oil field: Updike, F. H., 1; Winham, W. P., 1.  
Kern Front field: Edwards, E. C., 2.  
Lompoc oil field: Dibblee, T. W., Jr., 1.  
McKittrick Front oil field, Cymric areas: Atwill, E. R., 3.  
Northwest Wilmington field: Cabeen, W. R., 1, 2.  
Playa del Rey oil field: Metzner, L. H., 1.  
Richfield oil field: Gardiner, C. M., 1.  
Rincon oil field: Bailey, W. C., 1.  
Rio Bravo oil field: Kasline, F. E., 2; Noble, E. B., 2.  
Round Mtn. oil field: Rogers, R. G., 1.  
Salt Lake oil field: Soper, E. K., 2.  
Santa Fe Springs oil field: Winter, H. E., 1.  
Santa Maria Valley oil field: Canfield, C. R., 1.  
Seal Beach oil field: Bowes, G. H., 1.  
Tembler oil field: Simonson, R. R., 2.  
Torrance oil field: Cabeen, W. R., 1.  
Tracy gas field: Beckwith, H. T., 1.  
Trico gas field: Doell, E. C., 1.  
Wasco oil field: Barnes, R. M., 1.  
Webster area, Midway-Sunset oil field: Ayars, R. N., 1.  
West Cat Canyon oil field: Manlove, C., 1.  
West Montebello field: Stolz, H. P., 1.  
Wheeler Ridge oil field: Gester, S. H., 1.  
Whittier oil field: Holman, W. H., 1.  
Wilmington oil field: Crown, W. J., 1; Winterburn, R., 1.  
Yorba Linda pt., Coyote Hills oil field: Parker, F. S., 2.
- Colorado, Greasewood field: Lavington, C. S., 1.
- Elk Basin field, Mont.-Wyo.: Hendrickson, V. J., 1.
- Gulf Coast oil poss.: Howard, H. V., 2.
- Illinois, E. of Joliet: Horberg, L., 2.

## Isopach maps—Continued.

## Illinois—Continued.

- Herrin (No. 6) coal bed structure: Payne, J. N., 1.  
 Kinderhook-New Albany sh. base: Bell, A. H., 6.  
 Pre-Pennsylvanian surface: Smith, M. H., 1.  
 Southeastern: Easton, W. H., 5.  
 Southern: Bell, A. H., 6.  
 Will Co.: Horberg, L., 3.  
 Indiana, S., Dev.: Dawson, T. A., 1.  
 Kansas, 1941: Ver Wiebe, W. A., 2.  
 Ellis, Russell Cos. oil fields: Frye, J. C., 5.  
 Forest City Basin: Lee, W., 2.  
 Nikkel field: Bunte, A. S., 1.  
 Oil and gas fields: Moore, R. C., 7.  
 Phillips Co.: Landes, K. K., 2.  
 Wherry pool: McNeil, H. E., 1.  
 Zenith pool: Imbt, W. C., 1; Oil and Gas Jour., 1.  
 Kansas-Oklahoma, Hugoton field: Garlough, J. L., 1.  
 Kentucky, Big Sinking field: Freeman, L. B., 1.  
 Louisiana, Anse la Butte dome: Bates, F. W., 1.  
 University field: Halbouty, M. T., 1.  
 Vernon Parish: Welch, R. N., 1.  
 Michigan, shoestring fields: Ball, M. W., 1.  
 Mississippi, Camp McCain area: Brown, G. F., 1.  
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 Pontotoc Co.: Priddy, R. R., 3.  
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 Pennsylvania, central: Kay, G. M., 5.  
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 South Dakota, Medicine Butte anticline: Petsch, B. C., 1.  
 Tennessee, central: Wilson, C. W., Jr., 1.  
 Embreeville dist.: Reichert, S. O., 1.

## Isopach maps—Continued.

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- Middle, oil and gas: Born, K. E., 2.  
 Texas, Bowers field: Brown, A. B., 1.  
 Bryson field: Hiestand, T. C., 1.  
 Cross Cut-Blake dist.: Klinger, E. D., 1.  
 East Texas field: Minor, H. E., 1.  
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 Jamaica. See also West Indies.

## Jamaica—Continued.

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Metasomatism and intrusion: Trechmann, C. T., 1.

Road sec., Guy's Hill: Matley, C. A., 1.

*Paleontology.*

Pseudorbitoides: Vaughan, T. W., 3.

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Palagonite tuffs: Raw, F., 2.

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Structural geology: Billings, M. P., 1.

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Nutzotin Mts. area: Moffit, F. H., 2.

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Pekisko area: Hume, G. S., 3.

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Santa Maria dist.: Woodring, 2.

Santa Maria (Orcutt) oil field: Dreyer, F. E., 1.

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Sierra Nevada near Bishop: Lemmon, D. M., 1.

## Jurassic—Continued.

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 Sites area: Kirby, J. M., 4.  
 Soledad quad.: Schombel, L. F., 1.  
 Stayton dist.: Bailey, E. H., 1.  
 Twin Lakes area: Chesterman, C. W., 1.  
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 Wilmington oil field: Winterburn, R., 1.  
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 Front Range min. belt: Lovering, T. S., 2.  
 La Plata fm.: Keyes, C. R., 8.  
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 Laramie River Valley, Colo.-Wyo.: Beckwith, R. H., 1.  
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 East, old land-mass: Imlay, R. W., 3.  
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 Orogenesis and relief: Robles Ramos, R., 1.  
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 Stovall, J. W., 1.  
 Ground water: Dott, R. H., 1.  
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Kansas—Continued.

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- Ford Co.: Waite, H. A., 1.
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- Kearny Co.: McLaughlin, T. G., 2.
- Meade Co.: Frye, J. C., 4.
- Morton Co.: McLaughlin, T. G., 1.

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- Bentonites: Kinney, E. D., 1.
- Brines, oil field, magnesium content: Schoewe, W. H., 2.
- Central uplift, oil horizons: Meyer, R. F., 1.
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- Mineralizing solutions, Picher dist.: Stoiber, R. E., 1.
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- Oil in NW.: Crowley, A. J., 1.
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- Stream channels in Arbuckle, Cent. Uplift: Mull, J. A., Jr., 1.
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Kansas—Continued.

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- Minerals and localities: Bagrowski, B. P., 1.
- Morton Co.: McLaughlin, T. G., 1.
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- Ambystoma, Pleist.: Tihen, J. A., 1.
- Citellus, Pliocene: Hibbard, C. W., 2.
- Coal lands, SE. Kans.: Hall, H. H., 1.
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- Cycadeoids, Cret.: Wieland, G. R., 1.
- Emys, Pleist. turtle: Taylor, E. H., 3.
- Etadonomys, Pleist. rodent: Hibbard, C. W., 6.
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- Robertson, G. M., 2.
- Globotruncana, Cret. index fossils: Thalmann, H. E., 5.
- Ichthyriapus, Cret., Logan Co.: Hibbard, C. W., 5.
- Insecta, Lower Perm.: Carpenter, F. M., 1.
- Leporidae, Oligocene: Green, M., 1.

## Kansas—Continued.

*Paleontology*—Continued.

- Mammalia, Pleist.: Hibbard, C. W., 3.  
 Tracks, Cret.: Robertson, G. M., 1.  
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 Ostracoda, Perm.: Kellett, B., 1.  
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- Arizona, New Mexico, Juras.-Cret. interval: Leopold, L. B., 1.  
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- Hydrology, ls. terranes: Swinnerton, A. C., 2.  
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- Kentucky River Valley lead mines: Jillson, W. R., 1.  
*Economic geology.*  
 Big Sinking field: Freeman, L. B., 1.  
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## Kentucky—Continued.

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Kentucky River Pliocene channel: Jillson, W. R., 4.

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Yuma, Folsom artifacts: Renaud, E. B., 2.

*Physical geology.*

Cub Run quad.: Hagan, W. W., 1.

General: McFarlan, A. C., 2.

Geologic structure, oil and gas fields: Jones, D. Johnathan, 1.

Kentucky River fault: McFarlan, A. C., 3.

Local dips and faulting: Russell, W. L., 1.

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Buried upland channels, Ky. River: Jillson, W. R., 5.

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General: McFarlan, A. C., 2.

Kentucky River Pliocene channel: Jillson, W. R., 4.

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Pre-glacial Teays Valley: Fidler, M. M., 1.

Kentucky River, buried upland channel: Jillson, W. R., 5.

Kern Front oil field, Calif.: Edwards, E. C., 2, 3.

Kern Front, Kern River oil field, Calif.: Edwards, E. C., 3.

Kern River area, Kern River oil field, Calif.: Stevens, J. B., 2.

Kernite, S. Calif.: Elam, J., 1.

Kersanite, Baie Verte, Newfoundland: Watson, K. D., 2.

Kettleman Hills oil field, Calif.: Galloway, J., 1.

Kettles, N. Am. deglaciation features: Flint, R. F., 2.

Koehlinite, arsenate of bismuth: Frondel, C., 5.

Kraemer area, Richfield oil field, Calif.: Reese, R. G., 5.

Kunzite, S. Calif.: Elam, J., 1.

*Kyanite.*

British Columbia: Rutherford, R. L., 3.

California, Cargo Muchacho Mts.: Henshaw, P. C., 2.

Georgia, Graves Mtn.: Watkins, J. H., 1.

New Hampshire: Bannerman, H. M., 1.

Virginia, war minerals: Bevan, A. C., 2.

*Labrador.**Historical geology.*

Nain area: Wheeler, E. P., 2d, 1.

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Anorthosite rocks, Nain area: Wheeler, E. P., 2d, 1.

Labradorite, Costa Rica: Dondoli, C., 1.

Laccoliths. See also Intrusions.

Arizona, Slate Mtn.: Mintz, Y., 1.

Colorado, Beaver-Tarryall area, Park Co.: Singewald, Q. D., 2.

Jamaica: Trechmann, C. T., 1.

Maine, Frenchman's Bay: Chadwick, G. H., 4.

Mount Desert Is.: Chadwick, G. H., 2.

Montana, Livingston ig. rocks: Parsons, W. H., 1, 2.

Utah, Henry Mts.: Hunt, C. B., 2.

La Goleta gas field, Calif.: Swayze, R. O., 1.

Lake balls, lss., formed by plants: Johnson, J. H., 6.

Lake Erie beach sands, shape and roundness: Pettijohn, F. J., 2.

*Lakes.*

British Columbia, Okanagan Valley origin: Schofield, S. J., 1.

Florida Pen., solution: Stubbs, S. A., 1.

Natural features: Davis, J. H., Jr., 1.

Tributary valley lakes: Vernon, R. O., 2.

General: Harding, S. T., 1; Needham, J. G., 1; Wisconsin Univ., 1.

Sedimentation of, artificial: Happ, S. C., 1.

Sediments of, inland: Twenhofel, 1.

South Dakota, surface: Rothrock, E. P., 5.

Texas, south plains: Watts, W. C., 1.

United States, deltas in: Logan, R. F., 1.

Outlet deltas: Logan, R. F., 1.

Lakes, extinct. See also Glacial lakes.

Alberta, glacial Milk River Lake: Bretz, J. H., 2.

British Columbia, Peace River canyon, origin: Beach, H. H., 2.

California, Imperial carbon dioxide gas field: Rook, S. H., 1.

Carolina, elliptical bays, origin: Cooke, C. W., 3.

Colorado, San Luis Valley: Pearl, R. M., 3.

Costa Rica, Cartago and Coris Valleys: Segura Paguaga, A., 1.

Indiana, pollen profiles: Potzger, J. E., 6.

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- Lake Calvin, Iowa: Leverett, F., 3.  
 Lake Cardston, Alberta: Bretz, J. H., 2.  
 Lake Leverett, Wash.: Hobbs, W. H., 5.  
 Lake Missoula, Mont.: Pardee, J. T., 1.  
 Lake Whittlesay, Ohio: Shaffer, P. R., 1.  
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 Montana, Cut Bank field: Blixt, J. E., 1.  
 North America, Great Lakes area: Martin, H. M. M., 1.  
 Ohio, proglacial lake: Wolfe, J. N., 1.  
 Tilted postglacial beds: Hubbard, G. D., 2.  
 Oregon, north-central: Hodge, E. T., 1.  
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 South Dakota, surface: Rothrock, E. P., 5.  
 Wisconsin, NE.: Thwaites, F. T., 2.

## Lakes, glacial. See also Glacial lakes: Lakes, extinct.

- British Columbia, Peace River Canyon, origin: Beach, H. H., 2.  
 Lake Agassiz: Laird, W. M., 3.  
 Lake Calvin, Alberta: Bretz, J. H., 2.  
 Lake Cardston, Alberta: Bretz, J. H., 2.  
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- Alberta, Frank area: Vokes, H. E., 1.  
 California, Crocker Flat area: Simonson, R. R., 1.  
 Disintegrating soil slips: Kesseli, J. E., 1.  
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 Park dist.: Bailey, E. H., 2.  
 San Gabriel Mts.: Williams, J. E., 1.  
 Greenland, Tert.: Stauber, H., 1.  
 Hawaii, Oahu soil: Wentworth, C. K., 2.  
 Mississippi, Adams Co.: Vestal, F. E., 1.  
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 Soil mechanics and foundation eng.: Huntington, W. C., 1.  
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- Alaska, Nutzotin Mts. area: Moffit, F. H., 2.  
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- British Columbia, Okanagan Valley and Lake, origin: Schofield, S. J., 1.  
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 Sierra Nevada NE. of Visalia: Durrell, C., 2.  
 Cascade Range: Williams, H., 1.  
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 Seward Pen.: Alaska Plann. Coun., 1.  
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- Kitchigama Lake area: Longley, W. W., 2.
- Texas, Quitman Mts.: Huffington, R. M., 1.
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- Rocky Mtn. prov.: Forrester, J. D., 1.
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- Emerald property: Hedley, M. S., 1.
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- Aspen dist.: Vanderwilt, J. W., 2.
- Costa Rica: Dóndoli, C., 2.
- Idaho, metal, coal mining dist.: Ross, C. P., 1.
- Ore control by rock structure: McKinsty, H. E., 2.
- Illinois, Galena mines: Mauntel, H. W., 1.
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- Mexico, El Alamo mine, Baja Calif.: Antúnez Echegaray, F., 2.
- Fresnillo mine veins: Stone, J. B., 1.
- Northern sed. deposits: Triplett, W. H., 1.
- San Antonio mine, Chihuahua: Hewitt, W. P., 1.
- Structural features, ore deposits: Schmitt, H. A., 1.
- Tin deposits: Foshag, W. F., 1.
- Minerals in world affairs: Lovering, T. S., 3.
- Mississippi Valley, upper: Behre, C. H., Jr., 1.
- Missouri, Joplin area: Smith, W. S. T., 2.
- Montana, Flathead mine: Shenon, P. J., 1.
- Libby quad.: Gibson, R., 1.
- New Brunswick, Reserve Brook area: MacKenzie, G. S., 2.
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- New Mexico, Magdalena mining dist.: Loughlin, G. F., 2.
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- Structural features of ore deposits: Newhouse, W. H., 2.
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- Quebec, Federal area, Gaspé: Gill, J. R., 2.
- Gaspé deposits: Jones, I. W., 1.
- Texas, Shafter mining dist.: Ross, C. P., 7.
- Tri-State lead and zinc dist.: Fowler, G. M., 1; Jakosky, 1, 2.
- Utah, Cottonwood-American Fork area: Calkins, F. C., 2.
- West Tintic mining dist.: Stringham, B. F., 1.
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- Snohomish Co. min. properties: Broughton, W. A., 1.
- Wenatchee-Ellensburg-Yakima area: Glover, S. L., 2.
- Yukon, Alaska Highway area min. poss.: Thomas, L. O., 1.
- Lectosynte, for type specimens: Hudson, R. G. S., 1.
- Lepidocrocite.
  - Crystallography of: Nuffield, E. W., 1.
  - General: Peacock, M. A., 4.
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  - Rare-element prosp. in pegmatites: Quirke, T. T., 2.
  - Study of system: Winchell, A. N., 2.
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- Life thro the ages: Parker, B. M., 1.
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  - Louisiana: Meagher, D. P., 1.
  - Mississippi, Choctaw Co.: Vestal, F. E., 2.
- Limestone terranes: Swinnerton, A. C., 1.
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  - Alaska, Chicagof mining dist.: Reid, J. C., 1.
  - Nabesna area: Wayland, R. G., 2.
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  - Confidence dist.: Little, J. M., 1.
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  - Santa Cruz Co.: Hubbard, H. G., 1.
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- Desmoinesian - Missourian rocks, Kans.-Okla.: Oakes, M. C., 1.
- Florida: Vernon, R. O., 3.
- Dolomitic: Hopkins, R. H., 1.
- Everglades: Parker, G. G., 1.
- Formed by plants: Johnson, J. H., 6.
- Peninsula, solution: Stubbs, S. A., 1.
- Southern, natural features: Davis, J. H., Jr., 1.
- Georgia: Furcron, A. S., 1.
- Coastal Plain: Cooke, C. W., 5.
- Sand-LOOKOUT Mtn. area: Sullivan, J. W., 2.
- Idaho, Bannock Range: Ludlum, J. C., 2.
- Illinois, agricultural: Lamar, J. E., 2.
- Herrin (No. 6) coal bed structure: Payne, J. N., 1.
- Marseilles, Ottawa, Streator quads.: Willman, H. B., 2.
- Pennsylvanian, Carlinville quad.: Ball, J. H., 4.
- Illinois-Indiana, Penn. key beds: Alexander, J. W., 1.
- Kansas, Deep water well, Cherokee Co.: Abernathy, G. E., 1.
- Forest City Basin: Lee, W., 2.
- Haskell ls.: Bridwell, A., 1.
- Kentucky, Cub Run quad.: Hagan, W. W., 1.
- Limestone terranes: Swinnerton, A. C., 1.
- Mexico, northern: Kellum, L. B., 1.
- San Antonio mine, Chihuahua: Hewitt, W. P., 1.
- Tula dist.: Robles Ramos, R., 2.
- Valsequillo canal area: Alvarez Carvajal, M., 1.
- Michigan, Traverse rocks, Thunder Bay area: Warthin, A. S., Jr., 2.
- Minnesota, dolomitic mottling, Platteville ls.: Griffin, R. H., 1.
- Mineral res.: Emmons, W. H., 2.
- Mississippi: Mellen, F. F., 1.
- Clay Co.: Bergquist, H. R., 2.
- Montana, Madison group: Sloss, L. L., 1.
- Nebraska, geol. secs.: Condra, G. E., 1.
- Nevada, Nevada dist.: Roberts, R. J., 1.
- Rose Creek tungsten mine: Roberts, R. J., 2.
- Newfoundland, Port au Port Pen. colloform sulphide veins: Watson, K. D., 3.
- War minerals: Snelgrove, A. K., 1.
- New Mexico, Los Pinos Mts.: Stark, J. T., 1.
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- Lockport Pekin quarry: Killinger, P. E., 2.
- Mohawkian, West Canada Creek: Kay, G. M., 6.
- Ulster Co.: Howell, B. F., 2.
- Nova Scotia, New Campbellton area: Douglas, G. V., 3.
- Ohio, Allegheny ser., coals, lss., below Lower Kittanning: Sturgeon, M. T., 1.
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- Oklahoma, St. Clair ls. near Marble City: Ham, W. E., 3.
- Ontario, brucite in: Brown, I. C., 1.
- Halibarton area: Satterly, J., 4.
- London area Paleozoics: Caley, J. F., 1.
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- Jacksonburg fm., Lehigh Co.: Miller, R. L., 1.
- Lancaster Co.: Foose, R. M., 2.
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- Quebec, Matapédia Lake area: Aubert de la Rue, E., 1.
- Wakefield area: Ambrose, J. W., 2.
- Tennessee, core from Chickamauga Dam: McGavock, C. B., Jr., 1.
- Texas, Mabelle Draw Perm. area: Read, W. F., 1.
- Santiago Peak quad.: Eifler, G. K., Jr., 1.
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- Soils weathered from: Obenshain, S. S., 1.
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- Newfoundland: Watson, K. D., 3.
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 H., 2.  
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# 336 BIBLIOGRAPHY OF NORTH AMERICAN GEOLOGY, 1942 AND 1943

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## Mexico—Continued.

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- Volcanic activity, E. Coahuila: Mullerried, 1.

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## Mexico—Continued.

*Physical geology.*

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- Alaska: Joesting, H. R., 1.  
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## Mississippi—Continued.

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*Historical geology.*

Cedar Valley ls. cf. Hutchison fm.: Keyes, C. R., 2.

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Coal measures: Keyes, 34.

Devonic ls., eastern extension: Keyes, 11.

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*Paleontology.*

- Aulopora gracilis in synonymy: Keyes, 29.  
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 Dillon nickel deposit: Sinkler, H., 1.  
 Elk Basin oil and gas field: Hendrickson, V. J., 1.  
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 Libby quad. ore bodies: Gibson, R., 1.  
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 Copper, native, Jefferson City: Forrester, J. D., 3.  
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 Flathead mine: Shenon, P. J., 1.  
 Heavy minerals, granite gneiss: Gwynne, C. S., 3.  
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 Ludwigite: Knopf, A., 2.  
 Madison group: Sloss, L. L., 1.  
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 Pegmatites in monzonite, Bearpaw Mts.: Pecora, W. T., 4.  
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 Kinderhook, Little Rocky Mts.: Hass, W. H., 1.  
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 Elk Basin oil and gas field: Hendrickson, V. J., 1.

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*Physical geology*—Continued.

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 Nepheline syenite pegmatites, Rocky Boy stock: Pecora, W. T., 3.  
 Quartz Hill dist.: Taylor, A. V., Jr., 1.  
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- Boulder Glacier, Pleist., Beartooth Mts.: Bevan, A. C., 9.  
 Cirques, hanging valleys, benches, Glacier Nat. Park: Alden, W. C., 1.  
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## Nevada—Continued.

*Mineralogy*—Continued.

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 Scolecite: Gianella, V. P., 1.  
 Three Kids manganese dist.: Hunt, C. B., 1.  
 Tin, Lander Co.: Fries, C., Jr., 1.  
 Majuba Hill: Smith, Ward C., 1.  
 Tungsten, Nightingale dist.: Smith, Ward C., 2.  
 Rose Creek mine: Roberts, R. J., 2.

*Paleontology*.

- Floras, Tert.: Axelrod, D. I., 1.  
 Grapevine, Miocene: Brown, R. W., 3.  
 Ilingoceros, Pliocene: Furlong, E. L., 1.  
 Mammalia, Tert., Tonopah: Henshaw, P. C., 1.  
 Roberts Mts.: Merriam, C. W., 2.  
 Trilobita, Ord.: Holliday, S., 1.

*Petrology*.

- Nightingale dist.: Smith, Ward C., 2.  
 Opal fm.: Foster, M. M., 1.  
 Roberts Mts.: Merriam, C. W., 2.  
 Ruby Mts., S.: Sharp, R. P., 2.  
 Tin dist., Lander Co.: Fries, C., Jr., 1.  
 Majuba Hill: Smith, Ward C., 2.  
 Tungsten, Rose Creek mine: Roberts, R. J., 2.

*Physical geology*.

- Diastrophic events, dating: Longwell, C. R., 2.  
 Nevada dist. manganese deposits: Roberts, R. J., 1.  
 Nightingale dist.: Smith, Ward C., 2.  
 Opalite quicksilver dist.: Yates, R. G., 1.  
 Roberts Mts.: Merriam, C. W., 2.  
 Robinson mining dist.: Pennebaker, E. N., 1.  
 Rose Creek tungsten mine: Roberts, R. J., 2.  
 Ruby Mts., S.: Sharp, R. P., 2.  
 Three Kids manganese dist.: Hunt, C. B., 1.  
 Tin, Majuba Hill dist.: Smith, Ward C., 1.

*Physiographic geology*.

- Pyramid Lake: Lomas, M., 1.  
 Ruby Mts., S.: Sharp, R. P., 2.

Newberry on the Ohio drift: Westgate, L. G., 1.

## New Brunswick.

*Economic geology*.

- Coal, Lepreau-Musquash area: Wright, W. J., 1.

## New Brunswick—Continued.

*Economic geology*—Continued.

- Lead-zinc-silver, Reserve Brook: MacKenzie, G. S., 2.

*Historical geology*.

- Batholith: Rose, B., 1.  
 General: Alcock, F. J., 3.  
 Lead-zinc-silver dist., Reserve Brook: MacKenzie, G. S., 2.  
 Lepreau-Musquash coal area: Wright, W. J., 1.  
 Long Reach, King's Co.: Alcock, F. J., 1.

*Mineralogy*.

- Lead-zinc-silver ore, Reserve Brook: MacKenzie, G. S., 2.

*Paleontology*.

- Floras, Tert.: Axelrod, D. I., 1.  
 General: Alcock, F. J., 3.

*Petrology*.

- Batholith: Rose, B., 1.  
 Long Reach, King's Co.: Alcock, F. J., 1.

*Physical geology*.

- Batholith: Rose, B., 1.  
 Bay of Fundy, origin: Koons, E. D., 1;  
 Shepard, F. P., 3.  
 General: Alcock, F. J., 3.  
 Lead-zinc-silver dist., Reserve Brook: MacKenzie, G. S., 2.

*Physiographic geology*.

- Bay of Fundy, origin: Koons, E. D., 1;  
 Shepard, F. P., 3.  
 Central area: Rose, B., 3.  
 General: Alcock, F. J., 3.  
 Rivers, central: Rose, B., 2.

## New England.

*Economic geology*.

- Seismic prospecting: Linehan, D., 2.

*Historical geology*.

- Gravity anomalies, geol. interpretation: Longwell, 4.

*Mineralogy*.

- Alkalies, rare: Hess, F. L., 1.  
 Granites, spectrographic analysis: Shimer, J. A., 1.  
 Pegmatites, spectrographic analysis: Shimer, J. A., 1.

*Paleontology*.

- Pollen analyses: Deevey, E. S., Jr., 1.

*Petrology*.

- Alkalies, rare: Hess, F. L., 1.  
 Granites, sheet-structure and glacial erosion: Jahns, R. H., 3.  
 Spectrographic analysis: Shimer, J. A., 1.  
 Sheet-structure in granites: Jahns, R. H., 3.

*Physical geology*.

- Granites, sheet-structure and glacial erosion: Jahns, R. H., 3.  
 Gravity anomalies, geol. interpretation: Longwell, 4.  
 Sheet-structure in granites: Jahns, R. H., 3.

New England—Continued.

*Physiographic geology.*

Glacial erosion and sheet-structure in granites: Jahns, R. H., 3.

Newfoundland.

*Areas described.*

Fleur-de-Lys area: Fuller, J. O., 1.

*Economic geology.*

Colloform sulphide veins, Port au Port Pen.: Watson, K. D., 3.

Fleur-de-Lys area: Fuller, J. O., 1.

Fluorspar, St. Lawrence dist.: Van Alstine, R. E., 1.

Minerals for war: Snelgrove, A. K., 1.

*Historical geology.*

Baie Verte ig. rocks: Watson, K. D., 2.

Colloform sulphide veins, Port au Port Pen.: Watson, K. D., 3.

Faulting, late Paleozoic: Betz, F., Jr., 2.

Fleur-de-Lys area: Fuller, J. O., 1.

Southwest, g. map: Dorf, E., 3.

*Mineralogy.*

Baie Verte area ig. rocks: Watson, K. D., 2.

Colloform sulphide veins, Port au Port Pen.: Watson, K. D., 3.

Fleur-de-Lys area: Fuller, J. O., 1.

Fluorspar, St. Lawrence dist.: Van Alstine, R. E., 1.

Minerals for war: Snelgrove, A. K., 1.

Zoisite-prehnite gabbro alteration: Watson, K. D., 1.

*Paleontology.*

Alsataspis, Ord.: Kindle, C. H., 1.

Cloud Rapids Camb. fauna: Howell, B. F., 8.

Faunas, Camb. fms.: Howell, B. F., 8.

Plants, Dev.: Dorf, E., 3.

Treytown Pond fm. fauna: Howell, B. F., 8.

Trichinocrinus, Ord.: Moore, R. C., 8.

Trilobita, Camb.: Kindle, C. H., 3.

*Petrology.*

Baie Verte area ig. rocks: Watson, K. D., 2.

Fleur-de-Lys area: Fuller, J. O., 1.

Zoisite-prehnite gabbro alteration: Watson, K. D., 1.

*Physical geology.*

Baie Verte area ig. rocks: Watson, K. D., 2.

Colloform sulphide veins, Port au Port Pen.: Watson, K. D., 3.

Faulting, late Paleozoic: Betz, F., Jr., 2.

Fleur-de-Lys area: Fuller, J. O., 1.

Fluorspar area, St. Lawrence dist.: Van Alstine, R. E., 1.

*Physiographic geology.*

Fleur-de-Lys area: Fuller, J. O., 1.

Newhall oil field, Calif.: Kew, W. A. W., 1.

New Hampshire.

*Economic geology.*

Andalusite: Bannerman, H. M., 1.

New Hampshire—Continued.

*Economic geology—Continued.*

"Big" mine, non-metallic minerals: Anonymous, 26.

Cardigan and Rumney quads.: Fowler-Billings, K. S., 2.

Fluorite, Cheshire Co.: Bannerman, H. M., 2.

Franconia iron mine: Verrow, H. J., 1.

Kyanite: Bannerman, H. M., 1.

Mica schist: Bannerman, H. M., 1.

Pegmatites, mica-bearing: Olson, J. C., 1.

Quartz deposits: Meyers, T. R., 1.

Rumney and Cardigan quads.: Fowler-Billings, K. S., 2.

Sillimanite: Bannerman, H. M., 1.

*Historical geology.*

Cardigan and Rumney quads.: Fowler-Billings, K. S., 2.

Cardigan quad, g. map: Fowler-Billings, K. S., 2.

Domes, intrusive, Claremont-Newport area: Chapman, C. A., 1.

Mt. Cube area: Hadley, J. B., 2.

Ossipee Mts. earthquake area: Billings, M. P., 2.

Pegmatites, mica-bearing: Olson, J. C., 1.

Quartz deposits: Meyers, T. R., 1.

Ring structures, Pliny area: Chapman, R. W., 2.

Rumney and Cardigan quads.: Fowler-Billings, K. S., 2.

Winnepesaukee quad.: Quinn, A. W., 1.

*Mineralogy.*

Andalusite: Bannerman, H. M., 1.

Fluorite, Cheshire Co.: Bannerman, H. M., 2.

Franconia iron mine: Verrow, H. J., 1.

Kyanite: Bannerman, H. M., 1.

Mica schist: Bannerman, H. M., 1.

Mt. Cube area: Hadley, J. B., 2.

Pegmatites, mica-bearing: Olson, J. C., 1.

Sillimanite: Bannerman, H. M., 1.

Triphylite, magnesia-rich crystals in pegmatite: Chapman, C. A., 2.

*Petrology.*

Domes, intrusive, Claremont-Newport area: Chapman, C. A., 1.

Granite, graphic: Schaller, W. T., 4.

Mt. Cube area: Hadley, J. B., 2.

Pegmatites, mica-bearing: Olson, J. C., 1.

Ring structures, Pliny area: Chapman, R. W., 2.

Winnepesaukee quad.: Quinn, A. W., 1.

*Physical geology.*

Cardigan and Rumney quads.: Fowler-Billings, K. S., 2.

Domes, intrusive, Claremont-Newport area: Chapman, C. A., 1.

Earthquake, Dec. 1940: Devlin, J. J., 1; Leet, L. D., 1.

Mt. Cube area: Hadley, J. B., 2.

Ossipee Mts. earthquake area: Billings, M. P., 2.

Pegmatites, mica-bearing: Olson, J. C., 1.

## New Hampshire—Continued.

*Physical geology*—Continued.

Ring structures, Pliny area: Chapman, R. W., 2.

Rumney and Cardigan quads.: Fowler-Billings, K. S., 2.

Winnepesaukee quad.: Quinn, A. W., 1.

*Physiographic geology.*

Cardigan and Rumney quads.: Fowler-Billings, K. S., 2.

Ring structures, Pliny area: Chapman, R. W., 2.

Rumney and Cardigan quads.: Fowler-Billings, K. S., 2.

Winnepesaukee quad.: Quinn, A. W., 1.

## New Jersey.

*Economic geology.*

Peats: Wakeman, S. A., 1.

*Historical geology.*

Appalachians, middle: Swartz, F. M., 1.

Geologic correls., gravity-magnetic anomalies: Woollard, G. P., 2.

Gravity anomalies, geol. interpretation: Longwell, 4.

Raritan fm.: Richards, H. G., 7.

Triassic: Shainin, V. E., 1.

*Mineralogy.*

Hetaerolite: Frondel, C., 1.

Quarry, Upper Montclair: Drake, H. Y., 1.

*Paleontology.*

Appalachians, middle: Swartz, F. M., 1.

Aves, fossil list: Rapp, W. F., Jr., 1.

Cape May fm., marine topog.: MacClintock, P., 1.

Falcula, Cret. Tubicola: Howell, B. F., 15.

Faunas, Raritan fm.: Richards, H. G., 7.

Upper Camb.: Howell, B. F., 11.

Hamulus, Falcula, Cret. Tubicola: Howell, B. F., 15.

Invertebrata, Miocene: Richards, H. G., 1.

Mollusca, Cret.: Richards, H. G., 4.

Ophiomusium, Eocene: Berry, C. T., 1.

Pisces, coelacanth Trias.: Shainin, V. E., 1.

Post-glacial pollen in bogs: Potzger, J. E., 3.

Tubicola, Cret.: Howell, B. F., 15.

*Physical geology.*

Geologic structure effect on radio reception: Howell, B. F., Jr., 1.

Gravity anomalies, geol. interpretation: Longwell, 4.

*Physiographic geology.*

Cape May fm., marine topog.: MacClintock, P., 1.

Soil and subsequent topog.: Wolfe, P. E., 1.

## New Mexico.

*Areas described.*

Magdalena mining dist.: Loughlin, G. F., 2.

*Economic geology.*

Beryllium, Iron Mtn.: Jahns, R. H., 5.

## New Mexico—Continued.

*Economic geology*—Continued.

Development, oil and gas, 1941: West Tex. G. S. Com., 1.

Earth resistivity explor., potash area: Spicer, H. C., 1.

Ground Hog mine: Lasky, S. G., 1.

Guidebook Eddy Co.: West Tex. G. Soc., 1.

Magdalena mining dist.: Loughlin, G. F., 2.

Minerals: Northrop, S. A., 1.

Molybdenite, Questa dist.: Vanderwilt, J. W., 3.

Monument oil field resistivity survey: England, C. C., 1.

Ore deposits, Central mining dist.: Schmitt, H. A., 1.

Permian: King, P. B., 2.

Petroleum, 1941: Ray, B. A., 1.

Petroleum and gas, 1942: Dickey, R. I., 1.

Resources: Bates, R. L., 1; Lloyd, E. R., 1.

Potash area, resistivity studies: Spicer, H. S., 1.

Salt Lake oil pool: Miller, C. P., 1.

Sand belt area: Denham, R. L., 1.

Sierra Cuchillo: Jahns, R. H., 4.

South Permian Basin: King, R. E., 2.

Tin: Harrington, E. R., 1.

*Historical geology.*

Ancient man, San Jon dist.: Roberts, F. H. H., Jr., 2.

Cerro Colorado, extinct volcano: Wright, H. E., Jr., 1.

Cimarron Range: Smith, F. J., Jr., 1.

Cimarron vs. Chaves for red-beds: Keyes, 17.

Climate, Juras.-Cret. interval: Leopold, L. B., 1.

Cretaceous-Tert. boundary: Keyes, C. R., 9.

Devonian: Stevenson, F. V., 2.

Galisteo Tert. fm.: Stearns, C. E., 2.

Guidebook Eddy Co.: West Tex. G. Soc., 1.

Iron Mtn. area: Glass, J. J., 1.

Magdalena group: Bisbee, W. A., 1.

Magdalena mining dist.: Loughlin, G. F., 2.

Magdalena shs.: Keyes, 37.

Monument oil field resistivity survey: England, C. C., 1.

Onondagan equivalent: Stevenson, F. V., 1.

Ore deposits, Central mining dist.: Schmitt, H. A., 1.

Paleoclimatology of Juras.-Cret. interval: Leopold, L. B., 1.

Pecos River Valley: Theis, C. V., 1.

Pennsylvanian: Read, C. B., 1; Thompson, M. L., 2, 4.

Pennsylvanian-Permian: Read, C. B., 1; Thomson, M. L., 4.

Permian: King, P. B., 2; Needham, C. E., 2; Read, C. B., 1; Thomson, M. L., 2, 4.

Central N. Mex.: Needham, C. E., 1.

Texas-N. Mex.: DeFord, R. K., 1.

## New Mexico—Continued.

*Historical geology*—Continued.

- Petroleum and gas res.: Bates, R. L., 1.  
 Salada fm. cores: Lang, W. T. B., 1.  
 San Andrés ls.: Keyes, C. R., 6.  
 Sandia Cave, Pleist.: Hibben, F. C., 1.  
 Seven Rivers fm., gradation: Bates, R. L., 2.  
 Sierra Cuchillo: Jahns, R. H., 4.  
 Silurian: Keyes, 31.  
 South Permian Basin: King, R. E., 2.  
 Tirjeras quartzite: Keyes, 33.

*Mineralogy.*

- Beryllium, Iron Mtn.: Jahns, R. H., 5.  
 Bixbyite in rhyolite: Fries, C., Jr., 3.  
 Calcite, octahedra: Schaller, W. T., 1.  
 Chlorides of rivers originating in Perm.: Burr, J. G., 3.  
 Heavy minerals, transp., deposit: Rittenhouse, G., 4.  
 Helvite, Iron Mtn.: Glass, J. J., 1.  
 Magdalena mining dist.: Loughlin, G. F., 2.  
 Minerals: Northrop, S. A., 1.  
 Molybdenite, Questa dist.: Vanderwilt, J. W., 3.  
 Pseudobrookite in rhyolite: Fries, C., Jr., 3.  
 Tirjeras quartzite: Keyes, 33.

*Paleontology.*

- Algae, Guadalupe Mts., Permian lime-secreting: Johnson, J. H., 2.  
 Ammonite, Albian, Mt. Taylor: Haas, O. H., 3.  
 Ancient man, San Jon dist.: Roberts, F. H. H., Jr., 2.  
 Bryozoa, Devonian: Fritz, M. A., 3.  
 Caninia, Lower Carb.: Jeffords, R. M., 2.  
 Cephalopoda, Penn.: Young, J. A., Jr., 1.  
 Chaco Canyon, Upper Cret. fauna: Vann, R. P., 1.  
 Dinosaurs, primitive mammals: Simpson, G. G., 1.  
 Folsom, Yuma artifacts: Renaud, E. B., 2.  
 Fusulinidae, Penn.: Thompson, M. L., 1.  
 Galisteo Tert. fm.: Stearns, C. E., 2.  
 Magdalena group: Bisbee, W. A., 1.  
 Marmot, fossil: Stearns, C. E., 1.  
 Mizzia, Perm.: Johnson, J. H., 1.  
 Navajosuchus, Paleocene: Mook, C. C., 2.  
 Onondagan Dev. fauna: Stevenson, F. V., 1.  
 Permian: King, P. B., 2.  
 Sandia Cave, ancient man: Hibben, F. C., 2.  
 Pleist.: Hibben, F. C., 1.  
 San José culture: Bryan, K., 4.  
 Scaphopoda, Penn.: Young, J. A., Jr., 1.  
 Yuma, Folsom artifacts: Renaud, E. B., 2.

*Petrology.*

- Beryllium, Iron Mtn.: Jahns, R. H., 5.  
 Carlsbad dolomite, pisolites: Lang, W. T. B., 2.  
 Cerro Colorado, extinct volcano: Wright, H. E., Jr., 1.

## New Mexico—Continued.

*Petrology*—Continued.

- Cimarron Range: Smith, F. J., Jr., 1.  
 Extrusive, related rocks: Collins, R. F., 1.  
 Galisteo Tert. fm.: Stearns, C. E., 2.  
 Magdalena mining dist.: Loughlin, G. F., 2.  
 Paleoclimatology of Juras.-Cret. interval: Leopold, L. B., 1.  
 Salada fm. cores: Lang, W. T. B., 1.  
 Seven Rivers fm., gradation: Bates, R. L., 2.  
 Sierra Cuchillo: Jahns, R. H., 4.  
 Tirjeras quartzite: Keyes, 33.

*Physical geology.*

- Bedding-slips in fault blocks, Los Pinos Mts.: Stark, J. T., 1.  
 Beryllium, Iron Mtn.: Jahns, R. H., 5.  
 Cerro Colorado, extinct volcano: Wright, H. E., Jr., 1.  
 Cimarron Range: Smith, F. J., Jr., 1.  
 Earth resistivity explor., potash area: Spicer, H. C., 1.  
 Extrusive related rocks: Collins, R. F., 1.  
 Ground Hog mine: Lasky, S. G., 1.  
 Magdalena mining dist.: Loughlin, G. F., 2.  
 Molybdenite, Questa dist.: Vanderwilt, J. W., 3.  
 Ore deposits, Central mining dist.: Schmitt, H. A., 1.  
 Permian: King, P. B., 2.  
 Potholes, high level: Peters, J. R., 1.  
 Ship Rock: Vokes, H. E., 5.  
 Sierra Cuchillo: Jahns, R. H., 4.  
 Solution, Pecos Basin: Morgan, A. M., 1.  
 South Permian Basin: King, R. E., 2.  
 Wind-polished rocks, trans-Pecos area: Bryan, K., 3.

*Physiographic geology.*

- Drying cracks, gigantic, Animas Valley: Lang, W. T. B., 3.  
 Magdalena mining dist.: Loughlin, G. F., 2.  
 Pecos River Valley: Theis, C. V., 1.  
 Permian: King, P. B., 2.  
 Sand dunes, alluvium, near Grants: Bryan, K., 5.

*Underground water.*

- Pecos River Valley: Theis, C. V., 1.  
 Solution, Pecos Basin: Morgan, A. M., 1.

Newport oil field, Calif.: Parker, F. S., 1.

## New York.

- Balanced rocks: Albee, A., 1.  
 Geomagnetic survey: Geyer, R. A., 1.

*Area described.*

- Wellsville quad.: Woodruff, J. G., 1.

*Economic geology.*

- Edwards-Balmat zinc dist.: Brown, J. S., 1.  
 Iron deposits: Anonymous, 20.  
 Magnetites, Adirondacks: Alling, H. L., 1.  
 Petroleum and nat. gas: Hartnagel, C. A., 1.

## New York—Continued.

*Economic geology*—Continued.

- Titanium mine, Tahawus: Killinger, P. E., 1.  
 Ulster Co.: Howell, B. F., 2.  
 Vanadium in magnetite-ilmenite deposits, Lake Sanford: Balsley, J. R., Jr., 1.  
 Wellsville quad.: Woodruff, J. G., 1.

*Historical geology.*

- Allanite age, Whiteface Mtn.: Marble J. P., 1.  
 Appalachians, middle: Swartz, F. M., 1.  
 Black River fms.: Young, F. P., Jr., 1.  
 Cambrian-Ordovician boundary, Adirondack border area: Wheeler, R. R., 2.  
 Esopus fm.: Goldring, W., 2.  
 Gravity anomalies, geol. interpretation: Longwell, 4.  
 Hamilton, Buffalo Creek: Busch, D. A., 2.  
 Lake George area: Newland, D. H., 1.  
 Lamprophyric dikes in Manhattan schist, New York City: Colony, R. J., 1.  
 Mohawkian, West Canada Creek: Kay, G. M., 6.  
 New York City rocks: Walovnick, S., 1.  
 Petroleum and nat. gas: Hartnagel, C. A., 1.  
 Schoharie fm.: Goldring, W., 2.  
 Schunemunk Mtn. area: Sharpe, C. S. F., 2.  
 Shawangunk Mts.: Glenby, K. L., 2.  
 Subsurface explor., New York City: Wheeler, G., 1.  
 Ulster Co.: Howell, B. F., 2.  
 Vanadium in magnetite-ilmenite deposits, Lake Sanford: Balsley, J. P., Jr., 1.  
 Wellsville quad.: Woodruff, J. G., 1.  
 White Medina or Whirlpool ss.: Lockwood, W. N., 1.

*Mineralogy.*

- Edwards-Balmat zinc dist.: Brown, J. S., 1.  
 Iron deposits: Anonymous, 20.  
 Lamprophyric dikes in Manhattan schist, New York City: Colony, R. J., 1.  
 Lockport dolomite minerals: Jensen, D. E., 1.  
 Magnetites, Adirondacks: Alling, H. L., 1.  
 Pekin quarry, Lockport: Killinger, P. E., 2.  
 Tilly Foster mine: Trainer, J. N., 1, 2.  
 Titanium mine, Tahawus: Killinger, P. E., 1.  
 Tourmaline crystals, black: Rowley, E. B., 1.  
 Vanadium in magnetite-ilmenite deposits, Lake Sanford: Balsley, J. R., Jr., 1.

*Paleontology.*

- Ancyrocrinus, Dev.: Goldring, W., 1.  
 Root development: Lowenstam, H. A., 1.  
 Anthozoa, Hamilton: Busch, D. A., 2.  
 Appalachians, middle: Swartz, F. M., 1.  
 Archaeolafoea, Chonetidea, Ord.: Howell, B. F., 12.  
 Black River fms.: Young, F. P., Jr., 1.  
 Blastoids, Devonoblastus: Reimann, I. G., 2.

## New York—Continued.

*Paleontology*—Continued.

- Brachiopoda, High Point ss.: Stainbrook, M. A., 2.  
 Cephalopoda, Clinton: Flower, R. H., 2.  
 Chert, radiolarian: Ruedemann, R., 4.  
 Conodonts, Dev.: Hibbard, R. R., 1.  
 Esopus fm.: Goldring, W., 2.  
 Esopus grit. Dev. fauna: Howell, B. F., 5.  
 Eurypterids, Ord.: Ruedemann, R., 2.  
 Ferns, Dev.: Arnold, C. A., 1.  
 Fish plates, arthrodiran, Dev.: Wells, J. W., 4.  
 Flora, microfossils, Onondaga chert: Baschnagel, R. A., 1.  
 Foralites burrows, Camb., Champlain Valley: Howell, B. F., 13.  
 Graptolites, Ord.: Howell, B. F., 3.  
 Highland Mills fossils: Woldstein, H. R., 1.  
 Holonema, Upper Dev.: Wells, J. W., 6.  
 Hyenia, Dev.: Arnold, C. A., 2.  
 Machaeracanthus, Dev.: Carter, A. L., 1.  
 Machaeridia, Ord.: Ruedemann, R., 3.  
 Medusaeagraptus, Ord.: Ruedemann, R., 2.  
 Nautiloids, Middle Dev.: Flower, R. H., 8.  
 Oldhamia and Rensselaer grit: Ruedemann, R., 1.  
 Paraptocyodus, Dev.: Carter, A. L., 2.  
 Phyllocarids, Hamilton: Reimann, I. G., 3.  
 Plankton, Ord.: Ruedemann, R., 4.  
 Schodackia, Camb., Ord.: Ruedemann, R., 2.  
 Schoharie fm.: Goldring, W., 2.  
 Siphonophores, Paleozoic: Caster, K. E., 2.  
 Snake Hill sh. Ord. fauna: Howell, B. F., 4.  
 Teganium, Ord. sponge: Ruedemann, R., 2.  
 Terataspis, restoration: Reimann, I. G., 1.  
 Wellsville quad.: Woodruff, J. G., 1.  
 Werneroceras, Dev.: Flower, R. H., 6.

*Petrology.*

- Adirondack anorthosite: Miller, W. J., 2.  
 Allanite age, Whiteface Mtn.: Marble, J. P., 1.  
 Anorthosite-gabbro relations, Lake Sanford area: Stephenson, R. C., 1.  
 Chert nodules, Oriskany ss.: Apsauri, C. N., 1.  
 Cortlandt complex: Shand, S. J., 1.  
 Geomagnetic survey: Geyer, R. A., 1.  
 Lamprophyric dikes in Manhattan schist, New York City: Colony, R. J., 1.  
 Mohawkian, West Canada Creek: Kay, G. M., 6.  
 New York City rocks: Walovnick, S., 1.  
 Stone-centered polygons: Rozanski, G., 1.  
 Subsurface explor., New York City: Wheeler, G., 1.  
 Vanadium in magnetite-ilmenite deposits, Lake Sanford: Balsley, J. R., Jr., 1.  
 Wellsville quad.: Woodruff, J. G., 1.  
 White Medina or Whirlpool ss.: Lockwood, W. N., 1.

New York—Continued.

*Physical geology.*

- Adirondack anorthosite: Miller, W. J., 3.
- Anorthosite-gabbro relations, Lake Sanford area: Stephenson, R. C., 1.
- Ausable Chasm, evolution: Resser, C. E., 2.
- Caves: Thurston, A. W., 1.
- Earthquakes, Alexander, 2/23/39; Jackson, P., 1.
- Edwards-Balmat zinc dist.: Brown, J. S., 1.
- Gravity anomalies, geol. interpretations: Longwell, 4.
- Jointing, regional, deformed sed. rocks: Parker, J. M., III, 1.
- Lake George area: Newland, D. H., 1.
- Lamprophyric dikes in Manhattan schist, New York City: Colony, R. J., 1.
- Magnetites, Adirondacks: Alling, H. L., 1.
- Mohawkian, West Canada Creek: Kay, G. M., 6.
- Profile, reflection: Young, W. H., Jr., 1.
- Schunemunk Mtn. area: Sharpe, C. S. F., 2.
- Seismotectonic lines, New York City: O'Connell, D. T., 1.
- Shawangunk Mts.: Clenby, K. L., 2.
- Stone-centered polygons: Rozanski, G., 1.
- Vanadium in magnetite-ilmenite deposits, Lake Sanford: Balsley, J. R., Jr., 1.
- Wellsville quad.: Woodruff, J. G., 1.

*Physiographic geology.*

- Balanced rocks: Albee, A., 1.
- Interglacial consequent valleys: Wold, J. S., 1.
- Lake George area: Newland, D. H., 1.
- Rock City: Davis, W. C., Jr., 1.
- Subsurface explor., New York City: Wheeler, G., 1.
- Wellsville quad.: Woodruff, J. G., 1.

*Underground water.*

- Wellsville quad.: Woodruff, J. G., 1.

Nickel. Alistos deposits Mex.: Krieger, P., 1.

- Abundance, relative: Wells, R. C., 1.
- Alaska: Joesting, H. R., 1.
- Admiralty Is.: Reed, J. C., 4.
- Baranof Is.: Reed, J. C., 3.
- Bohemia Basin, Yakobi Is.: Reed, J. C., 2.
- Chicago Is.: Pecora, W. T., 2.
- Yakobi Is.: Kennedy, G. C., 1.
- Bravoite, Mo.: Rasor, C. A., 1.
- Colorado, Gold Hill area: Goddard, E. N., 1.
- Connecticut, Mt. Prospect: Cameron, E. N., 1.
- Heat effects on sulphides: Hawley, J. E., 2.
- Idaho, metal, coal mining dists.: Ross, C. P., 1.
- Massachusetts, Dracut area: Dennen, W. H., 1.
- Mexico, Alistos deposits: Krieger, P., 1.
- Minerals in world affairs: Lovering, T. S., 3.

Nickel—Continued.

- Montana, Dillon complex: Sinkler, H., 1.
- North America, origin: Pecora, W. T., 5.
- Ontario, Cuniptau mine: Sandefur, B. T., 1.
- Sudbury dist.: Fairbairn, H. W., 3; Galbraith, F. M., 1.
- Oregon, Nickel Mtn. area: Pecora, W. T., 1.
- Pennsylvania, Gap nickel mine: Moyd, L., 1.

Nikkel oil field, Kans.: Bunte, A. S., 1.

Nitrogen in meteorites: Buddhue, J. D., 5.

Nodules.

- Kansas, Haskell ls.: Bridwell, A., 1.
- Missouri Valley manganese deposits: Rothrock, E. P., 4.

Nomenclature.

- Actinocrinus chloris Hall identified: Kirk, E., 6.
- Agricolite identical with eulytite: Frondel, C., 5.
- Aligerites for Aliger: Howell, B. F., 1.
- Anomocytheridea beaenensis for Cytheridea beaenensis: LeRoy, L. W., 2.
- Antillesina Galloway & Heminway synonym of Cribropullenia Thalmann: Thalmann, H. E., 9.
- Atchison shs. fm., Iowa-Nebr.-Kans.: Keyes, 22.
- Aulopora burlingtonensis for A. gracilis: Keyes, 29.
- Aulopora gracilis in synonymy: Keyes, 29.
- Auloporidae and Hederella, morphology, taxonomy: Elias, M. K., 4.
- Bairdia clarensis for B. sinuosa: Cooper, C. L., 5.
- Battle Mtn. for Weber and Maroon, Colo.: Brill, K. G., Jr., 1.
- Bellyan ser. is not Judith River, N. Am.: Keyes, 16.
- Beushausenia cf. Cosmetodon: Branson, C. C., 3.
- Brachiopoda: Cooper, G. A., 2.
- Buckskinian ser., Kans.-Colo.: Keyes, 35.
- Cambrian fossils: Resser, C. E., 4.
- Cedar Valley ls. cf. Hutchison fm.: Keyes, C. R., 2.
- Chico group name in geol. lit.: Anderson, F. M., 2.
- Chinli fm., Ariz.: Keyes, C. R., 10.
- Chouteau cf. Louisiana ls., Mo.: Keyes, 21.
- Cimarron vs. Chaves for red-beds, N. Mex.: Keyes, 17.
- Classification of faults: Longwell, C. R., 6.
- Colorado, Denver Basin fms.: Brown, R. W., 4.
- Conocardium, homonyms correction: Branson, C. C., 4.
- Conodonts, origin: Du Bois, E. P., 2.
- Cosmetodon, new name: Branson, C. C., 3.
- Criteria for classn.: Simpson, G. G., 7.
- Crystal drawings, terminology: Tunell, G., 1.

## Nomenclature—Continued.

- Cythereis simiensis for Pyricythereis simiensis LeRoy: LeRoy, L. W., 2.  
 Cytheropteron pacificum for C. minutum LeRoy: LeRoy, L. W., 2.  
 Denisonella for Denisonia: Croneis, C. G., 4.  
 Desmoinesian-Missourian rocks, Kans.-Okla.: Oakes, M. C., 1.  
 Devonian ls., Mo.: Keyes, 11.  
 Dilobella wisconsinensis for D. simplex Kay: Kay, G. M., 1.  
 Eulytite and agrolite identical: Frondel, C., 5.  
 Eustephanelia for Eustaphanus: Swartz, F. M., 2.  
 Faults: Gill, J. E., 1.  
 Fluorescence, glossary: De Ment, J. A., 3.  
 Foraminiferal homonyms: Thalmann, H. E., 2.  
 Franciscan-Knoxville group, Calif.: Taliaferro, 2.  
 Gastropoda genotypes, Paleozoic: Dunbar, C. O., 2.  
 New genera, Paleozoic: Knight, J. B., 1.  
 Generic allocation and renaming: Schenck, H. G., 1.  
 Generic names, erroneous emendation: Moore, R. C., 2.  
 Geologic terminology, wrong usage: Washburne, C. W., 1.  
 Geologic terms, common, for engineers: Runner, D. G., 1.  
 Geomorphic unconformity: Donnelly, M., 1.  
 Grammatodon cf. Cosmetodon: Branson, C. C., 3.  
 Haplocytheridea bassleri for Cytheridea subovata: Stephenson, M. B., 3.  
 Homonyms, trees and fossil plants: Little, E. L., Jr., 1.  
 Illinois, outlines of geol.: Keyes, 25.  
 Indiana, St. Louis and Ste. Genevieve lss.: McGrain, P., 2.  
 "Iowan till," Wisconsin outwash: Hobbs, W. H., 8.  
 Kansas geology: Keyes, 5.  
 La Plata fm., Colo.: Keyes, 8.  
 Lectosyntype, for type specimens: Hudson, R. G. S., 1.  
 Lepidostrobos arectus for L. aristatus: Hoskins, J. H., 3.  
 Lepidostrobos aristatus, homonym: Hoskins, J. H., 3.  
 Louisville vs. New Albany black shales, Ind., Ill.: Keyes, 7.  
 Low and ball, use and meaning: Evans, O. F., 1; Shepard, F. P., 2.  
 McKee sand, Tex.: Cole, C. T., 1.  
 Magdalena sh., N. Mex.: Keyes, 37.  
 Marginicinctus for Worthenella: Sutton, A. H., 2.  
 Michigan, Traverse rocks, Thunder Bay area: Warthin A. S., Jr., 2.  
 Microfacies, new word: Brown, J. S., 4.  
 Mollusca, homonyms substitutes: Palmer, K. E. H. V., 2.

## Nomenclature—Continued.

- Naco ls. vs. Aubreyan, Ariz.: Keyes, 18.  
 Nautiloidea, orthoceraconic genera: Flower, R. H., 6.  
 New Mexico, Penn.: Thompson, M. L., 2.  
 San Andrés ls.: Keyes, 6.  
 Osage group, Iowa: Keyes, 30.  
 Oshawanan deposits, Ark.: Keyes, 12.  
 Paleobotany: Schopf, J. M., 1.  
 Parallelodon, invalid: Branson, C. C., 3.  
 Pennsylvania, Jacksonburg fm., Lehigh Co.: Miller, R. L., 1.  
 Lehigh Co. Trias.: Wherry, E. T., 1.  
 Platychilella for Platychilus: Cooper, C. L., 2.  
 Quebec, W., pre-Camb. succession: Wilson, M. E., 3.  
 Rafinesquina sinclari for R. elongata; Salmon, E. S., 2.  
 Renaming primary homonyms: Schenck, H. G., 1.  
 Sanborn fm., Kans.: Leonard, A. B., 1.  
 Sequoia: Berry, E. W., 3.  
 Submarine features, Gulf of Mexico, Caribbean: Vaughan, T. W., 1.  
 Lists of names: Vaughan, T. W., 2.  
 Taxonomy and paleontology: Croneis, C. G., 2.  
 Tennessee, Niagaran: Wilson, C. W., Jr., 2.  
 Teredolitus, collective group name: Bartsch, P., 1.  
 Tryonella for Tryonia: Stephenson, L. W., 3.  
 Vaqueros fm. type locality, Calif.: Thorup, R. R., 1.  
 Virginia, Moccasin fm.: Cooper, B. N., 2.  
 Tazewell Co. Ord. fms.: Cooper, B. N., 1.  
 Vocabulary, tech., hydrology: De la O. Carreño, A., 1.  
 Waddell sand, Tex.: Cole, C. T., 1.  
 West Virginia: Woodward, H. P., 1, 2.  
 Devonian: Woodward, H. P., 2.  
 Silurian: Woodward, H. P., 1.  
 Wittenberg sh., Ill.-Mo.: Keyes, 23, 36.  
 Nomograms of optic angle formulae: Mertie, J. B., Jr., 2.  
 Nonmetallic min. deposits: Bateman, A. M., 3.  
 Noodle Creek oil pool, Tex.: Imholz, H. W., 1.  
 Norite, Dracut area, Mass.: Dennen, W. H., 1.  
 North America.  
 Bibliography of geology, 1940-41: Thom, E. M., 1.  
 History of devel. of geol. maps: Ireland, H. A., 2.  
 Economic geology.  
 Chromite, composition: Stevens, R. E., 2.  
 Deposits: Sampson, E., 1.  
 Ore deposit types: Peoples, J. W., 1.  
 Clays, adsorbent: Nutting, P. G., 3.  
 Economic min. deposits: Bateman, A. M., 3.  
 Evaporites, Perm.: Bates, R. L., 3.  
 Geophysics in petroleum industry: DeGolyer, E. L., 2.



## North America—Continued.

*Economic geology*—Continued.

- Gold vein deposits, mechanisms and environment: White, W. H., 1.  
 Gulf of Mexico, geophys. prosp.: Covarrubias, L. F., 1.  
 Manganese, occurrence and minerals: Crook, T. H., 1.  
 Oxide minerals: Fleischer, M., 1.  
 Metallic min. deposits: Bateman, A. M., 3.  
 Molybdenum: Vanderwilt, J. W., 4.  
 Nickel-silicate deposits: Pecora, W. T., 5.  
 Non-metalliferous min. deposits: Bateman, A. M., 3.  
 Ore, pyrometamorphic deposits: Knopf, A., 1.  
 Ore deposits, structural features: Newhouse, W. H., 2.  
 Pegmatites, intrusions and structure: Landes, K. K., 1.  
 Petroleum and gas, 1941, Appalachian area: Lafferty, R. C., Jr., 2.  
 Petroleum source beds: Traak, P. D., 3.  
 Potash: Turrentine, J. W., 1.  
 Salt core structures: Bediz, P. I., 1.  
 Supergene magnetite: Brown, J. S., 3.  
 War minerals, metals, and mineral substances: Sellards, E. H., 2.

*Historical geology*.

- Allegheny sinclorium, N., devel.: Kay, G. M., 3.  
 Bellyan ser. is not Judith River: Keyes, 16.  
 Big Snowy group, NW. Great Plains: Sloss, L. L., 3.  
 Cactocrinus proboscidealis, index fossil: Keyes, 15.  
 Coal Measures, tri-serial set-up: Keyes, 14.  
 Correlation charts: Dunbar, C. O., 3.  
 Correlation, Dev. sed. fms.: Cooper, G. A., 4.  
 Correlations, sub-surface, Kans.-Front Range, Colo.: Peters, T. C., 1.  
 Cretaceous, Atlantic, Gulf Coastal Plains, trans-Pecos Tex.: Stephenson, L. W., 2.  
 Fauna, geol. background: Williams, M. Y., 2.  
 General: Grabau, 1.  
 Great Lakes area: Martin, H. M. M., 1.  
 Helium age measurement, magnetite index: Hurley, P. M., 1.  
 Indiana, early: Roberts, F. H. H., Jr., 1.  
 Lake Ontario homocline: Kay, G. M., 2.  
 Permian seas, rhythm, S. Mid-continent: Hills, J. M., 1.  
 Pleistocene: Flint, R. F., 5.  
 Silurian: Swartz, C. K., 1.

*Mineralogy*.

- Alkalies, rare, in micas: Stevens, R. E., 1.  
 Ascharite equals szaibelyite: Schaller, W. T., 3.  
 Beta-ascharite equals szaibelyite: Schaller, W. T., 3.  
 Camellite equals szaibelyite: Schaller, W. T., 3.

## North America—Continued.

*Mineralogy*—Continued.

- Chromite: Sampson, E., 1.  
 Composition: Stevens, R. E., 2.  
 Ore deposit types: Peoples, J. W., 1.  
 Emerald, synthetic: Rogers, A. F., 2.  
 Evaporites, Perm.: Bates, R. L., 3.  
 Gold vein deposits, mechanism and environment: White, W. H., 1.  
 Helium indices, mineral and rocks: Keovil, N. B., 7.  
 Manganese, occurrence and minerals: Crook, T. H., 1.  
 Oxide minerals: Fleischer, M., 1.  
 Meteorites, fall of: Leonard, F. C., 1.  
 Molybdenum: Vanderwilt, J. W., 4.  
 Nickel-silicate deposits: Pecora, W. T., 5.  
 Ore, pyrometamorphic deposits: Knopf, A., 1.  
 Deposits, structural features: Newhouse, W. H., 2.  
 Supergene magnetite: Brown, J. S., 3.  
 War minerals, metals, and mineral substances: Sellards, E. H., 2.  
 X-ray data, phosphate minerals: McConnell, D., 2.

*Paleontology*.

- Actinosiphonate Cephalopoda: Fowler, R. H., 6.  
 Algae, pre-Camb., Camb., Ord.: Fenton, C. L., 2.  
 Ammonoids, late Paleozoic, siphuncle: Miller, A. K., 5.  
 Ancient man: Krogman, W. M., 1; Wormington, H. M., 1.  
 Arcidae, Mesozoic, Cenozoic, Pacific slope: Reinhart, P. W., 1.  
 Brachiopoda: Cooper, G. A., 2.  
 Eocene: Stenzel, H. B., 7.  
 Terebratuloid, Dev., Sil.: Cloud, P. E., Jr., 2.  
 Bison taylori extinction: Eiseley, L. C., 1.  
 Brevicones, Ozarkian, Canadian: Ulrich, E. O., 4.  
 Bryozoa, ctenostomatous, Carb., Perm.: Condra, G. E., 2.  
 Cephalopoda, Cambro-Ord.: Miller, A. K., 7.  
 Eocene, Paleocene: Stenzel, H. B., 5.  
 Ordovician: Fowler, R. H., 6.  
 Pre-Cambrian, longicones: Ulrich, E. O., 3.  
 Coal-age forests: Janssen, R. E., 1.  
 Cochise-Mogollon-Hohokam sequence, fossil man: Haury, E. W., 1.  
 Conocardiidae, Dev.: Branson, C. C., 2.  
 Conocardium, homonyms correction: Branson, C. C., 4.  
 Cranis, Tert.: Cushman, 2.  
 Crinoidea, Paleozoic: Moore, R. C., 9.  
 Cypraeidae, type fossils: Ingram, W. M., 1.  
 Dinosaurs, hadrosaurian: Lull, R. S., 2.  
 Discocyclinidae: Vaughan, T. W., 5.  
 Elphidium, Quat., Pacific Coast: Nicol, D., 1.

## North America—Continued.

*Paleontology*—Continued.

- Equus, origin, generic status: Stirton, R. A., 2.
- Fauna, geol. background: Williams, M. Y., 2.
- Tertiary: Sorgenfrei, T., 1.
- Fish, Cretaceous: Dante, J. H., 1.
- Paleozoic: Romer, A. S., 1.
- Folsom and Yuma problems: Howard, E. B., 1.
- Foraminifera, Sil., Miss. Basin: Dunn, P. H., 1.
- Submarine cores, Atlantic slope: Phleger, F. B., Jr., 1.
- Fusulinids, Perm.: Thompson, M. L., 3.
- Gastropoda, Eocene, Paleocene, Oligocene: Stenzel, H. B., 6.
- Geologic importance, calcareous algae: Johnson, J. H., 4.
- Hantkenina and sub-genera: Thalmann, H. E., 3.
- Indians, early: Roberts, F. H. H., Jr., 1.
- Lake Ontario homocline: Kay, G. M., 2.
- Leperditacea, Dev.: Warthin, A. S., 1.
- Limestones formed by plants: Johnson, J. H., 6.
- Lithostrotiontidae, Paleozoic, Rocky Mts.: Kelly, W. A., 1.
- Mammalia, Paleocene: Simpson, G. G., 4.
- Tertiary: Colbert, E. H., 3.
- Man and extinct animals: Colbert, E. H., 2.
- Man, antiquity: Hrdlicka, A., 1; Krogman, W. M., 2.
- Man, fossil: Ryabinin, A., 1.
- Man's unknown ancestors: Murray, R. V., 1.
- Maples, supposed, are sycamores: Brown, R. W., 2.
- Nautilicones, Ozarkian, Canadian: Ulrich, E. O., 1.
- Nautiloidea, orthoceraconic genera: Flower, R. H., 6.
- Paleozoic: Flower, R. H., 6.
- Paleobotany: Hirmer, M., 1.
- Pelecypoda, Paleozoic: Schenck, H. G., 6.
- Plants, flowering, holarctic dispersal, Mesozoic: Steppins, G. L., 1.
- Lower Penn., Appalachian area: White, C. D., 1.
- Plesiospongia, Camb.: Okulitch, V. J., 2.
- Plesiosaurs, elasmosaurid, Cret.: Welles, S. P., 1.
- Post-glacial forest migration: Sears, P. B., 1.
- Rafinesquinae, Mohawkian: Salmon, E. S., 1.
- Restorations, extinct antelopes: Furlong, E. L., 3.
- Scleractinia corals: Vaughan, T. W., 4.
- Siphonalia, Tert., Pacific Coast: Ruth, J. W., 1.
- Stegancrinus revised: Kirk, E., 4.
- Storks, fossil: Howard, H., 1.

## North America—Continued.

*Paleontology*—Continued.

- Tetrapoda, Perm., Trias.: Watson, D. M. S., 1.
- Trilobita, Upper Camb.: Resser, C. E., 5.
- Troödont dinosaurs: Brown, B., 4.
- Vertebrates, fossil, discovery: Simpson, G. G., 6.
- Petrology.*
- Endellite and halloysite relationship: Alexander, L. T., 1.
- Halloysite and endellite relationship: Alexander, L. T., 1.
- Helium indexes, minerals and rocks: Keevil, N. B., 7.
- Pegmatites, intrusion, and structure: Landes, K. K., 1.
- Quartzite, Appalachian, recrystallization and flowage: Fellows, R. E., 1.
- Sedimentary petrologic provs., Gulf of Mexico: Goldstein, A., Jr., 1.

*Physical geology.*

- Allegheny synclinerium, N., devel.: Kay, G. M., 3.
- Basin ranges, Juras. monadnocks: Keyes, 13.
- Chromite deposits: Sampson, E., 1.
- Earthquakes, eastern, 1938-40: Linehan, D., 1.
- General: Grabau, 1.
- Glacial anticyclones and continental glaciers: Hobbs, W. H., 3.
- Gold vein deposits, mechanism and environment: White, W. H., 1.
- Lake Ontario homocline: Kay, G. M., 2.
- Mountain sculpture by rolling debris: Blackwelder, 1.
- Ore, pyrometasmatic deposits: Knopf, A., 1.
- Deposits, structural features: Newhouse, W. H., 2.
- Pegmatites, intrusion and structure: Landes, K. K., 1.
- Quartzite, Appalachian, recrystallization and flowage: Fellows, R. E., 1.
- Soil erosion: Arber, M. A., 2.
- Supergene magnetite: Brown, J. S., 3.
- Variations in radioactivity data: Keevil, N. B., 5.

*Physiographic geology.*

- Atlantic Coastal terraces: Flint, R. F., 4.
- Friction cracks and direction of glacial movements: Harris, S. E., Jr., 1.
- General: Grabau, 1.
- Geomorphology: Engeln, O. D., von, 1.
- Glacial anticyclones and continental glaciers: Hobbs, W. H., 3; Levéret, F., 4.
- Glaciers: Matthes, F. E., 2.
- Glaciers, and perennial snow: Church, J. E., 1.
- Thinning during deglaciation: Flint, R. F., 2.
- Great Lakes area: Martin, H. M. M., 1.
- Growth of an ice sheet: Hobbs, W. H., 4.
- Ice-cap erosion, high mts.: Atwood, W. W., Jr., 1.

## North America—Continued.

*Physiographic geology*—Continued.

Ice sheet growth, Wisconsin age: Flint: R. F., 7.

Niagara Falls: Vokes, H. E., 3.

Pleistocene: Flint, R. F., 5.

Wind and soil: Hobbs, W. H., 6.

*Underground water.*

Base exchange and sulphate reduction, Atlantic and Gulf Coasts: Foster, M. D., 2.

Bibliography, oil-field waters: Case, L. C., 1.

Ground-water inv.: Thompson, D. G., 1.

## North Carolina.

5th, 6th, 7th bienn. repts. Div. Min. Res., 1934-38: Bryson, H. J., 1.

8th, 9th bienn. repts., Div. Min. Res., 1938-42: Stuckey, J. L., 1.

*Economic geology.*

Barite deposits: Stuckey, J. L., 2.

Chromite: Hunter, C. E., 2.

Coastal Plain: Richards, H. G., 2.

Corundum: White, W. A., 1.

Mica-bearing pegmatites: Keppel, D., 1.

Muscovite, Spruce Pine dist.: Kesler, T. L., 1.

Pyrophyllite deposits: Stuckey, J. L., 3.

Tin-spodumene belt: Kesler, T. L., 2.

*Historical geology.*

Coastal Plain: Richards, H. G., 2.

Chromite deposits: Hunter, C. E., 2.

Forsterite olivine deposits: Hunter, C. E., 1.

Tin-spodumene belt: Kesler, T. L., 2.

*Mineralogy.*

Barite deposits: Stuckey, J. L., 2.

Chromite deposits: Hunter, C. E., 2.

Corundum: Brannock, K. C., 1.

Dunite, Buck Creek, alteration: Ross, C. S., 5.

Garnet: Pohli, R., 1.

Mica-bearing pegmatites: Keppel, D., 1.

Molybdenite: Hafer, C., 1.

Monazite, Spruce Pine: Bliss, A. D., 1.

Muscovite, Spruce Pine dist.: Kesler, T. L., 1.

Pegmatites, genetic hist.: Kesler, T. L., 3.

Pyrophyllite deposits: Stuckey, J. L., 3.

Square gravel: Hawkins, A. C., 3.

Tin-spodumene belt: Kesler, T. L., 2.

Uraninite crystal zones: Alter, C. M., 1.

*Paleontology.*

Busycon shells, abnormal: Smith, B., 1.

Coastal Plain: Richards, H. G., 2.

Flora, Trias.: Berry, E. Willard, 1.

*Petrology.*

Forsterite olivine deposits: Hunter, C. E., 1.

Paragenesis, pegmatites, Whiteside granite: Sharpe, L. K., 1.

Pegmatites, genetic history: Kesler, T. L., 3.

Square gravel: Hawkins, A. C., 3.

*Physical geology.*

Barite deposits: Stuckey, J. L., 2.

Dunite, Buck Creek, alteration: Ross, C. S., 5.

## North Carolina—Continued.

*Physical geology*—Continued.

Paragenesis, pegmatites, Whiteside granite: Sharpe, L. K., 1.

Pegmatites, genetic history: Kesler, T. L., 3.

Pyrophyllite deposits: Stuckey, J. L., 3.

*Physiographic geology.*

Carolina bays, origin: Johnson, D. W., 1; Jones, O. T., 2.

Blythe Bay, changes of level: Wells, B. W., 1.

Elliptical bays, origin: Cooke, C. W., 3; Johnson, D. W., 1; Jones, O. T., 2;

Mackin, J. H., 2; Prouty, W. F., 1.

Coastal Plain: Richards, H. G., 2.

French Broad River underfit meanders: Wright, R. J., 1.

*Underground water.*

Bays, origin: Johnson, D. W., 1.

Wells near Elizabeth City: Berry, E. Willard, 4.

## North Dakota.

22d Bienn. Rept. Geol. Survey: Laird, W. M., 1.

*Areas described.*

Morton Co.: Laird, W. M., 2.

*Economic geology.*

Dakota Basin: Ballard, W. N., 2.

Tertiary, oil and gas: Hennen, R. V., 1.

Manganese, Turtle Mts.: Hendricks, T. A., 1.

Williston Basin wildcat test: Ehlers, A., 1.

*Historical geology.*

Cannonball fm. Paleocene age: Fox, S. K., Jr., 1.

Dakota Basin: Ballard, W. N., 2; Hennen, R. V., 1.

Jurassic vs. Devonian: Ballard, W. N., 1.

Morton Co.: Laird, W. M., 2.

Paleobotany and Cret.-Tert. boundary: Dorf, 2.

Stratigraphy: Kline, V. H., 1; Seager, O. A., 2.

Turtle Mts.: Greenlee, A. L., 1.

Turtle River State Park: Laird, W. M., 3.

Williston Basin wildcat test: Ehlers, A., 1.

*Mineralogy.*

Freda meteorite: Henderson, E. P., 1.

Gypsum crystals, Morton Co.: Mitchell, R. H., 1.

Manganese, Turtle Mts.: Hendricks, T. A., 1.

*Paleontology.*

Foraminifera, Cannonball fm. Paleocene: Fox, S. K., Jr., 1.

Morton Co.: Laird, W. M., 2.

Worm-bored woods, fossil: Dake, H. C., 1.

*Petrology.*

Morton Co.: Laird, W. M., 2.

Williston Basin wildcat test: Ehlers, A., 1.

*Physical geology.*

Dakota Basin, Tert.: Hennen, R. V., 1.

Turtle River State Park: Laird, W. M., 3.

## North Dakota—Continued.

*Physiographic geology.*

- Morton Co.: Laird, W. M., 2.  
 Turtle Mts.: Greenlee, A. L., 1.  
 Turtle River State Park: Laird, W. M., 3.

*Underground water.*

- Dakota ss. water-supply, Ellendale-Jamestown area: Wenzel, L. K., 2.  
 Ground water: Speer, P. R., 1.

- North Midway area, Midway-Sunset oil field, Calif.: Woodward, W. T., 1.

## Northwest Territories.

*Areas described.*

- Snare River-Ingray Lake area: Lord, C. S., 2.

*Economic geology.*

- General: Anonymous, 24.  
 Pitchblende, Great Bear Lake: Ridland, G. C., 1.  
 Silver-pitchblende, Great Bear Lake: Kidd, D. F., 1.  
 Snare River-Ingray Lake area: Lord, C. S., 2.

*Historical geology.*

- General: Anonymous, 24  
 Helium age inv., Yellowknife: Keevil, N. B., 3.  
 Pre-Cambrian rocks, Gordon to Great Slave Lakes: Henderson, J. F., 1.  
 Silver-pitchblende, Great Bear Lake: Kidd, D. F., 1.  
 Snare River-Ingray Lake area: Lord, C. S., 2.

*Mineralogy.*

- Pitchblende, Great Bear Lake: Ridland, G. C., 1.  
 Silver-pitchblende, Great Bear Lake: Kidd, D. F., 1.

*Paleontology.*

- Stromatolites: Cloud, P. E., Jr., 1.

*Petrology.*

- Helium inv., Yellowknife: Keevil, N. B., 3.  
 Pre-Cambrian rocks, Gordon to Great Slave Lakes: Henderson, J. F., 1.  
 Snare River-Ingray Lake area: Lord, C. S., 2.

*Physical geology.*

- General: Anonymous, 24.  
 Helium age inv., Yellowknife: Keevil, N. B., 3.  
 Pitchblende, Great Bear Lake: Ridland, G. C., 1.  
 Pre-Cambrian rocks, Gordon to Great Slave Lakes: Henderson, J. F., 1.  
 Silver-pitchblende, Great Bear Lake: Kidd, D. F., 1.  
 Snare River-Ingray Lake area: Lord, C. S., 2.

*Physiographic geology.*

- General: Anonymous, 24.  
 Glacial potholes, Outpost Is., Great Slave Lake: Riley, C., 1.

## Northwest Territories—Continued.

*Physiographic geology—Continued.*

- Snare River-Ingray Lake area: Lord, C. S., 2.

- Northwest Wilmington oil field, Calif.: Cabeen, W. R., 1.

## Nova Scotia.

*Economic geology.*

- Barytes, Pembroke: Campbell, C. O., 1.  
 Chimney Corner coal field: Douglas, G. V., 2.  
 Copper, Cap d'Or: Douglas, G. V., 7.  
 Dept. Mines ann. rept. 1941-42: Cameron, A. E., 1.  
 Gold fields: Rickard, T. A., 1.  
 Iron, Nictaux South: Flynn, A. E., 1.  
 Manganese, Kings Co.: Bancroft, M. F., 1.  
 New Ross area: Douglas, G. V., 4.  
 New Campbellton dolomite: Douglas, G. V., 3.  
 New Ross mines area: Douglas, G. V., 5.  
 Pictou Co. oil shales: Douglas, G. V., 6.

*Historical geology.*

- Copper area, Cap d'Or: Douglas, G. V., 7.  
 Gold fields: Rickard, T. A., 1.  
 New Campbellton dolomite: Douglas, G. V., 3.  
 New Ross area: Douglas, G. V., 4.

*Mineralogy.*

- Barytes, Pembroke: Campbell, C. O., 1.  
 Copper, Cap d'Or: Douglas, G. V., 7.  
 Manganese, New Ross area: Douglas, G. V., 4.  
 New Ross mines area: Douglas, G. V., 5.

*Paleontology.*

- Algal lss., Carb.: Wood, A., 2.  
 Cephalopoda, Sil.: Flower, R. H., 4.

*Petrology.*

- Chimney Corner coal field: Douglas, G. V., 2.  
 New Campbellton dolomite: Douglas, G. V., 3.  
 New Ross mines area: Douglas, G. V., 5.  
 X-ray study, slate and shale: Fairbairn, H. W., 4.

*Physical geology.*

- Bay of Fundy, origin: Koons, E. D., 1.  
 Cap d'Or copper area: Douglas, G. V., 7.  
 Gold fields: Rickard, T. A., 1.  
 New Campbellton dolomite: Douglas, G. V., 3.  
 New Ross area: Douglas, G. V., 4, 5.  
 Pembroke area: Campbell, C. O., 1.

*Physiographic geology.*

- Bay of Fundy, origin: Shepard, F. P., 3.  
 Chimney Corner coal field: Douglas, G. V., 2.  
 Glacial deposits, northern: Wickenden, R. T. D., 1.  
 New Ross area: Douglas, G. V., 4.

*Underground water.*

- New Campbellton dolomite: Douglas, G. V., 3.

Oceans.

- Echinodermata, N. Atlantic deep-sea cores: Clark, A. H., 1.
- Fauna, N. Atlantic deep-sea cores: Henbest, L. G., 1.
- Floor of: Daly, R. A., 1.
- Florida, Pleist. currents: Dickerson, R. E., 1.
- Lithology of sea-floor off Calif.: Emery, K. O., 1.
- Mammals and the nature of continents: Simpson, G. G., 5.
- Mollusca, N. Atlantic deep-sea cores: Rehder, H. A., 1.
- Oceanography and submarine geology: Sverdrup, H. U., 2.
- Organic content of sediments, N. Atlantic: Trask, P. D., 1.
- Pacific Ocean, N., floor: Betz, F., Jr., 1.
- Red clay sediments, radioactivity: Urry, W. D., 1.
- Submarine features, Gulf of Mexico, Caribbean: Vaughan, T. W., 1.
- Lists of names: Vaughan, T. W., 2.
- Tetrahedron theory of the earth: Corral y Alemán, J. I. del, 1.
- Time relations, ocean sediments: Piggot, C. S., 2.
- Why the sea is salt: White, C. H., 1.
- Ocher, Lehigh Co., Pa., min. res.: Miller, B. L., 3.
- O'Hern oil field, Tex.: Barnett, D. G., 1.
- Ohio.
- Geological aspects, plant distribution: Cross, A. T., 1.
- Economic geology.*
- Berea ss., Cleveland area: Weidman, P. A., 1.
- Clinton gas field: Denman, R. H., 1.
- Coal beds, Carroll, Mahoning Cos.: Lamborn, R. E., 1.
- Dolomites, lss.: Stout, W. E., 1.
- Lensing sands, oil and gas fields: O'Rourke, E. V., 1.
- Petroleum, and nat. gas: Cottingham, K., 1.
- Southeast Ohio: Miller, E. W., 1.
- Historical geology.*
- Clark Co.: Harker, D. H., 1.
- Coal, Carroll, Mahoning Cos.: Lamborn, R. E., 1.
- And lss. below Lower Kittanning, Allegheny ser.: Sturgeon, M. T., 1.
- Dolomites, lss.: Stout, W. E., 1.
- Fauna and stratigraphy, Prout ls.-Plum Brook sh.: Stumm, E. C., 1.
- Fostoria quad. Pleist.: Shaffer, P. R., 1.
- Geological aspects, plant distribution: Cross, A. T., 1.
- Ground waters: Stout, W. E., 2.
- Mill Creek Valley, water res.: Shoecraft, Drury, and McNamee, 1.
- Mississippian: Holden, F. T., 1, 2.
- Olentangy sh.: Baker, R. C., 1.
- Petroleum, SE. Ohio: Miller, E. W., 1.

Ohio—Continued.

*Mineralogy.*

- Enon meteorite: Nininger, H. H., 8.
- Galena in Carb. concretions: Ver Steeg, K., 1.

*Paleontology.*

- Astraeospongia, Mid. Dev.: Wells, J. W., 7.
- Cephalopoda, Ord., Cincinnati area: Flower, R. H., 9.
- Coals, lss., below Lower Kittanning, Allegheny ser.: Sturgeon, M. T., 1.
- Crinoidea, Niagaran: Busch, D. A., 1.
- Cystoidea, Niagaran: Busch, D. A., 1.
- Fauna, Olentangy sh.: Baker, R. C., 1.
- Prout ls.-Plum Brook sh., and stratigraphy: Stumm, E. C., 1.
- Fish, Mid. Dev., Cincinnati arch area: Wells, J. W., 9.
- Holdenius, Dev.: Dunkle, D. H., 3.
- Microfossils, Penn. coal: Kosanke, R. M., 2.
- Palaeoscia, Ord.: Caster, K. E., 2.
- Plant microfossils, Pittsburgh and Pomeroy coals: Kosanke, R. M., 1.
- Siphonophores, Paleozoic: Caster, K. E., 2.
- Spores, Pittsburgh, Pomeroy coals: Hoskins, J. H., 6.
- Titanichthys infero-gnathal plates: Dunkle, D. H., 1.
- Trilobita, Ord., color-markings: Wells, J. W., 5.
- Yuma, Folson artifacts: Renaud, E. B., 2.

*Petrology.*

- Beach sands, Cedar Point: Lundahl, A. C., 1.
- Berea ss., Cleveland area: Weidman, P. A., 1.
- Coals, lss., below Lower Kittanning, Allegheny ser.: Sturgeon, M. T., 1.
- Flow structures, Berea ss., Bedford sh.: Cooper, J. R., 1.
- Greenfield dolomite: Wells, J. W., 3.
- Varves, Sandusky Bay sediments: Wilson, I. T., 2.
- Vesiculated mud, SW. Ohio streams: Griffin, R. H., 2.

*Physical geology.*

- Dolomites, lss.: Stout, W. E., 1.
- Flow structures, Berea ss., Bedford sh.: Cooper, J. R., 1.
- Jointing in coal beds: Ver Steeg, K., 3.

*Physiographic geology.*

- Clark Co.: Harker, D. H., 1.
- Dolomites, lss.: Stout, W. E., 1.
- Geologic aspects, plant distribution: Cross, A. T., 1.
- Glacial erratics, large: Rutherford, R. L., 2.
- Gravel outwash, Chillicothe: Leverett, F., 1.
- Illinoian glaciation, Killbuck Valley: Hubbard, G. D., 1.
- Illinoian, Wisconsin drift: White, G. W., 1.
- Newberry on the Ohio drift: Westgate, L. G., 1.
- Preglacial Teays Valley: Fidler, M. M., 1.

## Ohio—Continued.

*Physiographic geology*—Continued.

- Pre-Illinoian glaciation, SE. Ohio: Ireland, H. A., 1.  
 Proglacial lake: Wolfe, J. N., 1.  
 Radio explor. for buried valleys: Higgy, R. C., 1.  
 Tilted postglacial lake beds: Hubbard, G. D., 2.

*Underground water.*

- Clark Co. water supply: Harker, D. H., 1.  
 Ground waters: Stout, W. E., 2.  
 Mill Creek Valley, water res.: Shoecraft, Drury, and McNamee, 1.

## Oil field waters: Case, L. C., 2.

Bibliography on: Case, L. C., 1.

## Oil in the earth: Pratt, W. E., 1.

## Oil reserve estimates should include gas: Carroll, D. L., 1.

## Oil shales.

- Bibliography: Tulsa Pub. Library, 1.  
 Colorado: Baxter, R. A., 1; Lightburn, K., 1.  
 Trinidad area: Floyd, E., 1.  
 Nova Scotia, Pictou Co.: Douglas, G. V., 6.  
 Rocky Mtn. area: Baxter, R. E., 1.  
 Utah, Uinta Basin: Barb, C. F., 2.

## Oklahoma.

- Bibliography, oil and gas pools: Skelton, A. G., 2.  
 Catalog, 100 minerals, rocks, fossils: Ham, W. E., 1.  
 Geological Survey Bienn. Rept. 1941-42: Dott, R. H., 3.

*Areas described.*

Cimarron Co.: Schoff, S. L., 1.

*Economic geology.*

- Bibliography, oil and gas pools: Skelton, A. G., 2.  
 Billings oil field faulting: Klaus, H., 1.  
 Burbank, South Burbank oil fields: Bass, N. W., 1.  
 Buried sand bar, Burbank field: Oil and Gas Jour., 1.  
 Davenport oil field: White, S. B., 1.  
 Dora pool: Ingham, W. I., 1.  
 East Tuskegee pool: Borden, J. L., 1.  
 Geology and ground water, Cimarron Co.: Schoff, S. L., 1.  
 Henryetta coal bed: Davis, J. D., 1.  
 Hugoton gas field: Garlough, J. L., 1.  
 Hunton fm. subsurface study: Anderson, R. F., 1.  
 Mineralizing solutions, Picher dist.: Stoiber, R. E., 1.  
 Oklahoma City oil field: Oil and Gas Jour., 1.  
 Olympic oil pool: Dillard, W. R., 2.  
 Osage Co., oil and gas: Bass, N. W., 2.  
 Petroleum, gas, 1942: Borden, J. L., 3.  
 Red Fork pool: Wright, R., 1.  
 Subsurface conditions, Texas Co.: Hemsell, C. C., 1.

## Oklahoma—Continued.

*Economic geology*—Continued.

- Tri-State geology: Fowler, G. M., 2.  
 Tri-State lead-zinc dist.: Fowler, G. M., 1; Jakosky, 1, 2.

*Historical geology.*

- Arbuckle fms. Ouachita Mts.: Decker, C. E., 1.  
 Burbank, South Burbank oil fields: Bass, N. W., 1.  
 Checkerboard ls.: Davis, J. R., 1.  
 Cimarron Co. Mesozoic: Stovall, J. W., 1.  
 Geology and ground water: Schoff, S. L., 1.  
 Davenport oil field: White, S. B., 1.  
 Des Moines and Missouri rocks: Oakes, M. C., 1.  
 Correlations: Oakes, M. C., 1.  
 Devonian: Miser, H. D., 5.  
 Dora pool: Ingham, W. I., 1.  
 East Tuskegee pool: Borden, J. L., 1.  
 40 years of geology: Gould, C. N., 2.  
 Ground water supplies: Dott, R. H., 1.  
 Henryetta coal bed: Davis, J. D., 1.  
 Hugoton field, Kans.-Okla.: Garlough, J. L., 1.  
 Hunton fm. subsurface study: Anderson, R. F., 1.  
 McAlester coal bed: Dott, R. H., 2.  
 Mesozoic: Stovall, J. W., 2.  
 Morrow group, Adair Co.: Moore, C. A., 2.  
 Olympic pool: Dillard, W. R., 2.  
 Osage Co. oil and gas: Bass, N. W., 2.  
 Quartz veins, Ouachita Mts.: Miser, H. D., 2.  
 Red Fork pool: Wright, R., 1.  
 St. Clair ls. near Marble City: Ham, W. E., 3.  
 Spavinaw granite age: Ham, W. E., 2.  
 Subsurface conditions, Texas Co.: Hemsell, C. C., 1.  
 Tri-State lead and zinc dist.: Fowler, G. M., 1, 2.

*Mineralogy.*

Heavy minerals criteria in soils: Buchanan, W. H., 1.

Magnesia, poss. from oil-field brines: Burwell, A. L., 1.

Mineralizing solutions, Picher dist.: Stoiber, R. E., 1.

Tri-State lead and zinc dist.: Fowler, G. M., 1; Jakosky, 1, 2.

*Paleontology.*

- Blastoidea, Penn.: Moore, R. C., 5.  
 Bryozoa, Bromide fm.: Loeblich, A. R., Jr., 1.  
 McLish fm.: Loeblich, A. R., Jr., 1.  
 Cimarron Co.: Schoff, S. L., 1; Stovall, J. W., 1.  
 Conodonts, Ord.: Branson, E. B., 1.  
 Seminole fm.: Jones, D. John, 1.  
 Corals, Penn.: Jeffords, R. M., 1.  
 Echinoderms, cystidean, Ord.: Bassler, R. S., 4.  
 Foraminifera, Cret.: Tappan, H. N., 1.

## Oklahoma—Continued.

*Paleontology—Continued.*

- Fusulinids, Penn.: Thompson, M. L., 1.
- Graptolites, Ord.: Decker, C. E., 6.
- Hydrozoa: Decker, C. E., 7.
- Megalioerinus, Carb.: Moore, R. C., 3.
- Menidia, Pliocene: Hubbs, C. L., 1.
- Metacatilloerinus, Penn.: Moore, R. C., 4.
- Microerinooid, Ord.: Croneis, C. G., 6.
- Microfauna, Grayson Cret. fm.: Tappan, H. N., 2.
- Optima Pliocene fauna, Texas Co.: Savage, D. E., 1.
- Spirifer occidentalis Girty, Atoka fm.: Foster, C. L., 1.
- Yuma, Folsom artifacts: Renaud, E. B., 2.

*Petrology.*

- Heavy minerals criteria in soils: Buchanan, W. H., 1.
- Quartz veins, Ouachita Mts.: Miser, H. D., 2.
- St. Clair ls. near Marble City: Ham, W. E., 3.

*Physical geology.*

- Billings oil field faulting: Klaus, H., 1.
- Dora pool: Ingham, W. I., 1.
- Meade Basin, deep solution: Frye, J. C., 1.
- Oklahoma City oil field: Oil and Gas Jour., 1.
- Osage Co., oil and gas fields: Bass, N. W., 2.
- Pawhuska rock plain: Ham, W. E., 4.
- Quartz veins, Ouachita Mts.: Miser, H. D., 2.
- St. Clair ls. near Marble City: Ham, W. E., 3.
- Tri-State lead and zinc dist.: Fowler, G. M., 1, 2.

*Physiographic geology.*

- Pawhuska rock plain: Ham, W. E., 4.

*Underground water.*

- Geology and ground water, Cimarron Co.: Schoff, S. L., 1.
- Ground water supplies: Dott, R. H., 1.
- Meade Basin, deep solution: Frye, J. C., 1.

Oldhamia is worm tracks: Ruedemann, R., 1.

Oligoclase, Hawaiian lavas: Macdonald, G. A., 2.

Oligocene status: Durham, J. W., 6.

*Olivine.*

- Georgia-North Carolina deposits: Hunter, C. E., 1.
- Labrador, Nain area: Wheeler, E. P., 2d, 1.
- United States: Gwinn, G. R., 1.

Olivine diabase, Canadian Shield: Lewis, C. R., 1.

Olympic pool, Okla.: Dillard, W. R., 2.

Omaha oil pool, Ill.: English, R. M., 1.

*Ontario.*

- Magnetometer surveying, Sudbury: Galbraith, F. M., 1.

## Ontario—Continued.

*Areas described.*

- Big Duck-Aguasabon Lakes area: Bartley, M. W., 1.
- Caribou-Pikitungushi area: Gussow, W. C., 1.
- Dryden-Wabigoon area: Satterly, J., 3.
- Eagle Lake area: Moorhouse, W. W., 1.
- Goudreau-Lochalsh area: Bruce, E. L., 3.
- Haliburton area: Satterly, J., 4.
- Hutchison Lake area: Macdonald, R. D., 3.
- Kenogamis River area: Macdonald, R. D., 2.
- London area, Paleozoics: Caley, J. F., 1.
- McGarry, McVittie Tps., Larder Lake area: Thomson, Jas. E., 3.
- Windigo-North Caribou Lakes area: Satterly, J., 2.

*Economic geology.*

- Big Duck-Aguasabon Lakes area: Bartley, M. W., 1.
- Breccia at Sudbury: Fairbairn, H. W., 3.
- Cobalt silver field: Moore, E. S., 1.
- Dryden-Wabigoon area: Satterly, J., 3.
- Eau Claire mica deposits: Lang, A. H., 3.
- Garnet-Cunningham area: Meen, V. B., 1.
- Gold, Goldrock area: Thomson, Jas. E., 1.
- Little Long Lac area: Armstrong, H. S., 1.
- Mineralization in minor ig. intrus.: Moorhouse, W. W., 4.
- Porcupine dist.: Hurst, M. E., 1.
- Rowan Lake area: Thomson, Jas. E., 2.
- Gold-silver ratios in ores: Bruce, E. L., 6.
- Goudreau-Lochalsh area: Bruce, E. L., 3.
- Haliburton area min. res.: Satterly, J., 4.
- Hematite, Steep Rock Lake: Roberts, H. M., 1; Tanton, T. L., 1.
- Hutchison Lake area: Macdonald, R. D., 3.
- Iron, Steep Rock dist.: Cross, J. G., 1.
- Josephine mine area: Brown, E. L., 1.
- Lake Superior area replacement iron deposits: Roberts, H. M., 2.
- Langmuir-Sheraton area: Berry, L. G., 2.
- London area, Paleozoics: Caley, J. F., 1.
- McGarry-McVittie Tps., Larder Lake area: Thomson, Jas. E., 3.
- Magnetometer surveying, Sudbury: Galbraith, F. M., 1.
- Matachewan mine: Derry, D. R., 2; Hopper, C. H., 1.
- Mica, Eau Claire dist.: McLaren, D. C., 1.
- Natural gas, 1940: Crozier, A. R., 1.
- Nickel ores, Cuniptau mine: Sandefur, B. T., 1.
- North Hastings area minerals: Thomson, Jas. E., 4.
- Pentlandite: Hawley, J. E., 5.
- Petroleum, 1940: Crozier, A. R., 2.
- Pyrrhotite: Hawley, J. E., 5.
- Rennie, Stover, Leeson, Brackin Tps.: Bruce, E. L., 5.
- Sedimentary basins, oil, gas poss.: Wilson, A. E., 1.
- Steep Rock area: Rose, E. R., 1.

## Ontario—Continued.

*Economic geology*—Continued.

Thunder Bay mineral deposits: Bruce, E. L., 4.

Timagami map area: Moorhouse, W. W., 2.

*Historical geology.*

Ages, intrusives and ore deposits, Red Lake area: Horwood, H. C., 1.

Big Duck-Aguasabon Lakes area: Bartley, M. W., 1.

Black River fms.: Young, F. P., Jr., 1.

Breccia at Sudbury: Fairbairn, H. W., 3.

Caribou-Pikitungushi area: Gussow, W. C., 1.

Cobalt silver field: Moore, E. S., 1.

Crow River eastern area: Evans, J. E. L., 1.

Dryden-Wabigoon area: Satterly, J., 3.

Eagle Lake area: Moorhouse, W. W., 1.

Eau Claire mica deposits: Lang, A. H., 3.

Elgin area, g. map; Canada G. S., 1.

Fort Hope-Martin Falls area: Prest, V. K., 3.

Garnet-Cunningham area: Meen, V. B., 1.

Gold, Goldrock deposits: Thomson, Jas. E., 1.

Porcupine dist.: Hurst, M. E., 1.

Rowan Lake area: Thomson, Jas. E., 2.

Gorham Tp. area: Macdonald, R. D., 1.

Goudreau-Lochalsh area: Bruce, E. L., 3.

Haliburton area: Satterly, J., 4.

Hematite replacement, Steep Rock Lake: Roberts, H. M., 1.

Huron area, g. map: Canada G. S., 1.

Hutchison Lake area: Macdonald, R. D., 3.

Intrusives, Bancroft area: Chayes, F., 1.

Josephine mine area: Brown, E. L., 1.

Kenogamisis River area: Macdonald, R. D., 2.

Lake Superior area replacement iron deposits: Roberts, H. M., 2.

Langmuir-Sheraton area: Berry, L. G., 2.

London area, Paleozoics: Caley, J. F., 1.

McGarry, McVittie Tps., Larder Lake area: Thomson, Jas. E., 3.

Matachewan Consol. mine: Hopper, C. H., 1.

Mishibishu Lake area: Evans, J. E. L., 3.

North Hastings area: Thomson, Jas. E., 4.

Ottawa-Bonnechere graben, Lake Ontario homocline: Kay, G. M., 2.

Pillow lavas, Dryden-Wabigoon area: Satterly, J., 1.

Pre-Cambrian correl., Sudbury: Cooke, H. C., 1.

Rennie, Stover, Leeson, Brackin Tps.: Bruce, E. L., 5.

Rowlandson Lake area: Prest, V. K., 1.

Sedimentary basins, oil, gas, poss.: Wilson, A. E., 1.

Steep Rock area: Rose, E. R., 1.

Sudbury dist. older rocks: Cooke, H. C., 3.

Thunder Bay min. deposits: Bruce, E. L., 4.

Timagami map area: Moorhouse, W. W., 2, 3.

## Ontario—Continued.

*Historical geology*—Continued

Trans-Canada Highway, Longlac-Hearst: Evans, J. E. L., 2.

Trenton crinoid beds, age: Sinclair, G. W., 5.

Windigo-North Caribou Lakes: Satterly, J., 2.

Wunnummin Lake area: Prest, V. K., 2.

*Mineralogy.*

Brucite in ls., Wilkinson: Brown, I. C., 1.

Cobalt silver field: Moore, E. S., 1.

Goethite: Peacock, M. A., 4.

Gold, Goldrock area: Thomson, Jas. E., 1.

Little Long Lac area: Armstrong, H. S., 1.

Mineralization in minor ig. intrus.:

Moorhouse, W. W., 4.

Porcupine dist.: Hurst, M. E., 1.

Gold-silver ratios in ores: Bruce, E. L., 6.

Haliburton area min. res.: Satterly, J., 4.

Hematite, Steep Rock Lake: Roberts, H. M., 1; Tanton, T. L., 1.

Iron, Steep Rock Lake dist.: Cross, J. G., 1; Smith, F. G., 1.

Josephine mine area: Brown, E. L., 1.

Lake Superior area replacement iron deposits: Roberts, H. M., 2.

Langmuir-Sheraton area: Berry, L. G., 2.

London area, Paleozoics: Caley, J. F., 1.

Malignites, Poohbah Lake: Allen, C. C., 1; Shand, S. J., 2.

Matachewan mine: Derry, D. R., 2; Hopper, C. H., 1.

Meneghinite: Berry, L. G., 1.

Mica, Eau Claire dist.: McLaren, D. C., 1.

Mineral relations, Dobie area: Thomson, J. Ellis, 2.

Muscovite, Mattewan Tp.: Ferguson, R. B., 1.

Refractive index measurement: Ferguson, R. B., 2.

Nickel ores, Cuniptau mine: Sandefur, B. T., 1.

North Hastings area minerals: Thomson, Jas. E., 4.

Ore, Kerr-Addison mine: Thomson, J. Ellis, 1.

Paragenesis, McDonald pegmatite: Landes, K. K., 3.

Parkerite, Sudbury: Michener, C. E., 1.

Pentlandite: Hawley, J. E., 5.

Pyrrhotite: Hawley, J. E., 5.

Salt water, Sturgeon River gold mines: Bruce, E. L., 1.

Sphalerite-dolomite orientation: Robertson, F., 1.

Thunder Bay min. deposits: Bruce, E. L., 4.

Witherite: Johnson, B. L., 1.

*Paleontology.*

Black River fms., Young, F. P., Jr., 1.

London area Paleozoics: Caley, J. F., 1.

Ottawa-Bonnechere graben, Lake Ontario homocline: Kay, G. M., 2.

Pseudoconularia and P. magnifica: Sinclair, G. W., 1.



## Ontario—Continued.

*Paleontology*—Continued.

- Scolecodonts, Erindale Ord.: Eller, E. R., 1.  
 Trenton crinoid beds, age: Sinclair, G. W., 5.  
 Trilobites, Ord.: Okulitch, V. J., 1.

*Petrology*.

- Ages, intrusives and ore deposits, Red Lake area: Horwood, H. C., 1.  
 Big Duck-Aguasabon Lakes area: Bartley, M. W., 1.  
 Breccia at Sudbury: Fairbairn, H. W., 3.  
 Dryden-Wabigoon area: Satterly, J., 3.  
 Fort Hope-Martin Falls area: Prest, V. K., 3.  
 Garnet-Cunningham area: Meen, V. B., 1.  
 Glacial drift eng. study: Legget, R. F., 1.  
 Gold, Goldrock area: Thomson, Jas. E., 1.  
 Little Long Lac area: Armstrong, H. S., 1.  
 Mineralization in minor ig. intrus.: Moorhouse, W. W., 4.  
 Gorham Tp. area: Macdonald, R. D., 1.  
 Goudreau-Lochalsh area: Bruce, E. L., 3.  
 Hutchison Lake area: Macdonald, E. D., 3.  
 Intrusives, Bancroft area: Chayes, F., 1.  
 Southeast Ontario: Harrison, J. M., 1.  
 Iron ores, Steep Rock Lake: Smith, F. G., 1.  
 Josephine mine area: Brown, E. L., 1.  
 Kenogamisis River area: Macdonald, R. D., 2.  
 Langmuir-Sheraton area: Berry, L. G., 2.  
 London area, Paleozoics: Caley, J. F., 1.  
 McGarry, McVittie Tps., Larder Lake area: Thomson, Jas. E., 3.  
 Malignite, Poohbah Lake: Shand, S. J., 2.  
 Matachewan mine: Derry, D. R., 2;  
 Hopper, C. H., 1.  
 Mishibishu Lake area: Evans, J. E. L., 3.  
 North Hastings area: Thomson, Jas. E., 4.  
 Pillow lavas, Dryden-Wabigoon area: Satterly, J., 1.  
 Rowlandson Lake area: Prest, V. K., 1.  
 Salt water, Sturgeon River gold mines: Bruce, E. L., 1.  
 Siderite-pyrite-chert deposits: Hawley, J. E., 4.  
 Steep Rock area: Rose, E. R., 1.  
 Sudbury dist., older rocks: Cooke, H. C., 3.  
 Timagami map area: Moorhouse, W. W., 2, 3.  
 Windigo-North Caribou Lakes: Satterly, J., 2.  
 Wunnummin Lake area: Prest, V. K., 2.
- Physical geology*.
- Ages, intrusives and ore deposits, Red Lake area: Horwood, H. C., 1.  
 Big Duck-Aguasabon Lakes area: Bartley, M. W., 1.  
 Breccia at Sudbury: Fairbairn, H. W., 3.  
 Caribou-Pikitungushi area: Gussow, W. C., 1.  
 Cobalt silver field: Moore, E. S., 1.  
 Crow River eastern area: Evans, J. E. L., 1.

## Ontario—Continued.

*Physical geology*—Continued.

- Dryden-Wabigoon area: Satterly, J., 3.  
 Eagle Lake area: Moorhouse, W. W., 1.  
 Garnet-Cunningham area: Meen, V. B., 1.  
 Gold mineralization in minor ig. intrus.: Moorhouse, W. W., 4.  
 Gold ores, Little Long Lac area: Armstrong, H. S., 1.  
 Goldrock area: Thomson, Jas. E., 1.  
 Porcupine dist.: Hurst, M. E., 1.  
 Gorham Tp. area: Macdonald, R. D., 1.  
 Goudreau-Lochalsh area: Bruce, E. L., 3.  
 Hematite replacement, Steep Rock Lake: Roberts, H. M., 1.  
 Hutchison Lake area: Macdonald, R. D., 3.  
 Intrusives, Bancroft area: Chayes, F., 1.  
 Southeast Ontario: Harrison, J. M., 1.  
 Josephine mine area: Brown, E. L., 1.  
 Kenogamisis River area: Macdonald, R. D., 2.  
 Kirkland Lake mines area: Hodgson, E. A., 2.  
 Lake Superior area replacement iron deposits: Roberts, H. M., 2.  
 Langmuir-Sheraton area: Berry, L. G., 2.  
 McGarry, McVittie Tps., Larder Lake area: Thomson, Jas. E., 3.  
 Malignites, Poohbah Lake: Allen, C. C., 1.  
 Matachewan mine: Derry, D. R., 2;  
 Hopper, C. H., 1.  
 Mishibishu Lake area: Evans, J. E. L., 3.  
 Nickel ores, Cunipitau mines: Sandefur, B. T., 1.  
 North Hastings area: Thomson, Jas. E., 4.  
 Ottawa-Bonnechere graben, Lake Ontario homocline: Kay, G. M., 2.  
 Paragenesis, McDonald pegmatite: Landes, K. K., 3.  
 Rennie, Stover, Leeson, Brackin Tps.: Bruce, E. L., 5.  
 Rockburst research, Lake Shore mines: Hodgson, E. A., 3.  
 Rowlandson Lake area: Prest, V. K., 1.  
 Siderite-pyrite-chert deposits: Hawley, J. E., 4.  
 Steep Rock area: Rose, E. R., 1.  
 Sudbury dist., older rocks: Cooke, H. C., 3.  
 Thunder Bay mineral deposits: Bruce, E. L., 4.  
 Timagami map area: Moorhouse, W. W., 2.  
 Trans-Canada Highway, Longlac-Hearst: Evans, J. E. L., 2.  
 Windigo-North Caribou Lakes: Satterly, J., 2.
- Physiographic geology*.
- Big Duck-Aguasabon Lakes area: Bartley, M. W., 1.  
 Caribou-Pikitungushi area: Gussow, W. C., 1.  
 Crow River eastern area: Evans, J. E. L., 1.  
 Drumlins, S. Ontario: Putnam, D. F., 1.  
 Eagle Lake area: Moorhouse, W. W., 1.  
 Glacial drift eng. study: Legget, R. F., 1.  
 Gorham Tp. area: Macdonald, R. D., 1.

## Ontario—Continued.

*Physiographic geology*—Continued.

- Hutchison Lake area: Macdonald, R. D., 3.  
 Kenogamisis River area: Macdonald, R. D., 2.  
 London area, Paleozoics: Caley, J. F., 1.  
 Mishibishu Lake area: Evans, J. E. L., 3.  
 Moraines, S. Ontario: Chapman, L. J., 1.  
 Rowlandson Lake area: Prest, V. K., 1.  
 Steep Rock area: Rose, E. R., 1.  
 Terraces, North Bay: Lang, A. H., 4.  
 Trans-Canada Highway, Longlac-Hearst: Evans, J. E. L., 2.  
 Windigo-North Caribou Lakes: Satterly, J., 2.  
 Wunnummin Lake area: Prest, V. K., 2.

*Underground water.*

- Salt water, Sturgeon River gold mines: Bruce, E. L., 1.

## Oolites.

- Alabama, siliceous: Pratt, W. L., Jr., 1.  
 Indiana, St. Louis and Ste. Genevieve lss.: McGrain, P., 2.

## Oolitic ls. Sierra Madre Oriental, Mex.: Heim, A., 1.

## Opals. See also Gems; Precious stones.

- Nevada, formation of: Foster, M. M., 1.  
 Washington, basalt joint-cracks: Hunting, M. T., 1.

## Opaque minerals, electrochemical identification: Dodge, D. V., 1.

## Ophiuroidea, Ophiomusium, Eocene, N.J.: Berry, C. T., 1.

Ordovician. See also Paleontology, Ordovician.  
 Alabama, Birmingham area: Poor, R. S., 1.

- Northwest, Paleozoics: Miss. G. Soc., 1.  
 Alaska, Seward Pen.: Alaska Plann. Coun., 1.

Alberta: Allan, J. A., 1.

Arctic America, Baffin Is.: Manning, T. H., 1.

Arkansas, lss.: Branner, G. C., 2.

Black River fms., N.Y., Ontario: Young, F. P., Jr., 1.

California, Mount Diablo area: Cross, C. M., 1.

Canada, Laurentian area: Mauffette, P., 1.

Oil and gas fields: Hume, G. S., 2.

Sydney coal field: Gray, F. W., 1.

Colorado, Arkansas River gorge: Kessler, F. C., 1.

Aspen dist.: Vanderwilt, J. W., 2.

Beaver-Tarryall area, Park Co.: Singewald, Q. D., 2.

Gore area: Brill, K. G., Jr., 1.

Elk Basin field, Mont.-Wyo.: Hendrickson, V. J., 1.

Georgia, Sand-Lookout Mtn. area: Sullivan, J. W., 2.

Idaho, Bannock Range: Ludlum, J. C., 2.

Illinois Basin oil fields, U. S.: Hake, B. F., 2.

Fox River area: Willman, H. B., 4.

## Ordovician—Continued.

Illinois, crude oils, geol. occurrence: Rees, O. W., 1.

Marseilles, Ottawa, Streator quads.: Willman, H. B., 2.

Oil fields: Bell, A. H., 4.

Oil sands: Squires, F., 1.

Outlines of geology: Keyes, 25.

Recent oil devel.: Millison, C., 1.

Southern: Bell, A. H., 6.

Southwestern, Chester type secs.: Tippie, F. E., 1.

Streator quad.: Robinson, L. C., 1; Willman, H. B., 2.

Trenton, Morris area: Bieber, C. L., 1.

Wildcat drilling since 1936: Carter, C. W., 1.

Indiana, geology and highway eng.: Woods, K. B., 1.

Indianapolis area: McGuinness, C. L., 1.

Kansas, Chanute field: Dillard, W. R., 1.

Deep water well, Cherokee Co.: Abernathy, C. E., 1.

Ford Co.: Waite, H. A., 1.

Forest City Basin: Lee, W., 2.

Hamilton Co.: McLaughlin, T. G., 2.

Kearny Co.: McLaughlin, T. G., 2.

Nikkel field: Bunte, A. S., 1.

Oil and gas fields: Moore, R. C., 7.

Peace Creek oil field: Kornfeld, J. A., 1.

Phillips Co.: Landes, K. K., 2.

Wherry pool: McNeil, H. E., 1.

Zenith pool: Imbt, W. C., 1.

Kentucky: Jones, D. Johnathan, 1; McFarlan, A. C., 2.

Big Sinking field: Freeman, L. B., 1.

Burbank oil pool: Jillson, W. R., 3.

Cub Run quad.: Hagan, W. W., 1.

St. Peter problem: Freeman, L. B., 3.

Kentucky-Virginia correlations: Huffman, G. G., 1.

Little North Mtn., Va.-Md.-W. Va.: Giles, A. W., 1.

Maine, Aroostook Co.: White, W. S., 1.

Manitoba, Stony Mtn. fm.: Okulitch, V. J., 3.

Massachusetts, Connecticut River Valley: Bain, G. W., 1.

Mexico: King, R. E., 1.

Michigan, Bay City well: Maebius, J. B., 1.

Northern: Thwaites, F. T., 1.

Mississippi Embayment, U. S.: Born, K. E., 3.

Missouri Cass Co. oil and gas res.: Clair, J. R., 1.

Dolomitic glades: Erickson, R. O., 1.

Fire clay dists.: McQueen, H. S., 2.

Jackson Co. oil and gas res.: Clair, J. R., 1.

Mary Arnold mines: Clark, E. L., 1.

Montana, Cedar Creek field: Seager, O. A., 1.

Nebraska, geol. sections: Condra, G. E., 1.

Western, pre-Penn.: Dillé, G. S., 1.

Nevada, Roberts Mts.: Merriam, C. W., 2.

## Ordovician—Continued.

- Robinson mining dist.: Pennebaker, E. N., 1.  
 Ruby Mts., S.: Sharp, R. P., 2.  
 New Brunswick: Alcock, F. J., 3.  
 New England-Hudson Valley area: Longwell, 4.  
 Newfoundland, Port au Port Pen.: Watson, K. D., 3.  
 St. Lawrence dist.: Van Alstine, R. E., 1.  
 New Hampshire, Cardigan-Rumney area: Fowler-Billings, K. S., 2.  
 Claremont-Newport area: Chapman, C. A., 1.  
 Mt. Cube area: Hadley, J. B., 2.  
 New York, Adirondack-border area: Wheeler, R. R., 2.  
 Lake George area: Newland, D. H., 1.  
 Mohawkian, West Canada Creek: Kay, G. M., 6.  
 Oil and gas fields: Hartnagel, C. A., 1.  
 Shawangunk Mts.: Glenby, K. L., 2.  
 North America, Allegheny synclinorium devel.: Kay, G. M., 3.  
 Great Lakes area: Martin, H. M. M., 1.  
 Lake Ontario homocline: Kay, G. M., 2.  
 North Dakota: Kline, V. H., 1; Seager, O. A., 2.  
 Turtle River State Park: Laird, W. M., 3.  
 Williston Basin wildcat test: Ehlers, A., 1.  
 Northwest Territories, Snare River-Ingray Lake area: Lord, C. S., 2.  
 Ohio, Clinton field: Denman, R. H., 1.  
 Oil and gas fields: Cottingham, K., 1.  
 Western: Stout, W. E., 1.  
 Oklahoma, Arbuckle fms.: Decker, C. E., 1.  
 Burbank, South Burbank oil fields: Bass, N. W., 1.  
 Cimarron Co.: Schoff, S. L., 1.  
 Davenport field: White, S. B., 1.  
 East Tuskegee pool: Borden, J. L., 1.  
 Ground water: Dott, R. H., 1.  
 Osage Co.: Bass, N. W., 2.  
 Ontario, age of Trenton crinoid beds: Sinclair, G. W., 5.  
 Cobalt: Moore, E. S., 1.  
 Haliburton area: Satterly, J., 4.  
 London area Paleozoics: Caley, J. F., 1.  
 North Hastings area: Thomson, Jas. E., 4.  
 Ottawa-Bonnechere graben area: Kay, G. M., 2.  
 Sedimentary basins: Wilson, A. E., 1.  
 Pacific Northwest, U. S.: Smith, W. D., 1.  
 Pennsylvania, central: Kay, G. M., 5.  
 Clastic sed. rocks: Willard, B., 3.  
 Harrisburg area: Cloos, E., 2.  
 Jacksonburg fm., Lehigh Co.: Miller, R. L., 1.  
 Lehigh Co.: Miller, B. L., 1.  
 Oil and gas fields: Fettke, C. R., 2.  
 Pennsylvania Turnpike guidebook: Cleaves, A. B., 1.

## Ordovician—Continued.

- Quebec boulder: Sinclair, G. W., 4.  
 Eustis mine area: Douglas, G. V., 1.  
 Gaspé Pen.: Alcock, F. J., 2; Jones, I. W., 1.  
 Matapédia Lake area: Aubert de la Rue, E., 1.  
 St. Jean-Beloeil areas: Clark, T. H., 2.  
 South Dakota, Viola well core: Decker, C. E., 2.  
 Tennessee, central: Wilson, C. W., Jr., 1.  
 Clinch Mtn.: Cooper, B. N., 3.  
 Core from Chickamauga Dam: McGavock, C. B., Jr., 1.  
 Oil and gas fields: Born, K. E., 2.  
 Texas, Barnhart field: Cole, C. T., 2.  
 Ellenberger fm.: Cole, C. T., 3.  
 Embar field: Cole, C. T., 4.  
 Fort Worth-Midland area: Scott, G., 1.  
 McKee, Waddell sands, Simpson group: Cole, C. T., 1.  
 Santiago Peak quad.: Eiffer, G. K., Jr., 1.  
 Sewell-Eddleman field: Applin, P. L., 1.  
 Terlingua quicksilver dist.: Ross, C. P., 2.  
 West, pre-Perm. oil poss.: Cole, C. T., 5.  
 West-central: West Cent. Tex. Oil Scouts Assoc., 1.  
 Texas-New Mexico, South Perm. Basin: King, R. E., 2.  
 Tri-State geology, Kans.-Okla.-Mo.: Fowler, G. M., 2.  
 Lead and zinc dist.: Fowler, G. M., 2.  
 United States, Basin and Range prov.: Nolan, T. B., 1.  
 Dakota Basin: Ballard, N., 2.  
 Rocky Mtn. oil and gas fields: Dobbin, C. E., 2.  
 Southwest: Wheeler, R. R., 3.  
 Virginia, Appalachian geosyncline: Lammers, E. C. H., 1.  
 Appalachian Valley: Butts, C., 1.  
 Clarke Co.: Butts, C., 3.  
 Clinch Mtn.: Cooper, B. N., 3.  
 Dolomites: Bevan, A. C., 8.  
 Elkton area: King, P. B., 3.  
 Frederick Co.: Butts, C., 3.  
 Piedmont ls. belt: Bevan, A. C., 7.  
 Riverton en echelon tension fractures: Shainin, V. E., 2.  
 Tazewell Co.: Cooper, B. N., 1.  
 Walker Mtn.: Butts, C., 2.  
 Virginia-Kentucky correls.: Huffman, G. G., 1.  
 Virginia-West Virginia lss.: Kay, G. M., 7.  
 Washington, Metaline quad.: Park, C. F., Jr., 4.  
 West Virginia: Woodward, H. P., 1.  
 Deep well stratigraphy, Harrison Co.: Martens, J. H. C., 1.  
 Manganese and iron areas: Reeves, F., 1.  
 Oil and gas fields: Reger, D. B., 2.  
 West Virginia-Virginia lss.: Kay, G. M., 7.  
 Wisconsin, northeast: Thwaites, F. T., 2.

## Ordovician—Continued.

- Wyoming, Cache Creek area, Gros Ventre Mts.: Nelson, V. E., 1.  
 Gros Ventre and N. Hoback Ranges: Nelson, V. E., 2.  
 Rocks, soils, and selenium: Knight, S. H., 1.

## Ore deposits, origin. For ore deposits in general see Economic geology (general).

- Alaska, Beatson copper mine: Bateman, A. M., 1.  
 Bohemia Basin, Yakobi ls.: Reed, J. C., 2.  
 Chicagof Is. mining dist.: Reed, J. C., 1.  
 Kenai Pen.: Guild, P. W., 1.  
 Kennecott deposits: Bateman, A. M., 2.  
 Nabesna area: Wayland, R. G., 2.  
 Stampede Creek area: White, D. E., 1.  
 Appalachian Valley, manganese: Stose, G. W., 1.  
 Arizona, Ajo copper dist.: Gilluly, J., 1.  
 Lode gold: Wilson, E. D., 1.  
 Oatman-Katherine dists.: Lausen, C., 1.  
 Tombstone dist.: Butler, B. S., 1.  
 Arkansas, Pike Co.: Gallagher, D., 1.  
 Quicksilver deposits: Reed, J. C., 6.  
 Banded hematite ores: Dunn, J. A., 1.  
 British Columbia, Bralorne mines: Joralemon, 1.  
 Britannia mines: Ebbutt, F., 1.  
 Copper Mtn.: Dolmage, V., 1.  
 Dolly Varden mine: Warren, H. V., 1.  
 Emerald property: Hedley, M. S., 1.  
 Gold-quartz veins, O. K. Mtn.: Stevenson, J. S., 2.  
 Metal mining: British Columbia Dept. Mines, 1.  
 Molybdenite: Stevenson, J. S., 5.  
 Pinchi Lake quicksilver belt: Armstrong, J. E., 3.  
 Red Rose tungsten mine: Stevenson, J. S., 7.  
 Sullivan mine: Pentland, A. G., 1.  
 Tungsten deposits: Stevenson, J. S., 3.  
 Vancouver Is.: Joubin, F. R., 1.  
 California, Cargo Muchacho Mts.: Henshaw, P. C., 2.  
 Coast Ranges manganese deposits: Taliaferro, 5.  
 Confidence dist.: Little, J. M., 1.  
 Coso quicksilver dist.: Ross, C. P., 6.  
 Darwin Hills tungsten: Wilson, L. K., 1.  
 Del Puerto area: Hawkes, H. E., Jr., 1.  
 Ghost Canyon tungsten deposits: Little, J. M., 3.  
 Manganese: Trask, P. D., 5.  
 Middle Butte dist.: Fraser, H. J., 4.  
 Mother Lode: Whitehead, W. L., 1.  
 Sierra Nevada manganese deposits: Taliaferro, 6.  
 Sierra Nevada near Bishop: Lemmon, D. M., 1.  
 Stayton dist.: Bailey, E. H., 1.  
 Twin Lakes area: Chesterman, C. W., 1.

## Ore deposits—Continued.

- Canada, rock alteration by hydrothermal solutions: Bruce, E. L., 2.  
 Steep Rock Lake, Michipicoten deposits: Quirke, T. T., 4.  
 Classification, epigenetic ore dists.: Anonymous, 2.  
 Colorado, Alma dist.: Singewald, Q. D., 1.  
 Aspen dist.: Vanderwilt, J. W., 2.  
 Beaver-Tarryall area, Park Co.: Singewald, Q. D., 2.  
 Boulder Co.: Bascom, W., 1.  
 Climax molybdenite deposit: Vanderwilt, J. W., 1.  
 Cripple Creek dist.: Koschmann, A. H., 1.  
 Front Range min. belt: Lovering, T. S., 2.  
 Gold Hill area: Goddard, E. N., 1.  
 Leadville dist.: Loughlin, G. F., 1.  
 Vanadium deposits: Fischer, R. P., 1.  
 Connecticut, nickel sulphides, Mt. Prospect: Cameron, E. N., 1.  
 Cuba, manganese deposits: Park, C. F., Jr., 2.  
 Density, ground-water in ore deposition: Cederstrom, D. J., 3.  
 Economic mineral deposits: Singewald, J. T., Jr., 3.  
 Exsolution in ore minerals: Schwartz, G. M., 4.  
 Georgia, gold deposits: Park, C. F., Jr., 3.  
 Gold deposition: White, W. H., 1.  
 Alkali sulphide theory: Smith, F. G., 4.  
 Granite and ore: Anderson, A. L., 3.  
 Ground water, differential density factor: Brown, J. S., 2; McKnight, E. T., 1.  
 Ground water and hydrothermal deposits: Behre, C. H., Jr., 2.  
 Heat effects on sulphides: Hawley, J. E., 2.  
 Helium, origin and occurrence: Blau, M., 1.  
 Idaho, Blackbird dist.: Anderson, A. L., 4.  
 Boise Basin: Anderson, A. L., 1.  
 Copper, Salmon area: Anderson, A. L., 5.  
 Elk City dist.: Shenon, P. J., 3.  
 Myers Cove area: Anderson, A. L., 6.  
 Murray dist.: Shenon, P. J., 2.  
 Ore control by rock structure: McKinstrey, H. E., 2.  
 Rocky Bar dist.: Anderson, A. L., 7.  
 Warren dist. veins: Reed, J. C., 5.  
 Yellow Pine mine, Stibnite: Bradley, J. D., 1.  
 Intrusive vs. permissive vein emplacement: Farmin, R., 1.  
 Iron ranges, Lake Superior dist.: Royce, S., 1.  
 Lake Superior area replacement iron deposits: Roberts, H. M., 2.  
 Lead-zinc deposition: Garrels, R. M., 1.  
 Magmas and ores: Bateman, A. M., 4.  
 Maine, SE., ore deposits: Li, C.-Y., 1.  
 Manitoba, Bird River area: Bateman, J. D., 2.  
 Gunnar mine: Lord, C. S., 1.

## Ore deposits—Continued.

## Manitoba—Continued.

Rock alteration and ore deposits, San Antonio mine: Bragg, J. G., 1.

Sherritt-Gordon mine: Derry, D. R., 1.  
Massachusetts, Dracont area: Dennen, W. H., 1.

Mexico, Alistos, gold-nickel deposit: Krieger, P., 1.

El Alamo mine, Baja, Calif.: Antúnez Echegaray, F., 2.

Fresnillo mine veins: Stone, J. B., 1.  
Monterrey to Laredo, Tex.: S. Tex. G. Soc., 3.

Pachuca dist.: Wissner, E., 1.  
Pilares dist.: Antúnez Echegaray, F., 1.

Salitrillo dist. sulfur deposits: Mullerried, 6.

San Antonio mine, Chihuahua: Hewitt, W. P., 1.

Silver-lead-zinc deposits: Triplett, W. H., 1.

Structural features, ore deposits: Schmitt, H. A., 1.

Study of old mines: Flores, 2.

Tin deposits: Foshag, W. F., 1.

Tula dist.: Robles Ramos, R., 2.

Michigan, Menominee range, Dickinson Co.: Dutton, C. E., 1.

Mining geology: Hulin, C. D., 1; McKinstry, H. E., 1.,

Mississippi Valley, upper: Behre, C. H., Jr., 1.

Missouri, Joplin area: Smith, W. S. T., 2.

Montana, Dillon complex: Sinkler, H., 1.

Flathead mine: Shenon, P. J., 1.

Libby quad.: Gibson, R., 1.

Quartz Hill dist.: Taylor, A. V., Jr., 1.

Nevada, Lander Co.: Fries, C., Jr., 1.

Majuba Hill area: Smith, Ward C., 1.

Nevada dist.: Roberts, R. J., 1.

Nightingale dist.: Smith, Ward C., 2.

Robinson mining dist.: Pennebaker, E. N., 1.

Rose Creek tungsten mine: Roberts, R. J., 2.

Three Kids dist.: Hunt, C. B., 1.

Newfoundland, Fleur-de-Lys area: Fuller, J. O., 1.

Port au Port pen.: Watson, K. D., 3.

New Mexico, Central mining dist.: Schmitt, H. A., 1.

Ground Hog mine: Lasky, S. G., 1.

Iron Mtn. beryllium: Jahns, R. H., 5.

Magdalena mining dist.: Loughlin, G. F., 2.

Questa dist.: Vanderwilt, J. W., 3.

New York, Adirondack magnetite: Ailing, H. L., 1.

Vanadium, magnetite-ilmenite deposits,

Lake Sanford: Balsley, J. R., Jr., 1.

North America, chromite ores: Peoples, J. W., 1.

Gold vein deposits: White, W. H., 1.

## Ore deposits—Continued.

## North America—Continued.

Nickel-silicate deposits: Pecora, W. T., 5.

Pyrometamorphic ore deposits: Knopf, A., 1.

Structural features of ore deposits: Newhouse, W. H., 2.

Supergene magnetite: Brown, J. S., 3.

North America-Cuba, manganese: Crook, T. H., 1.

North Carolina, barite deposits: Stuckey, J. L., 2.

Chromite deposits: Hunter, C. E., 2.

Pegmatites: Kesler, T. L., 3.

Pyrophyllite deposits: Stuckey, J. L., 3.

Northwest Territories, Great Bear Lake dist.: Kidd, D. F., 1.

Nova Scotia: Rickard, T. A., 1.

New Ross area: Douglas, G. V., 4, 5.

Pembroke area: Campbell, C. O., 1.

Ontario, Cobalt area: Moore, E. S., 1.

Cuniptau nickel mine: Sandefur, B. T., 1.

Gold mineralization: Moorhouse, W. W., 4.

Gold-silver ratios in ores: Bruce, E. L., 6.

Hematite, Steep Rock Lake: Tanton, T. L., 1.

Josephine mine area: Brown, E. L., 1.

Little Long Lac gold area: Armstrong, H. S., 1.

McGarry, McVittie Tps., Larder Lake area: Thomson, Jas. E., 3.

Matachewan Consol. mine: Hopper, C. H., 1.

Red Lake area: Horwood, H. C., 1.

Rowan Lake: Thomson, Jas. E., 2.

Steep Rock area: Rose, E. R., 1.

Steep Rock Lake: Roberts, H. M., 1.

Sudbury dist. Fairbairn, H. W., 3.

Thunder Bay dist.: Bruce, E. L., 4.

Ore deposits, as related to structural features: Newhouse, W. H., 1.

Intrusive, structure, mineralogy: Butler, B. S., 1.

Ore, phys. factors in localization: Lovering, T. S., 1.

Oregon, Cowboy mine: Shenon, P. J., 4.

Gold and copper ores: Lowell, W. R., 1.

Nickel Mtn. area: Pecora, W. T., 1.

Steens and Pueblo Mts.: Ross, C. P., 3.

Tyrrell manganese deposit: Lowry, W. D., 1.

Packing in ionic minerals: Fairbairn, H. W., 7.

Pennsylvania, Gap nickel mine: Moyd, L., 1.

Lehigh Co.: Miller, B. L., 1.

Manganese minerals: Foote, R. M., 1, 3.

Petrology, structural, and ore deposits: Fairbairn, H. W., 2.

Phosphoria, fm. vanadium, Idaho-Wyo.: Rubey, W. W., 1.

## Ore deposits—Continued.

- Picher dist., Okla.-Kans.: Stoiber, R. E., 1.  
 Pyrite, growth and depositions: Smith, F. G., 3.  
 Quebec, Cadillac Tp. gold deposits: Gunning, H. C., 1.  
 Canadian Malartic mine: Derry, D. R., 3.  
 Dubuison Tp.: Norman, G. W. H., 1.  
 Federal area, Gaspé: Gill, J. E., 2.  
 Gaspé deposits: Jones, I. W., 1.  
 Noranda, etc., dists.: Wilson, M. E., 1.  
 Rouyn-Harricana belt: Hawley, J. E., 3.  
 Quicksilver: Johnson, J. H., 5; Schuette, C. N., 1.  
 South Carolina, sillimanite: Smith, L. L., 1.  
 Steep Rock Lake iron deposit, Ontario: Quirke, T. T., 4.  
 System  $\text{NaAlSi}_3\text{O}_8 - \text{CaSiO}_3 - \text{NaAlSiO}_4$ : Foster, W. R., 1.  
 Texas, Shafter mining dist.: Ross, C. P., 7.  
 Terlingua quicksilver dist.: Ross, C. P., 2.  
 Tri-State geology, Kans.-Okla.-Mo.: Fowler, G. M., 2.  
 Lead and zinc dist.: Fowler, G. M., 1.  
 United States, ore shoots on warped fault planes: Emmons, W. H., 1.  
 Quicksilver deposits: Pollock, J. B., 1; Ross, C. P., 5.  
 Utah, Ashbrook silver dist.: Peterson, V. E., 1.  
 Cottonwood-American Fork area: Calkins, F. C., 2.  
 Vanadium deposits: Fischer, R. P., 1.  
 Vanadium, Colo., Plateau area: Argall, G. O., Jr., 2.  
 Vein, fissure, asymmetrically banded: Ingerson, F. E., 1.  
 Vermont, talc and asbestos deposits: Bain, G. W., 2.  
 Virginia, Lyndhurst-Vesuvius dist., manganese deposits: Knechtel, 2.  
 Roseland titanium dist.: Ross, C. S., 1.  
 Washington, Blewett iron deposits, Chelan Co.: Broughton, W. A., 3.  
 Buckhorn iron deposits: Broughton, W. A., 2.  
 Metaline quad.: Park, C. F., Jr., 4.  
 Olympic Pen.: Park, C. F., Jr., 1; Anonymous, 1.  
 Wyoming, bentonite: Baker, V. R., 2.

## Ore deposits as related to structural features: Newhouse, W. H., 1.

## Oregon.

- Geology in Oregon, history: Lowell, W. R., 2.  
 3d Bienn. Rept. 1941-42, geology and mineral res.: Strayer, W. H., 1.

*Economic geology.*

- Copper, Cowboy mine: Shenon, P. J., 4.  
 Manganese: Libbey, F. W., 1.  
 Manganese, S. coast: Brown, R. E., 1.

## Oregon—Continued.

*Economic geology—Continued.*

- Metal mines handbook, Josephine Co.: Oreg. Dept. Geol. and Min. Industries, 1.  
 Nickel, Nickel Mtn.: Pecora, W. T., 1.  
 Paragenesis, gold and copper ores: Lowell, W. R., 1.  
 Prospectors' guide: Staples, L. W., 1.  
 Quicksilver, Ochoco dist.: Stephenson, E. L., 1.  
 Opalite dist.: Yates, R. G., 1.  
 Steens and Pueblo Mts.: Ross, C. P., 3.  
 Snake-Imnaha Rivers jct. area: Libbey, F. W., 2.  
 Tyrrell manganese deposit: Lowry, W. D., 1.  
 Wallowa batholith: Krauskopf, K. B., 1.

*Historical geology.*

- Cascade Range: Williams, H., 1.  
 Crater Lake Nat. Park: Williams, H., 1.  
 Geological map: Treasher, R. C., 1.  
 Ground water, Willamette Valley: Piper, A. M., 1.  
 Horse Heaven mine area: Staples, L. W., 2.  
 Juniper Ridge tin invs.: Harrison, H. C., 1.  
 Jurassic correls.: Taliaferro, N. L., 1.  
 Manganese, S. Coast: Brown, R. E., 1.  
 Metal mines handbook, Josephine Co.: Oreg. Dept. Geol. and Min. Industries, 1.  
 Miocene, Willamette Valley: Durham, J. W., 5.  
 Nickel Mtn. deposits: Pecora, W. T., 1.  
 North central Oreg.: Hodge, E. T., 1.  
 Opalite quicksilver dist.: Yates, R. G., 1.  
 Origin black sands, SW. coast: Twenhofel, 7.  
 Paleozoic fms., cent. Oreg.: Merriam, C. W., 3.  
 Portland area: Treasher, R. C., 2.  
 Quicksilver, Steens and Pueblo Mts.: Ross, C. P., 3.  
 Snake-Imnaha Rivers jct. area: Libbey, F. W., 2.  
 Tertiary fms., Coos Bay: Weaver, C. E., 3.  
 Tyrrell manganese deposit: Lowry, W. D., 1.  
 Wallowa batholith: Krauskopf, K. B., 1.

*Mineralogy.*

- Aluminum scorodite, Hobart Butte: Denning, R. M., 1.  
 Copper, Cowboy mine: Shenon, P. J., 4.  
 Horse Heaven mine area: Staples, L. W., 2.  
 Juniper Ridge tin invs.: Harrison, H. C., 1.  
 Manganese: Libbey, F. W., 1.  
 South coast: Brown, R. E., 1.  
 Metal mines handbook, Josephine Co.: Oreg. Dept. Geol. and Min. Industries, 1.  
 Nickel, Nickel Mtn.: Pecora, W. T., 1.

## Oregon—Continued.

*Mineralogy—Continued.*

- Origin, black sands, SW. coast: Twenhofel, 7.  
 Paragenesis, gold and copper ores: Lowell, W. R., 1.  
 Prospectors' guide: Staples, L. W., 1.  
 Quicksilver, Opalite dist.: Yates, R. G., 1.  
 Steens and Pueblo Mts.: Ross, C. P., 3.  
 Snake-Imnaha Rivers jct. area: Libbey, F. W., 2.  
 Spherulites, chalcedony-filled: Ross, C. S., 2.  
 Tyrrell manganese deposit: Lowry, W. D., 1.

*Paleontology.*

- Badger, Pliocene: Hall, E. R., 1; Stock, C., 5.  
 Corals, Carb., Perm.: Merriam, C. W., 1.  
 Floras, Miocene and facies: Chaney, R. W., 2.  
 Latah petrified forests: Dake, H. C., 6.  
 Man, ancient, Great Basin: Cressman, L. S., 1.  
 Miocene, lower, Willamette Valley: Durham, J. W., 5.  
 North cent. Oreg.: Hodges, E. T., 1.  
 Paleocology, sand-dune bogs: Hansen, H. P., 10.  
 Paleozoic, late, fms. cent. Oreg.: Merriam, C. W., 3.  
 Parapholix, Pliocene: Baker, F. C., 1.  
 Peat, pollen, Lower Klamath Lake: Hansen, H. P., 6.  
 Pollen, fossil peat, coast: Hansen, H. P., 4.  
 Lake sediments: Hansen, H. P., 3.  
 Pollen study, Blue Mts. bog: Hansen, H. P., 7.  
 Post-Mount Mazama forest succession, Cascades: Hansen, H. P., 1.  
 Roses, Oligocene: Resser, C. E., 1.  
 Vertebrates, Miocene: Wallace, R. E., 1.  
 Volcanic eruptions and vegetation: Hansen, H. P., 2.  
 Worm-bored woods, fossil: Dake, H. C., 1.

*Petrology.*

- Chromiferous sands, origin: Griggs, A. B., 1.  
 Juniper Ridge: Allen, J. E., 1.  
 Tin investigations: Harrison, H. C., 1.  
 Jurassic correls.: Taliaferro, 1.  
 Nickel, Nickel Mtn.: Pecora, W. T., 1.  
 North cent. Oreg.: Hodge, E. T., 1.  
 Origin, black sands, SW. coast: Twenhofel, 7.  
 Paragenesis, gold and copper ores: Lowell, W. R., 1.  
 Snake-Imnaha Rivers jct. area: Libbey, F. W., 2.  
 Thunder eggs, origin: Fairbanks, E. F., 1.  
 Tyrrell manganese deposit: Lowry, W. D., 1.  
 Wallowa batholith: Krauskopf, K. B., 1.

*Physical geology.*

- Cascade Range: Williams, H., 1.  
 Crater Lake Nat. Park: Williams, H., 1.

## Oregon—Continued.

*Physical geology—Continued.*

- Horse Heaven mine area: Staples, L. W., 2.  
 Juniper Ridge: Allen, J. E., 1.  
 Jurassic correls.: Taliaferro, 1.  
 Mount Mazama, extinct volcano: Williams, H., 1.  
 Nickel Mtn.: Pecora, W. T., 1.  
 North cent. Oreg.: Hodge, E. T., 1.  
 Opalite-quicksilver dist.: Yates, R. G., 1.  
 Paleozoic, late, fms., cent. Oreg.: Merriam, C. W., 3.  
 Paragenesis, gold and copper ores: Lowell, W. R., 1.  
 Portland area: Treasher, R. C., 2.  
 Quicksilver, Ochoco dist.: Stephenson, E. L., 1.  
 Snake-Imnaha Rivers jct. area: Libbey, F. W., 2.  
 Tyrrell manganese deposit: Lowry, W. D., 1.  
 Volcanic eruptions and vegetation: Hansen, H. P., 2.  
 Volcanoes, Three Sisters area, Cascades: Williams, H., 2.

*Physiographic geology.*

- Chromiferous sands, origin: Griggs, A. B., 1.  
 Eliot Glacier, Mt. Hood, ablation, movement: Matthes, F. E., 5.  
 Fostoria quad. Pleist.: Shaffer, P. R., 1.  
 North cent. Oreg.: Hodge, E. T., 1.  
 Origin, black sands, SW. coast: Twenhofel, 7.  
 Portland area: Treasher, R. C., 2.

*Underground water.*

- Ground water, Willamette Valley: Piper, A. M., 1.

## Ore minerals, identification by X-ray powder patterns: Harcourt, G. A., 1.

## Ore shoots on warped fault planes: Emmons, W. H., 1.

## Orientation, ilmenite, andesine, St. Urbain iron deposit, Quebec: Tuttle, O. F., 1.

## Origin and evolution: Evans, A. T., 1.

## Origin of loess: Penniston, J. B., 1.

## Origin of races of man: Howells, W. W., 1.

## Orogeny.

- British Columbia, Eldorado prospect: Brennan, C. V., 1.  
 Okanagan Valley origin: Schofield, S. J., 1.  
 Pinchi Lake area: Freeze, A. C., 1.  
 Southern: Davis, N. F. G., 1.  
 California, Bradley-San Miguel dist.: Taliaferro, 4.  
 Coast Range, late Pleist.: Bailey, T. L., 1.  
 Confidence dist.: Little, J. M., 1.  
 Sierra Nevada NE. of Visalia: Durrell, C., 2.  
 Canada, Front Ranges, Rocky Mts.: Atwood, W. W., 1.  
 Sydney coal field: Gray, F. W., 1.

## Orogeny—Continued.

- Caribou area, gravity anomalies: Hess, H. H., 1.  
 Central America: Weaver, C. E., 1.  
 Colorado, origin of scenery: Pearl, R. M., 1.  
 Compression, creep, rubber, rock: DeLury, J. S., 1.  
 Cuba, Pinar del Río Prov.: Vermunt, L. W. J., 1.  
 Elk Basin field, Mont.-Wyo.: Hendrickson, V. J., 1.  
 Gravitation, exponential law, effects on seismol. and tectonic phenomena: Shneiderov, 1.  
 Idaho, Bannock Range: Ludlum, J. C., 2.  
 Jamaica: Trechmann, C. T., 1.  
 Laramie River Valley, Colo.-Wyo.: Beckwith, R. H., 1.  
 Mexico, northern: Kellum, L. B., 1; King, P. B., 1.  
 Orogenesis and relief: Robles Ramos, R., 1.  
 Sierra Madre Oriental: Heim, A., 1; Mullerried, 2.  
 Montana, Glacier Nat. Park: Alden, W. C., 1.  
 Saypo quad.: Deiss, C. F., 1.  
 Mountain-building theory, Appalachian structure: Elkins, T. A., 1.  
 Mountains: Fenton, C. L., 1.  
 Origin: Longwell, C. R., 3.  
 Nevada, dating diastrophic events: Longwell, 2.  
 New Brunswick: Alcock, F. J., 3.  
 New York, Lake George area: Newland, D. H., 1.  
 Shawangunk Mts.: Glenby, K. L., 2.  
 North America, Basin Ranges: Keyes, 13.  
 Great Lakes area: Martin, H. M. M., 1.  
 North Allegheny synclinorium devel.: Kay, G. M., 3.  
 Oregon, Crater Lake Nat. Park: Williams, H., 1.  
 Gold and copper ores: Lowell, W. R., 1.  
 North-central: Hodge, E. T., 1.  
 Oregon-California, Juras.: Taliaferro, N. L., 1.  
 Pennsylvania, Appalachian dent: Ashley, G. H., 2.  
 Eagles Mere Lake, origin: Ashley, G. H., 3.  
 Lehigh Co.: Miller, B. L., 1.  
 Martinsburg fm., Lehigh Co.: Willard, B., 1.  
 Quebec, Gaspé Pen.: Alcock, F. J., 2.  
 Texas, Fort Worth-Midland area: Scott, G., 1.  
 Santiago Peak quad.: Eifler, G. K., Jr., 1.  
 United States, Basin and Range prov.: Nolan, T. B., 1.  
 Rocky Mtn. oil and gas fields: Dobbin, C. E., 2.

## Orogeny—Continued.

- United States—Continued.  
 Rocky Mtn. prov.: Forrester, J. D., 1; Knight, S. H., 2.  
 Utah, Cedar Hills: Schoff, S. L., 2.  
 Virginia, Appalachian geosyncline: Lammers, E. C. H., 1.  
 Wyoming, Cache Creek area, Gros Ventre Mts.: Nelson, V. E., 1.  
 Gros Ventre Range: Church, V., 1.  
 Gros Ventre and N. Hoback Ranges: Nelson, V. E., 2.  
 Orpiment, unit cell and space group: Buerger, M. J., 2.  
 Osage oil field, Wyo.: Dobbin, C. E., 1.  
 Ostracoda. See also Crustacea; Invertebrata (general).  
 Alabama, Glendon fm. fauna: Howe, H. V., 1.  
 Anomocytheridea beaconsinensis for Cytheridea beaconsinensis: LeRoy, L. W., 2.  
 Appalachians, north middle: Swartz, F. M., 1.  
 Bairdia clarensis for B. sinuosa: Cooper, C. L., 5.  
 Black River fms. fauna: N. Y., Ontario: Young, F. P., Jr., 1.  
 California coast, Pleist., Pliocene: LeRoy, L. W., 1.  
 Eocene, Santa Ynez Mts.: Kelley, F. R., 1.  
 Santa Maria dist.: Woodring, 2.  
 Collecting microfossils: Schenck, H. G., 3.  
 Correlations, America-Europe, by Penn. non-marine Ostracoda: Scott, H. W., 6.  
 Cuba, Habana Prov.: Broderman, J., 3.  
 Cythereis, Cret., Tex.: Awbrey, E., 1.  
 Cythereis simiensis for Pyricythereis simiensis: LeRoy, L. W., 2.  
 Cytheridea, Eocene, Gulf Coast: Stephenson, M. B., 1.  
 Cytheropteron, Cret., Tex.: Garrison, M. E., 1.  
 Cytheropteron pacificum for C. minutum: LeRoy, L. W., 2.  
 Denisonella for Denisonia: Croneis, C. G., 4.  
 Dilobella wisconsinensis for D. simplex: Kay, G. M., 1.  
 Ectodermites, Penn., Tex., moulting: Cooper, C. L., 8.  
 Eocene faunas, Va.: Gildersleeve, B., 1.  
 Eocytheropteron, Cret., Tex.: Garrison, M. E., 1.  
 Eustephanelia for Eustaphanus: Swartz, F. M., 2.  
 Fauna, Eagle Ford group, Tex.: Moreman, W. L., 1.  
 Faunas, Helderberg, Quebec: Clark, T. H., 1.  
 Martinsburg fm., Massanutten Mtn., Va.: Secrist, M. H., 2.  
 Silurian, W. Va.: Woodward, H. P., 1.  
 Florida, Holmes Co.: Vernon, R. O., 1.  
 Washington Co.: Vernon, R. O., 1.



## Ostracoda—Continued.

- Fredericksburg-Washita boundary, Tex.:  
Lozo, F. E., Jr., 1.
- Georgia, Sand-Lookout Mtn. area: Sullivan, J. W., 2.
- Haplocytheridea bassleri for Cytheridea subovata: Stephenson, M. B., 3.
- Illinois, Chester: Scott, H. W., 3.  
Chester index fossils: Cooper, C. L., 3.  
Marseilles, Ottawa, Streator quads.: Willman, H. B., 2.
- Illinois-Indiana, Penn. key beds: Alexander, J. W., 1.
- Iowa, Dev.: Cooper, C. L., 7.
- Kansas, Zenith pool: Imbt, W. C., 1.
- Lepiditacea, Dev., N. Am.: Warthin, A. S., 1.
- Mexico, Cret., San Juan Raya: Lozo, F. E., Jr., 2.
- Microfauna, Glen Dean ls., Ill.: Coryell, H. N., 1.  
Gulf Coast: Howe, H. V., 2.
- Micropaleontological labs. and oil: Schenck, H. G., 5.
- Mississippi, Clay Co.: Bergquist, H. R., 2.  
Scott Co.: Bergquist, H. R., 1.
- Montana, Missn.: Scott, H. W., 1.
- Ohio, Olentangy sh. fauna: Baker, R. C., 1.  
Prout ls.-Plum Brook sh.: Stumm, E. C., 1.
- Oklahoma, Cimarron Co.: Schoff, S. L., 1;  
Stovall, J. W., 1.
- Paleozoic, bib. index since 1934: Agnew, A. F., 1.  
Distribution: Cooper, C. L., 1.
- Pendleton fm. fauna, Tex., La.: Wasem, R., 1.
- Pitkin fm. fauna, Ark.: Easton, W. H., 3.
- Platycheilella for Platycheilus: Cooper, C. L., 2.
- Texas, Cuchillo fm., Quitman Mts.: Lozo, F. E., Jr., 3.  
Eocene: Stephenson, M. B., 2.  
Mabelle Draw Perm. area: Read, W. F., 1.  
Permian: Hamilton, I. B., 1.
- United States, Gulf Coast Tert.: Murray, G. E., Jr., 1.
- Virginia, Appalachian Valley? Butts, C., 1.  
Tazewell Co.: Cooper, B. N., 1.
- Wisconsin, Niagaran: Gutschick, R. C., 1.
- Otoliths, N. Atlantic deep-sea cores fauna: Henbest, L. G., 1.
- Outline of military geology: Erdmann, C. E., 3.
- Outwash plains.  
Colorado, Craig-Bags placer area: Prommel, H. W. C., 1.  
San Francisco Mts., Ariz., multiple glaciation, Pleist.: Sharp, R. P., 4.
- Overthrusts. See also Faulting.  
California, Death Valley area: Stose, G. W., 2.  
McKittrick oil field: Stevens, J. B., 1.  
Sespe oil field: Clements, T., 1.

## Overthrusts—Continued.

- Deformation patterns, major: Thom, W. T., Jr., 1.
- Idaho, Bannock Range: Ludlum, J. C., 2.
- Laramie River Valley, Colo.-Wyo.: Beckwith, R. H., 1.
- Little North Mtn., Va.-Md.-W. Va.: Giles, A. W., 1.
- Mexico, Sierra Madre Oriental: Heim, A., 1.
- Montana, Livingston ig. rocks: Parsons, W. H., 1, 2.  
Sawtooth Range: Deiss, C. F., 2.  
Three Forks area: Berry, G. W., 1.
- Nevada, dating diastrophic events: Longwell, 2.
- Roberts Mts.: Merriam, C. W., 2.
- New York, Schunemunk Mtn. area: Sharpe, C. F. S., 2.
- Tennessee, Laurel Bloomery area: Ferguson, H. W., 1.
- United States, Rocky Mtn. oil and gas fields: Dobbin, C. E., 2.  
Rocky Mtn. prov.: Forrester, J. D., 1.
- Utah, Cedar Hills: Schoff, S. L., 2.  
West Tintic mining dist.: Stringham, R. F., 1.
- Vermont, west-cent.: Cady, W. M., 1.
- Virginia, Appalachian Valley: Butts, C., 1.  
Thrust-fault in granodiotite: Nelson, W. A., 1.
- Walker Mtn.: Butts, C., 2; Edmundson, R. S., 2.
- Wyoming, Cache Creek area, Gros Ventre Mts.: Nelson, V. E., 1.  
Gros Ventre and N. Hoback Ranges: Nelson, V. E., 2.
- Pacific Ocean, N., floor: Betz, F., Jr., 1.
- Packing in ionic minerals: Fairbairn, H. W., 7.
- Palagonite, Jamaica: Raw, F., 1, 2.
- Paleobotany. See also Paleontology; Pollen analysis.  
Age of flowering plants: Berry, E. W., 2.
- Alaska, Eagle-Circle dist.: Mertie, J. B., Jr., 1.
- Prince William Sound area: Cooper, W. S., 1.
- Alberta, Moose Mtn.-Morley area: Beach, H. H., 3.
- Algae, Perm., N. Mex.: Johnson, J. H., 2.
- Algal lss., Carb., Nova Scotia: Wood, A., 2.
- Amber, Cret., Kans.: Schoewe, W. H., 1.
- Aneimites, Penn., Appalachian area: White, C. D., 1.
- Anthraxylon, coal relations: Marshall, C. E., 1.
- Araucarioxylon, Cret., Wyo.: Andrews, H. N., Jr., 5.
- Bowmanites (Sphenophyllales), Carb., Iowa: Hoskins, J. H., 4.  
Monograph on: Hoskins, J. H., 4.
- Bryozoan-algal Perm. consortium, Ariz.: Condra, G. E., 4.

## Paleobotany—Continued.

- California, Eocene, Santa Ynez Mts.:  
Kelley, F. R., 1.  
Ventura region: Putnam, W. C., 1.  
Canada, maritime provinces: Stewart, J. S., 2.  
Central America, Mesozoic, Cenozoic floras:  
Berry, E. W., 1.  
Coal, description and classn.: Dapples, E. C., 1.  
Origin and composition: Mott, R. A., 1.  
Physical constitution: Cady, G. H., 1;  
Sprunk, G. C., 2.  
Spores in, Ohio: Hoskins, J. H., 6.  
Colorado, Denver Basin: Brown, R. W., 4.  
Pennsylvanian Walchia: Elias, M. K., 3.  
Continental drift and plant distribution:  
Campbell, D. H., 1.  
Correlation by spores, coal seams, Tenn.:  
Bentall, R., 2.  
Cupressinoxylon, Cret., with teredo borings, Md.: Anonymous, 28.  
Cycadeoid cone axis, vascular anatomy:  
Andrews, H. N., Jr., 8.  
Cycadeoids, Cret., Kans.: Wieland, G. R., 1.  
Cycads, fossil, U. S.: Lee, H. E., 1.  
Diatomite, Pacific NW. U. S.: Eyerly, G. B., 1.  
Diatoms, Linsley Pond, Conn.: Patrick, R. M., 1.  
Diplothema, Penn., Appalachian area:  
White, C. D., 1.  
Ecology of marine organisms: Ladd, H. S., 1.  
Eocene floras, Va.: Gildersleeve, R., 1.  
Eremopteris, Penn., Appalachian area:  
White, C. D., 1.  
Fern, climbing, Cret., Wyo.: Brown, R. W., 5.  
Ferns, schizaeaceous, Carb.: Radforth, N. W., 1.  
Devonian, New York.: Arnold, C. A., 1.  
Flora, Camb., Bucks Co., Pa.: Howell, B. F., 14.  
Coal, Iowa: Hoskins, J. H., 5.  
Coal ball, Carb., Ill.: Andrews, H. N., Jr., 2.  
Indiana: Benninghoff, W. S., 2.  
Texas: Reed, F. D., 1.  
Eocene, Red Desert, Wyo.: Wilson, L. R., 10.  
Lance fm. at type locality, Wyo.: Dorf, 1.  
Martinsburg fm., Massanutten Mtn., Va.: Secrist, M. H., 2.  
Miocene, Columbian Plateau, U. S.: Chaney, R. W., 1.  
Oregon: Chaney, R. W., 2.  
Onondaga chert, N.Y.: Baschnagel, R. A., 1.  
Powellton coal, W. Va.: Cross, A. T., 2.  
Tertiary, Nevada: Axelrod, D. I., 1.  
Triassic, N. Car.: Berry, E. Willard, 1.  
Upper Cretaceous, Rocky Mtn. area: Dorf, 1.

## Paleobotany—Continued.

- Florida, diatomite: Vernon, R. O., 3.  
Flowering plants, Carb., Iowa: Keyes, C. R., 3.  
Fossil plants, study tech.: Hoskins, J. H., 7.  
Fructifications, filicean, Carb., Ill.: Andrews, H. N., Jr., 9.  
Fungi, Pleist., Minn.: Rosendahl, C. O., 1.  
General: Merriam, J. C., 1.  
Geologic importance, calcareous algae:  
Johnson, J. H., 4.  
Georgia, Coastal Plain: Cooke, C. W., 5.  
Sand-Lookout Mtn. area: Sullivan, J. W., 2.  
Gillen Nature Reserve bogs., Mich.-Wis.:  
Pötzger, J. E., 2.  
Girvanella, Ord., Quebec: Lewis, H. P., 1.  
Grapevine, Miocene, Nev.: Brown, R. W., 3.  
Grasses, herbs, Tert., High Plains, U. S.:  
Elias, M. K., 1.  
Heterangium, Carb., Ill.: Andrews, H. N., Jr., 4.  
Homonyms, trees and fossil plants: Little, E. L., Jr., 1.  
Hyenia, Dev., N. Y.: Arnold, C. A., 2.  
Idaho, peat bog, Purcell Trench: Hansen, H. P., 11.  
Illinois, coal ball flora: Andrews, H. N., Jr., 10.  
Pennsylvanian, Carlinville, quad.: Ball, J. R., 4.  
Illinois-Indiana, Penn. key beds: Alexander, J. W., 1.  
Indiana, bog studies: Keller, C. O., 1.  
Iowa, Ames peat bog: Gwynne, C. S., 2.  
Cave deposits plants: Wilson, L. R., 1.  
Lycopod leaves with *Lepidodendron* in coal balls: Wilson, L. R., 3.  
Peorian loess fossils: Cameron, C. C., 1.  
Kansas, Haskell ls. nodules: Bridwell, A., 1.  
Southeast coal lands: Hall, H. H., 1.  
Koninckopora, algal nature, Canada:  
Wood, A., 1.  
Lepidocarpon, Ill. Carb. coal balls: Andrews, H. N., Jr., 3; Pannell, E., 1, 2.  
Lepidostrobus aristatus, homonym: Hoskins, J. H., 3.  
Lepidostrobus arrectus for *L. aristatus*:  
Hoskins, J. H., 3.  
Lepidostrobus, Penn., Ind.: Hoskins, J. H., 2.  
Limestones formed by plants: Johnson, J. H., 6.  
Louisiana, Vernon Parish: Welch, R. N., 1.  
Maples, supposed, are sycamores: Brown, R. W., 2.  
Mariopteris, Penn., Appalachian area:  
White, C. D., 1.  
Massachusetts, Boylston St., Boston, fish weir: Johnson, F., 1; Knox, A. S., 1.  
Cape Cod tills: Sayles, R. W., 1.  
Mexico, Valley of Tixtla: Mullerried, 9.

## Paleobotany—Continued.

- Michigan, Douglas, Middle Fish Lakes pollen analysis: Wilson, I. T., 3.  
 Microfossils, Angus coal, Iowa: Wilson, L. R., 9.  
 Micropaleontology and oil explor.: Croneis, C. G., 1.  
 Mizzia, Perm., Tex., N. Mex.: Johnson, J. H., 1.  
 Mosses, Pleist., Iowa: Steere, W. C., 1.  
 Mycorrhizome, Carb., Ill.: Andrews, H. N., Jr., 7.  
 New Brunswick: Alcock, F. J., 3.  
 New England, S., pollen analysis: Deevey, E. S., Jr., 1.  
 New Mexico, Magdalena mining dist.: Loughlin, G. F., 2.  
 New York, Wellsville quad.: Woodruff, J. G., 1.  
 Nomenclature: Schopf, J. M., 1.  
 North America: Hirmer, M., 1.  
 Coal-age forests: Janssen, R. E., 1.  
 Mesozoic flowering plant dispersal: Stebbins, G. L., Jr., 1.  
 Post glacial forest migrations: Sears, P. B., 1.  
 North Dakota, Morton Co.: Laird, W. M., 2.  
 Northwest U. S., Latah petrified forests: Dake, H. C., 6.  
 Ohio, Olentangy sh. flora: Baker, R. C., 1.  
 Pennsylvanian fossils in coal: Kosanke, R. M., 2.  
 Oklahoma, Cimarron Co.: Schoff, S. L., 1;  
 Stovall, J. W., 1.  
 Oldhamia, Ord., Quebec: Ruedemann, R., 2.  
 Oldhamia is worm tracks: Ruedemann, R., 1.  
 Ontario, London area Paleozoics: Caley, J. F., 1.  
 Oregon, Blue Mts. bog pollens: Hansen, H. P., 7.  
 Central, late Paleozoic flora and faunas: Merriam, C. W., 3.  
 Lake sediment pollens: Hansen, H. P., 3.  
 North-central: Hodge, E. T., 1.  
 Paleocology, sand-dune bogs: Hansen, H. P., 10.  
 Pollen in forest peat: Hansen, H. P., 4.  
 Post-Mount Mazama forest successions: Hansen, H. P., 1.  
 Volcanic eruptions and post-Pleist. vegetation: Hansen, H. P., 2.  
 Oregon and North Dakota, teredo borings in wood: Dake, H. C., 1.  
 Origin and evolution: Evans, A. T., 1.  
 Palaeocoryne attached to Fenestella: Elias, M. K., 5.  
 Panama, Tert.: Olsson, A. A., 1.  
 Peat, near Mt. Adams, Wash.: Hansen, H. P., 5.  
 Peats of New Jersey: Waksman, S. A., 1.  
 Permian, west Tex.-N. Mex.: King, P. B., 2.  
 Petrified Forest, Ariz.: Vokes, H. E., 2.

## Paleobotany—Continued.

- Pitkin fm., Ark.: Easton, W. H., 3.  
 Plankton, Ord. N. Y.: Ruedemann, R., 4.  
 Plant constituents in lignite: Radforth, N. W., 2.  
 Plant geography: Wulff, E. V., 1.  
 Plants, Devonian, Newfoundland: Dorf, 3.  
 Isolated by glacial lakes: Wolfe, J. N., 1.  
 Paleozoic, Colo.: Arnold, C. A., 3.  
 Pennsylvanian, Appalachian area, N. Am.: White, C. D., 1.  
 Pittsburgh and Pomeroy coals, Ohio: Kosanke, R. M., 1.  
 Post-glacial migrations: Sears, P. B., 2.  
 Pollen, Anoka Co., Minn., lakes: Wilson, I. T., 1.  
 Pollen analysis: Erdtman, G., 1.  
 Cranberry Glades, W. Va.: Darlington, H. C., 1.  
 Lower Klamath Lake, Oreg.-Calif.: Hansen, H. P., 6.  
 Pollen profiles, extinct lake, Ind.: Potzger, J. E., 6.  
 Post-glacial climate, bot. sci. contribs.: Cooper, W. S., 2.  
 Post-glacial forests, N. J.: Potzger, J. E., 3.  
 Rampart Cave flora, Ariz.: Wilson, R. W., 1.  
 References, earth sciences: Thiesmeyer, L. R., 4.  
 Roses, Oligocene, Colo., Oregon: Reaser, C. E., 1.  
 Saskatchewan, Big Muddy Valley: Houldsworth, E., 1.  
 Schodackia, Camb., Ord., N. Y.: Ruedemann, R., 2.  
 Sequoia nomenclature: Berry, E. W., 3.  
 Sphenophyllostachys, Carb., Iowa: Hoskins, J. H., 1.  
 Spore genera, Paleozoic: Schopf, J. M., 2.  
 Spores, bearing elator, Penn., Iowa: Wilson, L. R., 7.  
 Pennsylvanian coals, Iowa: Wilson, L. R., 8.  
 Stipitopteris, Carb., Ill.: Lenz, L. W., 1.  
 Stromatolites: Cloud, P. E., Jr., 1.  
 Tempskya, Cret., Wyo.: Andrews, H. N., Jr., 6.  
 Tennessee, correls. by spores: Bentall, R., 1.  
 Texas, Mabelle Draw Perm. area: Read, W. F., 1.  
 Patschke Bog, Lee Co., pollen: Potzger, J. E., 6.  
 United States, Pacific NW., post-Pleist.: Hansen, H. P., 12.  
 Prehistoric trees: Brown, R. W., 7.  
 Virginia, Appalachian Valley: Butts, C., 1.  
 Tazewell Co.: Cooper, B. N., 1.  
 Washington, Orcas Is. bogs, pollen analysis: Hansen, H. P., 8.  
 West Indies, Mesozoic, Cenozoic floras: Berry, E. W., 1.  
 West Virginia, Dev.: Woodward, H. P., 2.

## Paleobotany—Continued.

- Wisconsin, bog studies: Potzger, J. E., 4.  
 Butternut and hickory, post-Pleist.  
 range: Cain, S. A., 1; Wilson, L.  
 R., 5.  
 Crystal Lake and bog plant microfossils:  
 Wilson, L. R., 5.  
 Microfossils in bogs: Wilson, L. R., 2.  
 Trout Lake pollen study: Potzger, J.  
 E., 1.  
 Wood, fossil, Anderson collection: Dake,  
 H. C., 3.  
 Petrified, Calif.: Chandler, W. C., 1.  
 Silicified, with gold crystals, Nev.:  
 Gianella, V. P., 2.  
 Wyoming, fossil alga on wood: Anonymous,  
 11.
- Paleobotany and Cretaceous-Tertiary boundary:  
 Dorf, E., 2.
- Paleoclimatology. See also Geologic history.
- Alaska, perennially frozen ground: Taber,  
 S., 1.  
 Prince William Sound area: Cooper, W.  
 S., 1.  
 Arizona-New Mexico, Juras.-Cret. interval:  
 Leopold, L. B., 1.  
 Climate and man: Russell, R. J., 1.  
 Climates of yesterday: Lott, A. V., 1.  
 Climatic change: Russell, R. J., 1.  
 Dinosaur extinction, causes: Wieland, G.  
 R., 1.  
 Droughts, long series: Gillette, H. P., 1.  
 Massachusetts, Boston area: Johnson,  
 F., 1.  
 Boylston St., Boston, fish weir: Johnson,  
 F., 1.  
 New Mexico, climate, Juras.-Cret. interval:  
 Leopold, L. B., 1.  
 Fossil marmot: Stearns, C. E., 1.  
 New Mexico-Arizona, Juras.-Cret. interval:  
 Leopold, L. B., 1.  
 Plant geography: Wulff, E. V., 1.  
 Post-glacial climate, bot. sci. contribs.:  
 Cooper, W. S., 2.  
 Rampart Cave fauna and flora, Ariz.:  
 Wilson, R. W., 1.  
 Soil phenomena and climatic changes:  
 Bryan, K., 6.  
 Texas, fossil replacements, Finlay Mts.:  
 Ham, W. O., Jr., 1.  
 United States, Pacific NW.: Hansen, H.  
 P., 12.  
 Wind work and glaciation: Thiesmeyer,  
 L. R., 3.
- Paleocene, Miss., Union Co.: Conant, L. C., 1.
- Paleoecology.
- Alaska, invertebrates, buried beaches,  
 Nome: MacNeil, F. S., 1.  
 Ancyrocrinus response to environment:  
 Lowenstam, H. A., 4.  
 Arizona, Grand Canyon deposits: McKee,  
 E. D., 2.  
 Brachiopoda, Perm., Tex.: Cooper, G.  
 A., 3.  
 Diatoms: Lohman, K. E., 1.

## Paleoecology—Continued.

- Ecology of marine organisms: Ladd, H.  
 S., 1.  
 Faunas, late Paleozoic: Williams, J. S., 1.  
 Floras, Miocene, Oreg.: Chaney, R. W., 2.  
 Foraminifera: Myers, E. H., 3.  
 Herbs, Tert., High Plains, U. S.: Elias,  
 M. K., 2.  
 Kansas, pre-Greenhorn beds: Plummer, N.  
 V., 1.  
 Micropaleontology and oil explor.: Cronels,  
 C. G., 1.  
 Nautiloidea, Paleozoic: Flower, R. H., 3.  
 New York, Schoharie, Esopus fms.: Gold-  
 ring, W., 2.  
 Oregon, sand-dune bogs: Hansen, H.  
 P., 10.  
 Paleozoic nautiloids: Flower, R. H., 3.  
 Plant geography: Wulff, E. V., 1.  
 Rampart Cave fauna and flora, Ariz.:  
 Wilson, R. W., 1.  
 Stratigraphical analysis: Payne, T. G., 1.  
 Washington peat deposit: Hansen, H.  
 P., 9.
- Paleogeographic maps. See also Paleogeography.
- Arizona, Paleozoic: Stoyanow, A. A., 1.  
 Arkansas, Pitkin ls.: Easton, W. H., 1.  
 Central America: Weaver, C. E., 1.  
 Cretaceous of Calif.: Jenkins, O. P., 3.  
 Gulf Region, N., Cent. Am., Cuba: Imlay,  
 R. W., 5.  
 Hawaii, Maui ls.: Stearns, H. T., 3.  
 Massachusetts, Conn. Valley: Jahns, R.  
 H., 1.  
 Mexico, E., old landmass: Imlay, R. W., 3.  
 Northeast Juras.: Storm, L. W., 1.  
 Orogenesis and relief: Robles Ramos,  
 R., 1.  
 Monterrey, Mex., to Laredo, Tex.: S. Tex.  
 G. Soc., 3.  
 Nebraska, W., pre-Penn.: Dillé, G. S., 1.  
 North America: Grabau, 1.  
 Mid-continent: Hills, J. M., 1.  
 Oregon, Crater Lake Nat. Park: Williams,  
 H., 1.  
 Texas, Perm. seas: Hills, J. M., 1.  
 South, pre-Trinity deposits: Getzender,  
 F. M., 1.  
 Vermont, Champlain Valley: Chapman, D.  
 H., 1.  
 Wisconsin, NE.: Thwaites, F. T., 2.
- Paleogeography. See also Geologic history:  
 Paleoclimatology; Paleogeographic  
 maps.
- Arizona, Paleozoic: Stoyanow, A. A., 1.  
 California, San Benito quad.: Wilson, I.  
 F., 1.  
 Santa Clara River drainage area: Loel,  
 W., 1.  
 Lithology of sea-floor off Calif.: Emery,  
 K. O., 1.  
 Mexico, northern: Kellum, L. B., 1.  
 New Mexico, Penn.: Thompson, M. L., 2.  
 New York, Schoharie, Esopus fms.: Gold-  
 ring, W., 2.

## Paleogeography—Continued.

## New York—Continued.

- Wellsville quad.: Woodruff, J. G., 1.  
 North America, N. Allegheny synclinalorium  
 devel.: Kay, G. M., 3.  
 Texas, Perm. Basin: Roth, R. I., 2.  
 United States, N. Great Plains, Big Snowy  
 Mts.: Perry, E. S., 1.  
 Utah, Uinta, Wasatch Mts.: Williams, J.  
 Stewart, 2.  
 Wyoming, SE., Late Paleozoic: Knight, S.  
 H., 3.

Paleogeography and petroleum explor.: Adams,  
 J. H., 1.

Paleontology. For areal see names of States.  
 See also the classes of animals and  
 Invertebrata (general); Evolution;  
 Paleobotany; Problematic organisms;  
 Restorations.

- Ancient life: Sánchez Roig, M., 1.  
 Biogenic laws applied to stratigraphy:  
 Mathews, A. A. L., 1.  
 Catalog of types, Royal Ontario Mus.  
 Paleontology: Fritz, M. A., 1.  
 Collecting microfossils: Schenck, H. G., 3.  
 Conodonts, origin: Du Bois, E. P., 2.  
 Criteria for classn.: Simpson, G. G., 7.  
 Dry-peel technique: Sternberg, R. M., 1.  
 Earth, changing: Allen, J. Stuart, 1.  
 Economic paleontology and mineralogy:  
 Driver, H. L., 2.  
 Evolution, life on earth: Stone, R. W., 4.  
 Field Mus. Nat. History collections of 50  
 years: Nichols, H. W., 1.  
 Foraminifera, research work on, 1931-40:  
 Thalmann, H. E., 7.  
 General: Merriam, J. C., 1; Stephenson,  
 L. W., 1.  
 Generic allocation and renaming:  
 Schenck, H. G., 1.  
 Generic names, erroneous emendation:  
 Moore, R. C., 2.  
 Geology in war and peace: Howard, W.  
 V., 3.  
 Jefferson's contribution to paleontology:  
 Brown, R. W., 6.  
 Lectosyntype, for type specimens: Hudson,  
 R. G. S., 1.  
 Life thru the ages: Parker, B. M., 1.  
 Machaeridia-Cirripedia-Echinoderms: Rue-  
 demann, R., 3.  
 Mammals and the nature of continents:  
 Simpson, G. G., 5.  
 Mammals, relationships of orders: Mat-  
 thew, W. D., 1.  
 Micropaleontological labs. and oil: Schenck,  
 H. G., 5.  
 Micropaleontology and oil explor.: Croneis,  
 C. G., 1.  
 Origin and evolution: Evans, A. T., 1.  
 Paleontology, an appraisal: Stephenson, L.  
 W., 1.  
 Paleontology of oil and gas: Hanna, M.  
 A., 1.

## Paleontology—Continued.

- Paleontology, use by oil industry: Howe,  
 H. V., 3.  
 References, earth sciences: Thiesmeyer, L.  
 R., 4.  
 Renaming primary homonyms: Schenck,  
 H. G., 1.  
 Restorations, ancient animals: Beck, H.  
 T., 1.  
 Stratigraphical analysis: Payne, T. G., 1.  
 Taxonomy and paleontology: Croneis, C.  
 G., 2.  
 Tertiary, continental, problems: Wood, H.  
 E., 2d, 1.  
 Thomas Jefferson and science: Clark, A.  
 H., 2.  
 Thomas Jefferson, pioneer paleontologist:  
 Schultz, C. B., 2.  
 Unconformities, subsurface recognition:  
 Krumbein, W. C., 1.

## Cambrian.

- Faunal index, pelmatozoan echinoderms:  
 Bassler, R. S., 2.  
 Geologic importance, calcareous algae:  
 Johnson, J. H., 4.  
 Greenland, Ella Is. Foraminifera: Howell,  
 B. F., 6.  
 Limestones formed by plants: Johnson, J.  
 H., 6.  
 Maryville fm. fauna: Resser, C. E., 3.  
 Massachusetts ptychoparid Trilobita:  
 Wheeler, R. R., 1.  
 Newfoundland, N., faunas: Howell, B.  
 F., 8.  
 Trilobita: Kindle, C. H., 3.  
 New Jersey faunas: Howell, B. F., 11.  
 New York, Foralites burrows, Champlain  
 Valley: Howell, B. F., 13.  
 Schodackia: Ruedemann, R., 2.  
 Nomenclature, Camb. fossils: Resser, C.  
 E., 4.  
 North America, algae: Fenton, C. L., 2.  
 Cephalopoda: Miller, A. K., 7.  
 Pleospongia: Okulitch, V. J., 2.  
 Trilobita: Resser, C. E., 5.  
 Pennsylvania, Bucks Co. faunas and floras:  
 Howell, B. F., 14.  
 Reading, Skolithos, Planolites burrows:  
 Howell, B. F., 16.  
 Quebec, Gaspé fauna: Kindle, C. H., 2.  
 Potsdam Coelenterate?: Tremblay, P., 1.  
 Sponges: Howell, B. F., 10.  
 Tennessee, Rome, Rutledge fms., Watts  
 Bar Dam: Fox, P. P., 3.  
 United States, Trilobita revision: Raasch,  
 G. O., 1.  
 Virginia, silicified Trilobita: Mosheim, L.  
 P., 1.  
 Wyoming, Laotira: Caster, K. E., 1.

## Carboniferous.

- Alabama, Ampelocrinus, Upper Missn.:  
 Kirk, E., 2.  
 Anthozoa, Missn.: Easton, W. H., 4.  
 Ammonoids, late Paleozoic, siphuncle:  
 Miller, A. K., 5.

## Paleontology—Continued.

## Carboniferous—Continued.

- Ancient life: Sánchez Roig, M., 1.  
 Arizona, Missn. corals: Gutschick, R. C., 10.  
 Arkansas, Pitkin fms. fauna: Easton, W. H., 3.  
 British Columbia, Missn. *Eostenopora*? : Fritz, M. A., 2.  
 Colorado, Paleozoic plants: Arnold, C. A., 3.  
   *Walchia*, Invertebrata: Elias, M. K., 3.  
 Conocardium, homonyms correction: Branson, C. C., 4.  
 Conodonts, Lower Missn., Mont., Alberta: Cooper, C. L., 4.  
 Corals, Ala., Tenn.: Easton, W. H., 7.  
 Faunal index, pelmatozoan echinoderms: Bassler, R. S., 2.  
 Faunas, Penn. invertebrate, Ky., Tenn., W. Va.: Summerson, C. H., 1.  
 Geologic importance, calcareous algae: Johnson, J. H., 4.  
 Greenland, Paleoniscids: Moy-Thomas, J. A., 1.  
 Haplolepididae: Westoll, T. S., 2.  
 Illinois, Chester Bryozoa: McFarlan, A. C., 1.  
 Coal-ball flora: Andrews, H. N., Jr., 2, 10.  
 Glen Dean ls. microfauna: Coryell, H. N., 1.  
 Heterangium: Andrews, H. N., Jr., 4.  
 Imitoceras: Miller, A. K., 2.  
 Lepidocarpon: Andrews, H. N., Jr., 3; Pannell, E., 2.  
 Lepidodendron: Pannell, E., 1.  
 Mycorrhizome: Andrews, H. N., Jr., 7.  
 Old Ben mine filicean fructifications: Andrews, H. N., Jr., 9.  
 Pennsylvanian, Carlinville quad.: Ball, J. R., 4.  
   Conodonts: Du Bois, E. P., 1.  
   Fossil zones: Wilson, G. M., 1.  
   Fusulinidae: Dunbar, C. O., 6.  
 Stipitopteris: Lenz, L. W., 1.  
 Warsaw geodes with bituminous matter: Robertson, P., 1.  
 Indiana, coal-ball floral: Benninghoff, W. S., 2.  
   *Lepidostrobus*, Penn.: Hoskins, J. H., 2.  
   Upper Missn. *Gyracanthus*: Wells, J. W., 10.  
 Iowa, Angus coal microfossils: Wilson, L. R., 9.  
 Bowmanites (*Sphenophyllales*): Hoskins, J. H., 4.  
 Coal floral: Hoskins, J. H., 5.  
 Flowering plants: Keyes, C. R., 3.  
 Lycopod leaves with *Lepidodendron* in coal balls: Wilson, L. R., 3.  
 Pennsylvanian spores: Wilson, L. R., 8.  
   Bearing elater: Wilson, L. R., 7.  
*Sphenophyllostachys* in coal balls: Hoskins, J. H., 1.  
*Zygotoecrinus*: Kirk, E., 5.

## Paleontology—Continued.

## Carboniferous—Continued.

- Kansas, Haskell ls. nodules: Bridwell, A., 1.  
   Corals, Penn.: Jeffords, R. M., 1.  
 Spongiae: King, R. H., 1.  
 Kentucky, *Ampelocrinus*, Upper Missn.: Kirk, E., 2.  
   Chester Bryozoa: McFarlan, A. C., 1.  
 Limestones formed by plants: Johnson, J. H., 6.  
 Magdalena group fauna, N. Mex.: Bisbee, W. A., 1.  
 Montana, conodonts, Heath fm.: Scott, H. W., 2.  
   Kinderhook conodonts: Hass, W. H., 1.  
   Ostracoda, Missn.: Scott, H. W., 1.  
   Siliceous sponge spicules: Scott, H. W., 5.  
 Nautiloidea, paleoecology: Flower, R. H., 3.  
 Nebraska, Upper Penn. *Corynotrypa*: Condra, G. E., 3.  
 New Mexico, Caninia: Jeffords, R. M., 2.  
 Cephalopoda, Penn.: Young, J. A., Jr., 1.  
 Mizzia, Perm.: Johnson, J. H., 1.  
 Scaphopoda, Penn.: Young, J. A., Jr., 1.  
 North America, coal-age forests: Janssen, R. E., 1.  
   Bryozoa, ctenostomatous: Condra, G. E., 2.  
 Crinoidea: Moore, R. C., 9.  
 Lithostrotiontidae: Kelly, W. A., 1.  
 Paleozoic fish: Romer, A. S., 1.  
 Pelecypoda: Schenck, H. G., 6.  
 Nova Scotia, algal lss.: Wood, A., 2.  
 Ohio coal spores: Hoskins, J. H., 6.  
   Pennsylvanian fossils in coal: Kosanke, R. M., 2.  
   Pittsburgh and Pomeroy coal plants: Kosanke, R. M., 1.  
 Oklahoma, *Megaliocrinus*: Moore, R. C., 8.  
 Pennsylvanian Blastoidea: Moore, R. C., 5.  
   Corals: Jeffords, R. M., 1.  
   *Metacatillocrinus*: Moore, R. C., 4.  
   Seminole fm. conodonts: Jonas, D., John, 1.  
   *Spirifer occidentalis* Girty: Foster, C. L., 1.  
 Oregon, cent., late Paleozoic fms.: Merriam, C. W., 3.  
   Corals: Merriam, C. W., 1.  
 Ostracoda, non-marine Penn., S. Appalachians: Scott, H. W., 6.  
   Paleozoic: Cooper, C. L., 1.  
 Paleoecology of faunas: Williams, J. S., 1.  
 Pennsylvania, Brush Creek ls. fauna: Seaman, D. M., 1.  
 Redwall ls. fauna, Ariz.: Gutschick, R. C., 2.  
 South Dakota, Black Hills graptolites: Ruedemann, R., 5.  
 Tennessee, Missn. Anthozoa: Easton, W. H., 4.

## Paleontology—Continued.

*Carboniferous*—Continued.

- Texas, coal ball flora: Reed, F. D., 1.  
 Edaphosaurus: Shuler, E. W., 1.  
 Edops, red beds: Homer, A. S., 2.  
 Mizzia, Perm.: Johnson, J. H., 1.  
 Ostracoda moulting in Ectodermes:  
 Cooper, C. L., 8.  
 Synbathocrinus, Missn.: Moore, R. C., 6.  
 Triceracrinus: Bramlette, W. A., 1.  
 United States, Midwest Penn. Hederella:  
 Condra, G. E., 5.  
 Fusulinids, Penn.: Thompson, M. L., 1.  
 Mississippi Valley corals: Easton, W.  
 H., 6.  
 Mytilacea Pelecypoda: Newell, N. D., 2.  
 Productidae: Sutton, A. H., 1.  
 Rhopocrinus: Kirk, E., 1.  
 Sarocrinus: Kirk, E., 3.  
 Southwest, Reptilia, Amphibia mounts:  
 Romer, A. S., 3.  
 Triticites: Burma, B. H., 1.  
 Utah, Palaeocoryne attached to Fenestella:  
 Elias, M. K., 5.  
 Rhombotrypella, Penn.: Condra, G. E., 6.  
 West Virginia, Powellton coal flora: Cross,  
 A. T., 2.

*Cretaceous*.

- Age of flowering plants: Berry, E. W., 2.  
 Alberta, fossil starfish: McLearn, F. H., 5.  
 Leidyosuchus: Mook, C. C., 3.  
 Ammonites, Mesozoic, morphologic types  
 and cycles: Haas, O. M. H., 2.  
 Arkansas, Foraminifera: Cushman, 2.  
 Barbados: Renz, H. H., 1.  
 California, Acila princeps: Schenck, H.  
 G., 4.  
 Baculites—N: Nauss, A. W., 1.  
 Foraminiferal zones: Goudkoff, P. P., 2.  
 Franciscan ls., Mendocino Co.: Thal-  
 mann, H. E., 8.  
 Globotruncana: Thalmann, H. E., 6.  
 Mososaurs: Camp, C. L., 3.  
 North Santa Ana Mts.: Popenoe, W.  
 P., 3.  
 Plesiosaur: Stock, C., 1.  
 Radiolaria, Tesla quad.: Campbell, A.  
 S., 1.  
 Southern Calif.: Popenoe, W. P., 1.  
 Canada, Gaudryina: Cushman, 2.  
 Inoceramus: McLearn, F. H., 3, 4.  
 Parasaurolophus crest: Russell, L. S., 4.  
 Thyasira: Brown, R. A. C., 1.  
 Central American turtles and fauna:  
 Simpson, G. G., 8.  
 Colorado, Denver Basin: Brown, R. W.,  
 4.  
 Conocardium, homonyms correction: Bran-  
 son, C. C., 4.  
 Cuba, Lockhartia: Cole, W. S., 2.  
 Fauna, Asphalt Ridge, Utah: Tolmachoff,  
 I. P., 1.  
 Fish scales as index fossils: David, L.  
 R., 2.  
 Florida, well studies: Cole, W. S., 1.

## Paleontology—Continued.

*Cretaceous*—Continued.

- Flying reptiles: Brown, B., 3.  
 Fredericksburg-Washita boundary, Tex.:  
 Lozo, F. E., Jr., 1.  
 Globotruncana, index fossils, Kans., Tex.:  
 Thalmann, H. E., 5.  
 Greenland, E., Belemnites: Swinnerton,  
 H. H., 1.  
 Kansas, amber: Schoewe, W. H., 1.  
 Cycadeoids: Wieland, G. R., 1.  
 Ichthyriapus, Logan Co.: Hibbard,  
 C. W., 5.  
 Mammal tracks: Robertson, G. M., 1.  
 Limestones formed by plants: Johnson, J.  
 H., 6.  
 Mammals, relationships of orders: Mat-  
 thew, W. D., 1.  
 Manitoba, sea urchin: Leith, E. I., 3.  
 Maryland, Cupressinoxylon with teredo  
 borings: Anonymous, 28.  
 Mexico, crab: Stenzel, H. B., 3.  
 Foraminifera, Ostracoda, San Juan  
 Raya: Lozo, F. E., Jr., 2.  
 ?Xylobius, myriapod, Puebla: Muller-  
 ried, 7.  
 Microfauna, Grayson fm., Okla., Tex.:  
 Tappan, H. N., 2.  
 Mississippi, foraminiferal zones: Pierce,  
 G. R., 1.  
 Missouri, dinosaur: Branson, E. B., 4.  
 Montana, Leptoceratops: Brown, B., 1.  
 New Jersey, Hamulus, Falcula, other  
 Tubicola: Howell, B. F., 15.  
 Mollusca: Richards, H. G., 4.  
 Raritan fm.: Richards, H. G., 7.  
 New Mexico, Albian amonite, Mt. Taylor:  
 Haas, O. M. H., 3.  
 Chaco Canyon fauna: Vann, R. P., 1.  
 North America, elasmosaurid plesiosaurs:  
 Welles, S. P., 1.  
 Fauna, geol. background: Williams,  
 M. Y., 2.  
 Fish: Dante, J. H., 1.  
 Hadrosaurian dinosaurs: Lull, R. S., 2.  
 Pacific slope Arcidae: Reinhart, P.  
 W., 1.  
 Troodont dinosaurs: Brown, B., 4.  
 Type fossils, Cypraeidae: Ingram, W.  
 M., 1.  
 Oklahoma, Texas, Foraminifera: Tappan,  
 H. N., 1.  
 Pacific Coast, U. S., corals: Durham,  
 J. W., 4.  
 Plants, Cent. Am., West Indies: Berry,  
 E. W., 1.  
 Pullenia, genus and species: Cushman, 2.  
 Reptiles, flying: Brown, B., 3.  
 Saskatchewan, Eastend fm. fauna: Russell,  
 L. S., 2.  
 Inoceramus: Douglas, R. J. W., 1.  
 Scleractinia corals: Vaughan, T. W., 4.  
 South Carolina, Exogyra costata zone,  
 Horry Co.: Berry, E. Willard, 3.

## Paleontology—Continued.

## Cretaceous—Continued.

- Texas: Evans, G. L., 1.  
 Austinaster: Chelf, C. R., 5.  
 Corsicana marl Foraminifera: Cushman, 2.  
 Crinoidea: Peck, R. E., 1.  
 Cytheropteron, Eocytheropteron, Washita ser.: Garrison, M. E., 1.  
 Decapod Crustacea: Stenzel, H. B., 2.  
 Denton fm. Foraminifera: Vieaux, D. G., 1.  
 Dinosaur tracks near Comanche: Albritton, C. C., Jr., 1.  
 Eagle Ford group fauna: Moreman, W. L., 1.  
 Foraminifera: Tappan, H. N., 1.  
 Foraminifera, Cuchillo fm., Quitman Mts.: Lozo, F. E., Jr., 3.  
 Mosasaurs: McAnulty, W. N., 1.  
 Ostracoda: Lozo, F. E., Jr., 3.  
 Vertebrata: Hesse, C. J., 3.  
 Washita group Cythereis: Awbrey, E., 1.  
 Xiphactinus: Chelf, C. R., 4.  
 Texas-Oklahoma, Foraminifera: Tappan, H. N., 1.  
 Trinidad: Renz, H. H., 1.  
 United States, fossil cycads: Lee, H. E., 1.  
 Macrofossils, Atlantic Coastal Plain wells: Richards, H. G., 5.  
 Rocky Mtn. area floras: Dorf, 1.  
 Southwest, faunas: Camp, C. L., 5.  
 Utah, Asphalt Ridge fauna: Tolmachoff, I. P., 1.  
 Lizards: Gilmore, C. W., 4.  
 Pinacosuchus: Gilmore, C. W., 2.  
 Polyglyphanodon: Gilmore, C. W., 1.  
 Wyoming, Araucarioxylon: Andrews, H. N., Jr., 5.  
 Lance fm. type locality flora: Dorf, 1.  
 Tempaskya: Andrews, H. N., Jr., 6.

## Devonian.

- Ammonoids, late Paleozoic, siphuncle: Miller, A. K., 5.  
 Ancient life: Sánchez Roig, M., 1.  
 Appalachians, north middle: Swartz, F. M., 1.  
 Arizona, fauna: Keyes, 28.  
 Fish: Hussakof, L., 1.  
 Brachiopoda, terebratuloid: Cloud, P. E., Jr., 2.  
 Canada, Spirifer argentarius Rocky Mtn. fauna: Warren, P. S., 1.  
 Conocardium, homonyms correction: Branson, C. C., 4.  
 Faunal index, pelmatozoan echinoderms: Bassler, R. S., 2.  
 Faunas, Dev., W. Va.: Woodward, H. P., 2.  
 Fortune fm. SW. Mo.: Grohskopf, J. F., 1.  
 Idaho, Three Forks fauna in Lost River Range: Baldwin, E. M., 1.  
 Indiana: Campbell, G., 1.  
 Iowa, cave deposit plants: Wilson, L. R., 1.

## Paleontology—Continued.

## Devonian—Continued.

## Iowa—Continued.

- Cedar Valley ls. Brachiopoda: Stainbrook, M. A., 1.  
 Spiriferacea: Stainbrook, M. A., 1.  
 Strophomenacea: Stainbrook, M. A., 8.  
 Foraminifera: Cushman, 2.  
 Ostracoda: Cooper, C. L., 7.  
 Michigan, Prismatophyllum growth-rate: Faul, H., 1.  
 Missouri, fish: Branson, E. B., 3.  
 Fortune fm.: Grohskopf, J. F., 1.  
 Nautiloidea, paleoecology: Flower, R. H., 3.  
 Newfoundland, plants: Dorf, E., 3.  
 New Mexico, Bryozoa: Fritz, M. A., 3.  
 New York, Ancyrocrinus: Goldring, W., 1;  
 Lowenstam, H. A., 1.  
 Arthrodiran fish plates: Wells, J. W., 4.  
 Blastoids, Devonoblastus: Reimann, I. G., 2.  
 Conodonts: Hibbard, R. R., 1.  
 Esopus grit fauna: Howell, B. F., 5.  
 Ferns: Arnold, C. A., 1.  
 Hamilton corals: Busch, D. A., 2.  
 Hamilton phyllocarids: Reimann, I. G., 3.  
 Highland Mills fossils: Woldstein, H. R., 1.  
 High Point ss. Brachiopoda: Stainbrook, M. A., 2.  
 Holonema: Wells, J. W., 6.  
 Hyenia: Arnold, C. A., 2.  
 Machaeracanthus: Carter, A. L., 1.  
 Nautiloids: Flower, R. H., 8.  
 Onondaga chert flora: Baschnagel, R. A., 1.  
 Paratyctodus: Carter, A. L., 2.  
 Schoharie, Esopus fms.: Goldring, W., 2.  
 North America, Conocardiidae: Branson, C. C., 2.  
 Crinoidea: Moore, R. C., 9.  
 Leperditacea: Warthin, A. S., 1.  
 Paleozoic fish: Romer, A. S., 1.  
 Ohio, Astraeospongia: Wells, J. W., 7.  
 Fish, Cincinnati arch area: Wells, J. W., 9.  
 Holdenius: Dunkle, D. H., 3.  
 Olentangy sh.: Baker, R. C., 1.  
 Prout ls.-Plum Brook sh. corals: Stumm, E. C., 1.  
 Titanichthys infero-gnathal plates: Dunkle, D. H., 1.  
 Ostracoda, Paleozoic: Cooper, C. L., 1.  
 Plectodiscus, N. Y.: Caster, K. E., 2.  
 Quebec, Conularia: Sinclair, G. W., 2.  
 Helderberg faunas: Clark, T. H., 1.  
 Titanichthys, inferognathal plates: Dunkle, D. H., 1.  
 United States, Bryozoa: McNair, A. H., 1.  
 Southwest, faunas: Camp, C. L., 5.  
 Vermont, Paleozoic revision: Doll, C. G., 2.  
 Spirifer in mica schist, South Strafford: Doll, C. G., 3.



## Paleontology—Continued.

*Jurassic.*

- Ammonites, Mesozoic, morphologic types and cycles: Haas, O. M. H., 2.  
 Ancient life: Sánchez Roig, M., 1.  
 Arkansas, Anthozoa, Smackover ls.: Wells, J. W., 1.  
 California, Coast Ranges: Taliaferro, 5.  
 Ichthyosaurus: Camp, C. L., 1.  
 Colorado, Amphicotylus: Mook, C. C., 1.  
 Leptolepis: Dunkle, D. H., 2.  
 Unio, Grand River Valley: Holt, E. L., 1.  
 Cuba, Luisichthys: White, T. E., 2.  
 Viñales ls. fauna: Imlay, R. W., 2.  
 Gulf region, N., Cent. Am.: Imlay, R. W., 5.  
 Limestones formed by plants: Johnson, J. H., 6.  
 Mammals, relationships of orders: Matthew, W. D., 1.  
 Mexico, ammonites: Imlay, R. W., 4.  
 Plants, Cent. Am., West Indies: Berry, E. W., 1.  
 Scleractinia corals: Vaughan, T. W., 4.  
 Texas, Trilophosaurus: Gregory, J. T., 3.  
 United States, fossil cycads: Lee, H. E., 1.  
 Southwest faunas: Camp, C. L., 5.  
 Wyoming, Astropecten: Miller, A. K., 6.  
 Coral: Wells, J. W., 2.

*Ordovician.*

- Ancient life: Sánchez Roig, M., 1.  
 Black River fms., N. Y., Ontario: Young, F. P., Jr., 1.  
 Canada, Archaeoconularia and Eoconularia: Sinclair, G. W., 7.  
 Montreal, Trenton Apsidoceras: Flower, R. H., 5.  
 Conocardium, homonyms correction: Branson, C. C., 4.  
 Edriasterids: Sinclair, G. W., 6.  
 Fauna, Stony Mtn. fm., Manitoba: Okulitch, V. J., 3.  
 Faunal index, pelmatozoan echinoderms: Bassler, R. S., 2.  
 Illinois, Chester Ostracoda: Cooper, C. L., 3.  
 Foerstediscus: Branson, C. C., 1.  
 Indiana, Cyrtoceras: Flower, R. H., 7.  
 Iowa, Maquoketa sh. plates: Spivey, R. C., 1.  
 Geologic importance, calcareous algae: Johnson, J. H., 4.  
 Kentucky, conodont sequence: Branson, E. B., 2.  
 Cynthiana fm. Cephalopoda: Flower, R. H., 1.  
 Limestones formed by plants: Johnson, J. H., 6.  
 Machaeridia-Cirripedia-Echinoderms: Ruedemann, R., 3.  
 Manitoba, Halysites: Leith, E. I., 4.  
 Lambeoceras: Leith, E. I., 2.  
 Mississippi Valley, U. S., Receptaculitidae: Howell, B. F., 9.

## Paleontology—Continued.

*Ordovician—Continued.*

- Montana, conodonts: Amsden, T. W., 1.  
 Nautiloidea, paleoecology: Flower, R. H., 3.  
 Nevada, Trilobita: Holliday, S., 1.  
 Newfoundland, Alsataspis: Kindle, C. H., 1.  
 Trichinocrinus: Moore, R. C., 8.  
 New York, Archaeolafoea, Chonetidae: Howell, B. F., 12.  
 Eurypterids: Ruedemann, R., 2.  
 Graptolites: Howell, B. F., 3.  
 Machaeridia: Ruedemann, R., 3.  
 Medusae-graptus: Ruedemann, R., 2.  
 Plankton: Ruedemann, R., 4.  
 Schodackia: Ruedemann, R., 2.  
 Snake Hill fauna: Howell, B. F., 4.  
 Teganium sponge: Ruedemann, R., 2.  
 North America, Algae: Fenton, C. L., 2.  
 Brevicones: Ulrich, E. O., 4.  
 Cephalopoda: Miller, A. K., 7.  
 Crinoidea: Moore, R. C., 9.  
 Mohawkian Rafinesquinae: Salmon, E. S., 1.  
 Nautilicones: Ulrich, E. O., 1.  
 Ohio, Cephalopoda, Cincinnati area: Flower, R. H., 9.  
 Trilobita, color markings: Wells, J. W., 5.  
 Oklahoma, Bromide fm. Bryozoa: Loeblich, A. R., Jr., 1.  
 Conodonts: Branson, E. B., 1.  
 Cystidean echinoderms: Bassler, R. S., 4.  
 McLish fm. Bryozoa: Loeblich, A. R., Jr., 1.  
 Microcrinoid: Croneis, C. G., 6.  
 Simpson graptolites: Decker, C. E., 6.  
 Ontario, age of Trenton crinoid beds: Sinclair, G. W., 5.  
 Erindale scolecodonts, Streetsville: Eller, E. R., 1.  
 Trilobita: Okulitch, V. J., 1.  
 Ostracoda, Paleozoic: Cooper, C. L., 1.  
 Palaeoscia, Ohio: Caster, K. E., 2.  
 Pennsylvania, clastic sed. rocks: Willard, B., 3.  
 Quebec, Chazy Conularia: Sinclair, G. W., 3.  
 Girvanella: Lewis, H. P., 1.  
 Oldhamia, Gaspé: Ruedemann, R., 2.  
 Trilobita: Okulitch, V. J., 1; Rasetti, F., 1.  
 Radiolarian chert, N.Y.: Ruedemann, R., 4.  
 South Dakota, Viola well core: Decker, C. E., 2.  
 Texas, graptolites: Decker, C. E., 5.  
 United States, Appalachians, Brachiopoda: Ulrich, E. O., 2.  
 Chitinozoa: Cooper, C. L., 6.  
 Virginia, Martinsburg fm., Massanutten Mtn.: Seerist, M. H., 2.  
 Tazewell Co.: Cooper, B. N., 1.  
 Wyoming, Cephalopoda, Bighorn Mts.: Miller, A. K., 3.

## Paleontology—Continued.

*Paleozoic, undifferentiated.*

- Gastropoda genotypes: Dunbar, C. O., 2.  
 Nautiloidea: Flower, R. H., 6.  
 Ostracoda, index since 1934: Agnew, A. F., 1.  
 Paleogeology of faunas: Williams, J. S., 1.  
 Spore genera: Schopf, J. M., 2.

*Permian.*

- Ammonoid zones, Perm.: Miller, A. K., 5.  
 Ammonoids, late Paleozoic, siphuncle: Miller, A. K., 5.  
 Arizona, Bryozoan-algal consortium: Condra, G. E., 4.  
 Kaibab fm. fish: Hussakof, L., 2.  
 Colorado, Paleozoic plants: Arnold, C. A., 3.  
 Faunal index, pelmatozoan echinoderms: Bassler, R. S., 2.  
 Geologic importance, calcareous Algae: Johnson, J. H., 4.  
 Greenland, fish-bearing strata: Westoll, T. S., 1.  
 Kansas, Crinoidea: Byrne, F. E., 1.  
 Insecta: Carpenter, F. M., 1.  
 Ostracoda: Kellett, B., 1.  
 Spongiae: King, R. H., 1.  
 Limestones formed by plants: Johnson, J. H., 6.  
 Montana, Phosphoria fm. Fusulinidae: Frenzel, H., 1.  
 Nautiloidea, paleogeology: Flower, R. H., 3.  
 New Mexico, lime-secreting algae: Johnson, J. H., 2.  
 North America, Crinoidea: Moore, R. C., 9.  
 Ctenostomatous Bryozoa: Condra, G. E., 2.  
 Fusulinids: Thompson, M. L., 3.  
 Paleozoic fish: Romer, A. S., 1.  
 Pelecypoda: Schenck, H. G., 6.  
 Tetrapoda: Watson, D. M. S., 1.  
 Oregon, corals: Merriam, C. W., 1.  
 Late Paleozoic fms.: Merriam, C. W., 3.  
 Ostracoda, Paleozoic: Cooper, C. L., 1.  
 Texas, animal burrows: Ray, C. N., 3.  
 Brachiopoda: Cooper, G. A., 3.  
 Cribrogenerina: Cushman, 2.  
 Dimetrodon: Sternberg, C. W., 1.  
 Edops, red beds: Romer, A. S., 2.  
 Fish-bearing strata: Westoll, T. S., 1.  
 Fossil replacements, Finlay Mts.: Ham, W. O., Jr., 1.  
 Mabelle Draw area: Read, W. F., 1.  
 Ostracoda: Hamilton, I. B., 1; Kellett, B., 1.  
 Triceraacrinus: Bramlette, W. A., 1.  
 Vertebrates: Hesse, C. J., 3.  
 United States, faunas, Leonard ser.: Clifton, R. L., 1.  
 Southwest, Amphibia, Reptilia mounts: Romer, A. S., 3.  
 Southwestern faunas: Camp, C. L., 5.  
 Western, nautiloids: Miller, A. K., 4.

## Paleontology—Continued.

*Permian—Continued.*

- Wyoming, Chugwater fm. footprints: Lull, R. S., 1.  
 Fish-bearing strata: Westoll, T. S., 1.

*Pre-Cambrian.*

- Ancient life: Sánchez Roig, M., 1.  
 North America, algae: Fenton, C. L., 2.  
 Longicone Cephalopoda: Ulrich, E. O., 3.

*Quaternary.*

- Age of flowering plants: Berry, E. W., 2.  
 Alaska, invertebrates, buried beaches, Nome: MacNeil, F. S., 1.  
 Megalonyx: Stock, C., 2.  
 Nome, buried beaches faunas: MacNeil, F. S., 1.  
 Pleistocene Citellus: Hill, J. E., 1.  
 Ancient life: Sánchez Roig, M., 1.  
 Antilocaprinae, Pleist, Ariz., Nebr.: Skinner, M. F., 1.  
 Arizona, Papago Springs Cave fauna: Skinner, M. F., 1.  
 Rampart Cave fauna: Wilson, R. W., 1.  
 Vertebrata: Gazin, C. L., 1.  
 British Columbia, Mammalia: Cowan, I. M., 1.  
 California, avifauna, Lower Klamath Lake: DeMay, I. S., 1.  
 Cathartine vultures: Miller, L. H., 3.  
 Coast, Pleist. Ostracoda: LeRoy, L. W., 1.  
 Fossil birds: Miller, L. H., 2.  
 Laticarimina, Pleist.: Cushman, 2.  
 Pleist., Aves: Miller, L. H., 5.  
 Bison: VanderHoof, V. L., 1.  
 Gyrulus: Baker, F. C., 1.  
 Tortoise, McKittrick asphalt: Miller, L. H., 4.  
 Canada, Folsom, Bison occurrence: Eiseley, L. C., 3.  
 Central American turtles and fauna: Simpson, G. G., 8.  
 Colorado, Folsom, Yuma man: Wormington, H. M., 2.  
 Colorado Mus. Nat. History: Bailey, A. M., 1.  
 Connecticut, Bosmina: Austin, T. S., 1.  
 Linsley Pond diatoms: Patrick, R. M., 1.  
 Costa Rica, Burica Pen. Mollusca: Olsson, A. A., 2.  
 Cuba, Pleist. Mollusca: Jaume, M. L., 1.  
 Echinodermata, N. Atlantic deep-sea cores: Clark, A. H., 1.  
 El Salvador, Pleist. Vertebrata: Stirton, R. A., 3.  
 Florida, Pleist. man: Cooke, C. W., 5.  
 Fossils in Colorado Museum: Markman, H. C., 1.  
 Honduras, Mammalia, Reptilia: McGrew, P. O., 1.  
 Illinois, Oreohelix: Morrison, J. P. E., 1.  
 Indiana, bog pollen studies: Keller, C. O., 1.

Paleontology—Continued.

Quaternary—Continued.

- Iowa, Peorian loess fossils: Cameron, C. C., 1.
- Pleist. mosses: Steere, W. C., 1.
- Kansas, Pleist., *Ambystoma*: Tihen, J. A., 1.
- Emys, turtle: Taylor, E. H., 3.
- Etadonomys*: Hibbard, C. W., 6.
- Mammalia: Hibbard, C. W., 6.
- Terrace: Frye, J. C., 3.
- Pliocene toads and frogs, Meade Co.: Taylor, E. H., 1.
- Rezabek fauna, Pleist., Lincoln Co.: Hibbard, C. W., 7.
- Sanborn fm.: Leonard, A. B., 1.
- Kentucky, ancient horses: Young, D. M., 1.
- Limestones formed by plants: Johnson, J. H., 6.
- Mammals, relationships of orders: Matthew, W. D., 1.
- Maples, supposed, are sycamores: Brown, R. W., 2.
- Mexico, Pleist. birds: Miller, L. H., 1, 6.
- San Josecito Cave fauna: Stock, C., 4.
- Stockeros, Pleist. antelope: Furlong, E. L., 2.
- Minnesota, Pleist. fungi: Rosendahl, C. O., 1.
- Mollusca, N. Atlantic deep-sea cores: Rehder, H. A., 1.
- New England, S., pollen analyses: Deevey, E. S., Jr., 1.
- New Jersey, post-glacial bog pollen: Potzger, J. E., 3.
- New Mexico, fossil marmot: Stearns, C. E., 1.
- North America, ancient man: Wormington, H. M., 1.
- Bison *taylori* extinction: Eiseley, L. C., 1.
- Cochise-Mogollon-Hohokam sequence: Haury, E. W., 1.
- Fauna, geol. background: Williams, M. Y., 2.
- Fossil storks: Howard, H., 1.
- Pacific Coast *Elphidium*: Nicol, D., 1.
- Pacific slope *Arcidae*: Reinhart, P. W., 1.
- Post-glacial forest migration: Sears, P. B., 1.
- North Carolina, abnormal *Busycon* shells: Smith, B., 1.
- Oregon, lake sediment pollens: Hansen, H. P., 3.
- Panama, Burica Pen. Mollusca: Olsson, A. A., 2.
- Pollen profiles, extinct lake, Ind.: Potzger, J. E., 6.
- Pullenia*, genus and species: Cushman, 2.
- Rampart Cave fauna, Ariz.: Wilson, R. W., 1.
- San Salvador, Pleist. Vertebrata: Stirton, R. A., 3.
- Saskatchewan, Pleist. horse teeth: Russell, L. S., 1.
- Scleractinia* corals: Vaughan, T. W., 4.

Paleontology—Continued.

Quaternary—Continued.

- Texas, artifacts and mammoth's teeth, McLean: Ray, C. Y., 4.
- Great Pleist. wolf: Sellards, E. H., 4.
- Pleistocene, *Bootherium*: Hesse, C. J., 2.
- Capromeryx*: Meade, G. E., 1.
- Ground sloths: McAnulty, W. N., 2.
- Vertebrates: Hesse, C. J., 3.
- Trinidad: Renz, H. H., 1.
- Washington, pollen study Orcas Is. bogs: Hansen, H. P., 8.
- West Indies, Mammalia: Kellogg, A. R., 1, 2.
- Wisconsin, bog pollen studies: Potzger, J. E., 4.
- Butternut and hickory nut post-Pleist. range: Wilson, L. R., 5.
- Crystal Lake and bog plant microfossils: Wilson, L. R., 6.
- Microfossils in bogs: Wilson, L. R., 2.

Silurian.

- Ancient life: Sánchez Roig, M., 1.
- Appalachians, N. middle: Swartz, F. M., 1.
- Brachiopoda, terebratuloid: Cloud, P. E., Jr., 2.
- Faunal index, pelmatozoan echinoderms: Bassler, R. S., 2.
- Illinois, Chicago Niagaran fauna: Lowenstam, H. A., 2.
- Mississippi Basin, Foraminifera: Dunn, P. H., 1.
- Mississippi Valley, U. S., *Receptaculitidae*: Howell, B. F., 9.
- Nautiloidea, paleoecology: Flower, R. H., 3.
- New York, Clinton Cephalopoda: Flower, R. H., 2.
- North America, Crinoidea: Moore, R. C., 9.
- Nova Scotia, Cephalopoda: Flower, R. H., 4.
- Ohio, Niagaran Crinoidea: Busch, D. A., 1.
- Niagaran Cystoidea: Busch, D. A., 1.
- Ontario, Pseudoconularia and *P. magifica*: Sinclair, G. W., 1.
- Ostracoda, Paleozoic: Cooper, C. L., 1.
- Tennessee, Palaeomanon: Howell, B. F., 7.
- Texas, graptolite zone: Decker, C. E., 3.
- United States, Chitinozoa: Cooper, C. L., 6.
- West Virginia: Woodward, H. P., 1.
- Wisconsin, Niagaran Ostracoda: Gutschick, R. C., 1.

Tertiary.

- Age of flowering plants: Berry, E. W., 2.
- Alabama, Foraminifera, Naheola fm.: Cushman, 2.
- Glendon fm. fauna: Howe, H. V., 1.
- Oligocene Foraminifera: Cushman, J. A., 1.
- Alaska, invertebrates, buried beaches, Nome: MacNeil, F. S., 1.
- Beaches, buried, Nome, fauna: MacNeil, F. S., 1.

## Paleontology—Continued.

## Tertiary—Continued.

- Ancient life: Sánchez Roig, M., 1.  
 Antigua, corals: Thomas, H. D., 1.  
 Arizona, Miocene swan: Wetmore, A., 2.  
 Artiodactyla, Oligocene, endocranial anatomy: Whitmore, F. C., Jr., 1.  
 Barbados: Renz, H. H., 1.  
   Foraminifera, Eocene: Vaughan, T. W., 5.  
 California, Cathartine vultures: Miller, L. H., 3.  
   Coast, Pliocene Ostracoda: LeRoy, L. W., 1.  
   Corals, Eocene: Benton, H., 2.  
   Eocene, Dictyoconus: Cushman, 2.  
   Foraminifera, type Lodo fm.: Martin, L. T., 1.  
   Gastropoda: Clark, B. L., 1.  
   Reef corals: Durham, J. W., 3.  
   Foraminifera: Adams, B. C., 1; Martin, L. T., 1; Rothwell, W. T., Jr., 1.  
   As index fossils: Adams, B. C., 1.  
   Fossil birds: Miller, L. H., 2.  
   Kreyenhagen fm. Radiolaria, Los Banos: Clark, B. L., 4.  
   Kreyenhagen sh., Garza Creek: Cushman, J. A., 3.  
   Miocene, fish: David, L. R., 1.  
   Mollusca: Woodring, W. P., 1.  
   Mollusca, Round Mtn. silt: Keen, A. M., 1.  
   Sea lion: Lyon, G. M., 1.  
   Orinda fm. fauna: Richey, K. A., 1.  
   Pliocene Grus: Miller, A. H., 2.  
   Potrero Hills gas field: Tolman, F. B., 1.  
   Radiolaria, Eocene, San Joaquin Valley: Clark, B. L., 3.  
   Superjacent ser. Vertebrata: Stirton, R. A., 1.  
   Vaqueros fm. age: Schenck, H. G., 2.  
 Central American turtles and fauna: Simpson, G. G., 3.  
 Colorado, Denver Basin: Brown, R. W., 4.  
   Florissant Cerambycidae: Linsley, E. Gorton, 1.  
   Oligocene Buteo: Miller, A. H., 1.  
   Oligocene roses: Resser, C. E., 1.  
   Osmylidae of Florissant shs.: Carpenter, F. M., 2.  
 Paleocene Barylambda: Patterson, B., 2.  
 Colorado Mus. Nat. History: Bailey, A. M., 1.  
 Corals, Barbados, Martinique: Wells, J. W., 8.  
 Costa Rica, Amoura sh.: Goudkoff, P. P., 1.  
   Burica Pen. Mollusca: Olsson, A. A., 2.  
   Miocene Mollusca: Haas, O. M. H., 1.  
 Fish scales as index fossils: David, L. R., 2.  
 Florida, birds: Wetmore, A., 3.  
   Eocene Foraminifera in borings: Douvillé, H., 1.  
   Holmes Co.: Vernon, R. O., 1.

## Paleontology—Continued.

## Tertiary—Continued.

## Florida—Continued.

- Miocene Mammalia: White, T. E., 1.  
 Washington Co.: Vernon, R. O., 1.  
 Well studies: Cole, W. S., 1.  
 Fossils in Colorado Museum: Markman, H. C., 1.  
 Geologic importance, calcareous algae: Johnson, J. H., 4.  
 Honduras, Mammalia, Reptilia: McGrew, P. O., 1.  
 Kansas, Oligocene Leporidae: Green, M., 1.  
   Pliocene, Citellus: Hibbard, C. W., 2.  
   Eucaster: Hibbard, C. W., 1.  
   Fundulus: Hibbard, C. W., 4; Robertson, G. M., 2.  
   Waterhole with tracks: Sternberg, G. F., 1.  
 Limestones formed by plants: Johnson, J. H., 6.  
 Louisiana, Bryozoa: McGuirt, J. H., 1.  
   Eocene fauna: Barry, L. O., 1.  
   Foraminifera, Eocene: Hussey, J. O., 1.  
   Louisiana and Texas, Pendleton fm.: Wasem, R., 1.  
 Mammals, relationships of orders: Matthew, W. D., 1.  
 Maryland, Miocene; feather impressions: Wetmore, 4.  
   Miocippus, Miocene: Wetmore, 6.  
 Merycoidodon skulls analysis: Phleger, F. B., Jr., 2.  
 Mexico, Cornwallius: VanderHoof, V. L., 2.  
 Microfossils, Gulf Coast: Howe, H. V., 2.  
 Mississippi, Notiotitanops, Eocene titanother: Gazin, C. L., 2.  
 Nebraska, Daimonelix: Schultz, C. B., 1.  
   Megalagus skull: Olson, E. C., 1.  
   Miocene carnivores: Riggs, E. S., 1.  
   Miocene hawks: Wetmore, A., 7.  
 Nevada, florae: Axelrod, D. I., 1.  
   Miocene grapevine: Brown, R. W., 3.  
   Pliocene Ilingoceros: Furlong, E. L., 1.  
   Tonopah Mammalia: Henshaw, P. C., 1.  
 New Jersey, Eocene Ophiomysium: Berry, C. T., 1.  
   Miocene Invertebrata: Richards, H. G., 1.  
 New Mexico, Galisteo fm.: Stearns, C. E., 2.  
   Navajosuchus, Paleocene: Mook, C. C., 2.  
 North America, Cranis: Cushman, 2.  
   Discocyclinidae, Eocene: Vaughn, T. W., 5.  
   Eocene, Brachiopoda: Stenzel, H. B., 7.  
   Cephalopoda, Paleocene: Stenzel, H. B., 5.  
 Equus: Stirton, R. A., 2.  
 Fauna, geol. background: Williams, M. Y., 2.  
 Gastropoda, Eocene, Oligocene, Paleocene: Stenzel, H. B., 6.  
 Mammalia: Colbert, E. H., 3.

## Paleontology—Continued.

*Tertiary*—Continued.

## North America—Continued.

- Mesozoic flowering plant dispersal: Stebbins, G. L., Jr., 1.  
 Pacific Coast Siphonalia: Ruth, J. W., 1.  
 Pacific Slope Arcidae: Reinhart, P. W., 1.  
 Paleocene Mammalia: Simpson, G. G., 4.  
 Type fossils, Cypraeidae: Ingram, W. M., 1.  
 North America and Greenland fauna: Sorgenfrei, T., 1.  
 North Carolina, abnormal Busycon shells: Smith, B., 1.  
 North Dakota, Cannonball fm.: Fox, S. K., Jr., 1.  
 Oklahoma Pliocene, Menidia: Hubbs, C. L., 1.  
 Optima fauna: Savage, D. E., 1.  
 Oregon, Miocene floras: Chaney, R. W., 2.  
 Miocene vertebrates: Wallace, R. E., 1.  
 Oligocene roses: Resser, C. E., 1.  
 Pliocene badger: Hall, E. R., 1; Stock, C., 5.  
 Pliocene Parapholix: Baker, F. C., 1.  
 Pacific Coast, U. S., corals: Durham, J. W., 4.  
 Panama: Olsson, A. A., 1.  
 Burica Pen. Mollusca: Olsson, A. A., 2.  
 Pliocene Foraminifera: Coryell, H. H., 2.  
 Plants, Cent. Am., West Indies: Berry, E. W., 1.  
 Proboscidea: Osborn, H. F., 1.  
 Pullenia genus and species: Cushman, 2.  
 Scleractinia corals: Vaughan, T. W., 4.  
 Soldado Rock, Trinidad, Foraminifera: Cushman, 2.  
 South Carolina, Trent marl fauna: Richards, H. G., 3.  
 South Dakota, Badlands vertebrata: Richardson, G. H., 1.  
 Oligocene birds: Wetmore, A., 1.  
 Oligocene mammal footprints: Chaffee, R. G., 1.  
 Pliocene Vertebrata: Gregory, J. T., 1; Hesse, C. J., 1.  
 Texas, Eocene Discorbis: Garrett, J. B., Jr., 2.  
 Eocene Ostracoda: Stephenson, M. B., 2.  
 Foraminifera of type Yegua fm.: Cushman, 2.  
 Miocene Batrachosauroides: Taylor, E. H., 2.  
 Miocene Foraminifera: Garrett, J. B., Jr., 1.  
 Paleocene crab: Stenzel, H. B., 4.  
 Southeast, Miocene Vertebrata: Hesse, C. J., 4.  
 Vertebrata: Hesse, C. J., 3.  
 Texas and Louisiana, Pendleton fm.: Wasem, R., 1.  
 Trinidad: Renz, H. H., 1.

## Paleontology—Continued.

*Tertiary*—Continued.

- United States, Cenozoic echinoids: Cooke, C. W., 1.  
 Columbian Plateau, Miocene flora: Chaney, R. W., 1.  
 Gulf Coast Ostracoda: Murray, G. E., Jr., 1.  
 High Plains, grasses and herbs: Elias, M. K., 1, 2.  
 Macrofossils, Atlantic Coastal Plain wells: Richards, H. G., 5.  
 Pacific Coast cirratulids: Packard, E. L., 1.  
 Pacific Coast Galodea: Durham, J. W., 2.  
 United States and Mexico, Eocene Cytheridea: Stephenson, M. B., 1.  
 Virginia, Eocene: Gildersleeve, B., 1.  
 Virgin Is., St. Croix Foraminifera: Cushman, 2.  
 Washington, corals, Eocene, Oligocene: Durham, J. W., 1.  
 Foraminifera, Eocene, Cowlitz River: Beck, R. S., 1.  
 Type Lincoln fm. area: Cushman, 2.  
 West Indies: Anthony, H. E., 1.  
 Mammalia: Kellogg, A. R., 1, 2.  
 Wyoming, Almy fm. Mammalia: Gazin, C. L., 3.  
 Miocene creodont, camel: Colbert, E. H., 6.  
 Oligocene mammal footprints: Chaffee, R. G., 1.  
 Oligocene Zenocranium: Colbert, E. H., 5.  
 Paleocene lizards, Polecat Bench: Gilmore, C. W., 3.  
 Red Desert Eocene flora: Wilson, L. R., 10.

*Triassic*.

- Ammonites, Mesozoic, morphologic types and cycles: Haas, O. M. H., 2.  
 British Columbia, Cassinella fauna: McLearn, F. H., 2.  
 Liard River Canyon fauna: McLearn, F. H., 8.  
 Protrachyceras variations: McLearn, F. H., 9.  
 Mammals, relationships of orders: Matthew, W. D., 1.  
 New Jersey, coelacanth fish: Shainin, V. E., 1.  
 North America, Tetrapoda: Watson, D. M. S., 1.  
 North Carolina, flora: Berry, E. Willard, 1.  
 Plants, Cent. Am., West Indies: Berry, E. W., 1.  
 Scleractinia corals: Vaughan, T. W., 4.  
 Texas, Buettneria: skull: Wilson, J. A., 1.  
 Phytosaur pelvis, Crosby Co.: Case, E. C., 1.  
 Vertebrates: Hesse, C. J., 3.  
 Thayne fm. fauna, Bear Lake Valley, Idaho: Hummel, B., Jr., 2.

## Paleontology—Continued.

*Triassic*—Continued.

- United States, fossil cycads: Lee, H. E., 1.  
Southwest, faunas: Camp, C. L., 5.

## Paleopedology: Nikiforoff, 2.

## Paleozoic, undifferentiated.

- Alaska, Gerstle River dist.: Moffit, F. H., 1.  
Kenai Pen.: Guild, P. W., 1.  
Seward Pen.: Alaska Plann. Coun., 1.  
Arizona, Grand Canyon deposits: McKee, E. D., 2.  
California, Soledad quad.: Schombel, L. F., 1.  
Canada, Nat. Parks, Rockies and Selkirk: MacKay, B. R., 1.  
Gastropod genotypes: Weller, J. M., 1.  
Mexico, Sierra Madre Oriental: Heim, A., 1.  
Stratigraphy: Mullerried, F. K. G., 3.  
New York, Ulster Co.: Howell, B. F., 2.  
New York-Pennsylvania, regional jointing: Parker, J. M., III, 1.  
Seas, marginal, Arizona, Utah: McKee, E. D., 3.  
Utah, West Tintic mining dist.: Stringham, R. F., 1.  
Wyoming, Casper Mtn.: Hares, C. J., 1.  
Teton Range: Baker, V. R., 1.  
Paloma oil and gas field, Calif.: Wood, J. T., Jr., 1.  
Palouse Hills, Wash.: Freeman, O. W., 2.  
Panama, including Canal Zone.  
*Historical geology.*  
Cenozoic fms., Atlantic, Gulf Coastal Plains and Caribbean region: Cooke, C. W., 4.  
Tertiary: Olsson, A. A., 1.  
*Paleontology.*  
Foraminifera, Pliocene: Coryell, H. N., 2.  
Mollusca, Tert., Quat., Burica Pen.: Olsson, A. A., 2.  
Tertiary: Olsson, A. A., 1.

## Paragenesis.

- Alaska, Nabesna area: Wayland, R. G., 2.  
Arizona, Ajo copper dist.: Gilluly, J., 1.  
Beryl pegmatites, features: Page, L. R., 2.  
British Columbia, Eldorado prospect: Brennan, C. V., 1.  
Dolly Varden mine: Warren, H. V., 1.  
Pinchi Lake area: Freeze, A. C., 1.  
Red Rose tungsten mine: Stevenson, J. S., 7.  
Vancouver Is.: Joubin, F. R., 1.  
California, Middle Butte dist.: Fraser, H. J., 4.  
Mother Lode: Whitehead, W. L., 1.  
Stayton dist.: Bailey, E. H., 1.  
Canada, rock alterations by hydrothermal solutions: Bruce, E. L., 2.  
Colorado, Beaver-Tarryall area, Park Co.: Singewald, Q. D., 2.  
Climax molybdenite deposit: Vanderwilt, J. W., 1.

## Paragenesis—Continued.

## Colorado—Continued.

- Gold Hill area: Goddard, E. N., 1.  
Iron Hill alkaline rocks: Larsen, E. S., 1.  
Leadville dist.: Loughlin, G. F., 1.  
Gold deposition, alkali sulphide theory: Smith, F. G., 4.  
Heat effects on sulphides: Hawley, J. E., 2.  
Idaho, Blackbird dist.: Anderson, A. L., 4.  
Boise Basin: Anderson, A. L., 1.  
Elk City dist. veins: Shenon, P. J., 3.  
Meyers Cove area: Anderson, A. L., 6.  
Murray dist.: Shenon, P. J., 2.  
Ore control by rock structure: McKinstry, H. E., 2.  
Rocky Bar dist.: Anderson, A. L., 7.  
Warren dist. veins: Reed, J. C., 5.  
Yellow Pine mine, Stibnite: Bradley, J. D., 1.  
Magmas and ores: Bateman, A. M., 4.  
Maine, SE., ore deposits: Li, C.-Y., 1.  
Manitoba, rock alteration and ore deposits, San Antonio mine: Bragg, J. G., 1.  
Massachusetts, Pelham gneiss dome: Balk, R., 1.  
Mexico, Alistos, gold-nickel deposit: Krieger, P., 1.  
Fresnillo mine veins: Stone, J. B., 1.  
San Antonio mine, Chihuahua: Hewitt, W. P., 1.  
Tin deposits: Foshag, W. F., 1.  
Molybdenum occurrence, production: Vanderwilt, J. W., 4.  
Montana, Rocky Boy stock: Pecora, W. T., 3.  
Newfoundland, Port au Port Pen.: Watson, K. D., 3.  
New Mexico, Magdalena mining dist.: Loughlin, G. F., 2.  
New York, Cortlandt complex: Shand, S. J., 1.  
North America, gold vein deposits: White, W. H., 1.  
Structural features of ore deposits: Newhouse, W. H., 2.  
North Carolina, pegmatites: Kesler, T. L., 3.  
Whiteside granite: Sharpe, L. K., 1.  
Ore deposits, intrusive, structure, mineralogy: Butler, D. S., 1.  
Oregon, Cowboy mine: Shenon, P. J., 4.  
Gold and copper ores: Lowell, W. R., 1.  
Ontario, Cuniptau nickel mine: Sandefur, B. T., 1.  
Little Long Lac gold area: Armstrong, H. S., 1.  
McDonald pegmatite: Landes, K. K., 3.  
Quebec, Normetal copper mine: Putman, H. M., 1.  
Rouyn-Harricaw belt: Hawley, J. E., 3.  
Quicksilver: Johnson, J. H., 5.  
United States, ig. rocks: Sandell, E. B., 1.  
Quicksilver deposits: Ross, C. P., 5.

## Paragenesis—Continued.

- Utah, Cottonwood-American Fork area:  
Calkins, F. C., 2.  
Fairfield, variscite nodules: Larsen, E. S., 3d., 1.  
West Tintic mining dist.: Stringham, B. F., 1.  
Virginia, Irish Creek area: Koschmann, A. H., 2.

## Paragonite.

- Formation: Gruner, J. W., 1.  
North America, rare alkalies in micas: Stevens, R. E., 1.  
Sodium mica synthesized: Gruner, J. W., 3.  
Parkerite, Sudbury, Ontario: Michener, C. E., 1.  
Paskenta region, Calif.: Rist, R. L., 1.  
Patterson oil pool, Kans.: Hubley, M. D., 1.  
Paucillithionite, lepidolite system: Winchell, A. N., 2.  
Payton oil and gas field, Tex.: Gile, R. E., 1.  
Peace Creek oil field, Kans.: Kornfeld, J. A., 1.

## Peat. See also Paleobotany; Pollen analysis.

- Alaska, Prince William Sound area:  
Cooper, W. S., 1.  
California, Santa Cruz Co.: Hubbard, H. G., 1.  
Florida: Vernon, R. O., 3.  
Everglades: Parker, G. G., 1.  
Idaho, Purcell Trench bog: Hansen, H. P., 11.  
Illinois, Marseilles, Ottawa, Streator quads.: Willman, H. B., 2.  
Iowa, Ames bog: Gwynne, C. S., 2.  
Lower Klamath Lake, Calif.-Oreg.: Hansen, H. P., 6.  
Massachusetts, Boston area: Johnson, F., 2.  
Boylston St., Boston, fish weir: Benninghoff, W. S., 1; Johnson, F., 1; Knox, A. S., 1.  
Cape Cod tills: Sayles, R. W., 1.  
Minnesota: Emmorfs, W. H., 2.  
New Jersey: Waksman, S. A., 1.  
North America, post-glacial forest migration: Sears, P. B., 1.  
North Carolina, Blythe Bay: Wells, B. W., 1.  
Oregon, pollen in fossil peat: Hansen, H. P., 4.  
Volcanic eruptions and post-Pleist. vegetation: Hansen, H. P., 2.  
Post-glacial forests, N. J.: Potzger, J. E., 3.  
Quebec, Matapédia Lake area: Aubert de la Rue, E., 1.  
Texas: Evans, G. L., 1; Plummer, F. B., 5.  
Washington, paleoecology of deposits: Hansen, H. P., 9.  
Mt. Adams area: Hansen, H. P., 5.  
Orcas Is. bogs: Hansen, H. P., 8.  
West Virginia, Cranberry Glades, pollen analysis: Darlington, H. C., 1.  
Wisconsin, butternut and hickory post-Pleist. range: Wilson, L. R., 5.

## Peat—Continued.

## Wisconsin—Continued.

- Crystal Lake and bog plant microfossils:  
Wilson, L. R., 6.

## Pebbles.

- Arroyo Seco, Calif., flood deposits: Krumbein, W. C., 2.  
Canada, Bryce Tp., dikes: Moorhouse, W. W., 6.  
Chink-faceted pebbles, fluvialite vs. marine: Wentworth, C. K., 3.  
Jamaica: Trechmann, C. T., 1.  
Massachusetts, Cape Cod tills: Sayles, R. W., 1.  
Minnesota, polished quartzite: Carter, C., 2.  
New Mexico, Galisteo fm.: Stearns, C. E., 2.  
Sphericity determination: Pye, W. D., 1.  
Texas, origin Dockum congloms.: Roth, R. I., 3.

## Pediments.

- Arizona: Howard, A. D., 1.  
Uinkaret volcanic field: Koons, E. D., 2.  
Kansas, High Plains: Frye, J. C., 2.  
New Mexico, Cimarron Range: Smith, J. F., Jr., 1.  
Pecos River Valley, Tex.-N. Mex.: Theis, C. V., 1.  
Texas, N. Quitman Mts.: Huffington, R. M., 1.

## Pegmatites.

- Alabama, Pinckneyville quartz-diorite complex: Gault, H. R., 1.  
Arizona, Ajo copper dist.: Gilluly, J., 1.  
Beryl pegmatites, features: Page, L. R., 2.  
California, Riverside Co., andalusite: Webb, R. W., 1.  
Southern, min. deposits: Elam, J., 1.  
Tungsten deposits NE. of Visalia: Jenkins, W. O., 1.  
Canada, N. bank St. Lawrence, Bersimis to Matamec: Faessler, C., 1.  
Colorado, Centennial Cone dike: Waldschmidt, W. A., 1.  
Crystallization: Quirke, T. T., 3.  
General: Seaman, D. M., 3.  
Georgia: Furcron, A. S., 2.  
Idaho batholith: Anderson, A. L., 2.  
Maine, vitrophyre dike, Cape Neddick: Haff, J. C., 3.  
Montana, Bearpaw Mts.: Pecora, W. T., 4.  
Dillon complex: Sinkler, H., 1.  
Rocky Boy stock: Pecora, W. T., 3.  
Muscovite in: Hinrichs, F. W., 1.  
New England, rare alkalies: Hess, F. L., 1.  
Spectrographic analysis: Shimer, J. A., 1.  
New Hampshire: Olson, J. C., 1.  
Triphylite, magnesia-rich crystals: Chapman, C. A., 2.  
New York, Adirondack magnetite: Alling, H. L., 1.

## Pegmatites—Continued.

- North America: Landes, K. K., 1.  
 Rare alkalies in micas: Stevens, R. E., 1.  
 North Carolina: Kesler, T. L., 3.  
 Mica-bearing pegmatites: Keppel, D., 1.  
 Spruce Pine dist.: Kesler, T. L., 1.  
 Whiteside granite: Sharpe, L. K., 1.  
 Nova Scotia, New Ross area: Douglas, G. V., 5.  
 Ontario, Dryden-Wabigoon area: Satterly, J., 3.  
 McDonald area paragenesis: Landes, K. K., 3.  
 Pennsylvania, Lehigh Co. pre-Camb.: Fraser, D. M., 1.  
 Quebec, Barry Lake area: Milner, R. L., 1.  
 Lake Forgues to Johan Beetz on St. Lawrence: Claveau, J., 1.  
 Rare element prosp. in: Quirke T. T., 2.  
 South Dakota, Black Hills pre-Camb. domes: Runner, J. J., 1.  
 Custer dist.: Fisher, D. J., 1.  
 Utah, Ashbrook silver dist.: Peterson, V. E., 1.

## Pelecypoda. See also Invertebrata (general); Mollusca.

- Acila princeps, Cret., Calif.: Schenck, H. G., 4.  
 Alaska, Nome buried beaches: MacNeil, F. S., 1.  
 Moose Mtn.-Morley area: Beach, H. H., 3.  
 Appalachians, north middle: Swartz, F. M., 1.  
 Arkansas, Pitkin ls.: Easton, W. H., 1.  
 Beushausenia cf. Cosmetodon: Branson, C. C., 3.  
 Black River fms. fauna, N.Y., Ontario: Young, F. P., Jr., 1.  
 California, Eocene, Santa Ynez Mts.: Kelley, F. R., 1.  
 San Benito quad.: Wilson, I. F., 1.  
 Ventura region: Putnam, W. C., 1.  
 Cassinella fauna, Trias., British Columbia: McLearn, F. H., 2.  
 Central America, NW.: Mullerried, 5.  
 Conocardiidae, Dev., N. Am.: Branson, C. C., 2.  
 Conocardium, homonyms correction: Branson, C. C., 4.  
 Cosmetodon, new name: Branson, C. C., 3.  
 Costa Rica: Segura Paguaga, A., 2.  
 Tertiary, Quat.: Olsson, A. A., 2.  
 Cuba, Mesozoic: Torre Mandrazo, R. de la, 1.  
 Vento Valley: Broderman, J., 1.  
 Eastend Cret. fauna, Saskatchewan: Russell, L. S., 2.  
 Eocene faunas, Va.: Gildersleeve, B., 1.  
 Exogyra costata zone, Horry Co., S. C.: Berry, E. Willard, 3.  
 Fauna, Asphalt Ridge, Utah: Tolmachoff, I. P., 1.

## Pelecypoda—Continued.

## Fauna—Continued.

- Eagle Ford group, Tex.: Moreman, W. L., 1.  
 Eocene, La.: Barry, J. O., 1.  
 Helderberg, Quebec: Clark, T. H., 1.  
 Leonard Perm. ser., U. S.: Clifton, R. L., 1.  
 Lost River Range, Dev., Idaho: Baldwin, E. M., 1.  
 Martinsburg fm., Massanutten Mtn., Va.: Secrist, M. H., 2.  
 Niagara, Ill.: Lowenstam, H. A., 2.  
 North America-Greenland, Tert.: Sorgenfrei, T., 1.  
 Raritan fm., N. J.: Richards, H. G., 7.  
 Silurian, W. Va.: Woodward, H. P., 1.  
 Georgia, Coastal Plain: Cooke, C. W., 5.  
 Grammatodon cf. Cosmetodon: Branson, C. C., 3.  
 Gulf region, N., Cent. Am., Cuba: Imlay, R. W., 5.  
 Illinois, Marseilles, Ottawa, Streator quads.: Willman, H. B., 2.  
 Inoceramus, Cret., Canada: McLearn, F. H., 3, 4.  
 Saskatchewan: Douglas, R. J. W., 1.  
 Invertebrata, Miocene, N.J.: Richards, H. G., 1.  
 Kansas, Pleist. terrace: Frye, J. C., 3.  
 Lincoln fm. type area, Wash.: Cushman, 2.  
 Louisiana, Morehouse Penn. fm.: Imlay, R. W., 1.  
 Vernon Parish: Welch, R. N., 1.  
 Massachusetts, Boylston St., Boston, fish weir oysters: Nelson, T. C., 1.  
 Mississippi, Clay Co.: Bergquist, H. R., 2.  
 Pontotoc Co.: Priddy, R. R., 3.  
 Mollusca, Cuba, Pleist.: Jaume, M. L., 1.  
 Montana, Saypo quad.: Deiss, C. F., 1.  
 Three Forks area: Berry, G. W., 1.  
 Mytilacea, Carb., U. S.: Newell, N. D., 2.  
 New York, Schoharie, Esopus fms.: Goldring, W., 2.  
 Snake Hill Ord. fauna: Howell, B. F., 4.  
 Wellsville quad.: Woodruff, J. G., 1.  
 North America, Penn., Perm.: Schenck, H. G., 6.  
 North Dakota, Morton Co.: Laird, W. M., 2.  
 Ohio, Allegheny ser., coals, lss., below Lower Kittanning: Sturgeon, M. T., 1.  
 Olentangy sh. fauna: Baker, R. C., 1.  
 Prout ls.-Plum Brook sh.: Stumm, E. C., 1.  
 Oklahoma, Cimarron Co.: Schoff, S. L., 1; Stovall, J. W., 1.  
 Oregon, N. Dak., tereido borings in wood: Dake, H. C., 1.  
 Panama, Tert.: Olsson, A. A., 1, 2.  
 Parallelodon, invalid: Branson, C. C., 3.  
 Pendleton fm. fauna, Tex.-La.: Wasem, R., 1.



**Pelecypoda—Continued.**

- Pennsylvania, Brush Creek ls. fauna:  
Seaman, D. M., 1.  
Pitkin fm. fauna, Ark.: Easton, W. H., 3.  
Round Mtn. silt, Miocene, Calif.: Keen,  
A. M., 1.  
Saskatchewan, Eastend Cret. fauna: Rus-  
sell, L. S., 2.  
Seguin fm. fauna, Tex.: Beckman, M.  
W., 1.  
Texas, Mabelle Draw Perm. area: Read,  
W. F., 1.  
Shafter mining dist.: Ross, C. P., 7.  
Thaynes fm. fauna, Bear Lake Valley,  
Idaho: Kummel, B., Jr., 2.  
Thyasira, Cret., Canada: Brown, R. A.  
C., 1.  
Trinidad: Renz, H. H., 1.  
Unio, Juras., Colo.: Holt, E. L., 1.  
Utah, Asphalt Ridge fauna: Tolmachoff,  
I. P., 1.  
Virginia, Appalachian Valley: Butts, C., 1.  
Tazewell Co.: Cooper, B. N., 1.  
Wyoming-Idaho Eo-Trias. correls: Newell,  
N. D., 1.

Peneplanation, N. Y., Wellsville quad.: Wood-  
ruff, J. G., 1.

**Peneplains.**

- Appalachian physiography: Ver Steeg,  
K., 2.  
Arizona, sub-Aubryan peneplanation:  
Keyes, 27.  
Cuba, Isla de Pinos: Massip y Valdés,  
S., 1.  
Idaho, Dixie dist.: Roberts, R. J., 3.  
Illinois, Streator quad.: Robinson, L.  
C., 1.  
Kansas, Forest City Basin: Lee, W., 2.  
Mexico, N.: Kellum, L. B., 1.  
New Brunswick, central: Rose, B., 3.  
New York, Wellsville quad.: Woodruff,  
J. G., 1.  
Ohio, western: Stout, W. E., 1.  
Peneplain in the making: Keyes, 24.  
United States, S. Appalachians: Wright,  
F. J., 1.  
Virginia, Appalachian Valley: Butts, C., 1.  
Lyndhurst-Vesuvius dist.: Knechtel, M.  
M., 2.  
Transported cobble on Blue Ridge:  
Steidtmann, E., 2.  
Valley near Lexington: Coulbourn, U.  
F., 1.

**Pennsylvania.**

- History of oil devel.: Bonine, C. A., 1.  
History of Survey: Ashley, G. H., 1.  
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# 396 BIBLIOGRAPHY OF NORTH AMERICAN GEOLOGY, 1942 AND 1943

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 Deformation shown by petrofabrics: Knopf, E. F. B., 1.  
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 Fabric changes in marble by exper. deformation: Knopf, E. F. B., 3.  
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 Metric grade scale, sed. rocks: Alling, H. L., 2.  
 Microfacies, new word: Brown, J. S., 4.  
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 Packing in ionic minerals: Fairbairn, H. W., 7.  
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 Pipette size analysis for centrifuge: Dana, S. W., 1.  
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 Structural petrology and ore deposits: Fairbairn, H. W., 2.  
 Structural petrology of deformed rocks: Fairbairn, H. W., 1; Ingerson, F. E., 4.  
 Stylolites, primary or secondary: Stockdale, P. B., 1.

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 Unconformities, subsurface recognitions: Krumbein, W. C., 1.  
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 Vein, fissure, asymmetrically banded: Ingerson, F. E., 1.  
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- Classification, epigenetic ore dists.: Anonymous, 2.  
 Faults: Longwell, C. R., 6.  
 Lava surfaces: Jones, A. E., 1.  
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- Quebec, Gaspé pen.: Alcock, F. J., 2.
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- Pleonaste, Nev.: Gianella, V. P., 3.
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- Gold Hill area: Goddard, E. N., 1.
- Gore Hill area: Brill, K. G., Jr., 1.
- Jamestown area: Bray, J. M., 1, 3.
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- Blackbird dist.: Anderson, A. L., 4.
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- Elk City dist. veins: Shenon, P. J., 3.
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- Kansas,** Chanute field: Dillard, W. R., 1.
- Ellis, Russell Cos. oil fields: Frye, J. C., 5.
- Pre-Cambrian—Continued.**
- Kansas—Continued.
- Forest City Basin: Lee, W., 2.
- Oil and gas fields: Moore, R. C., 7.
- Labrador, Nain area: Wheeler, E. P., 2d, 1.
- Lake Superior area replacement iron deposits: Roberts, H. M., 2.
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- Saypo quad.: Deiss, C. F., 1.
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- New Brunswick: Alcock, F. J., 3.
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- Questa dist.: Vanderwilt, J. W., 3.
- New York, Edwards-Balmat zinc dist.: Brown, J. S., 1.
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- Whiteface Mtn. age: Marble, J. P., 1.
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- North Carolina, barite deposits: Stuckey, J. L., 2.

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 Snare River-Ingray Lake area: Lord, C. S., 2.  
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 Steep Rock area: Roberts, H. M., 1; Rose, E. R., 1.  
 Sudbury dist.: Cooke, H. C., 1, 3; Fairbairn, H. W., 3.  
 Thunder Bay dist.: Bruce, E. L., 4.  
 Timagami area: Moorhouse, W. W., 2, 3.

## Pre-Cambrian—Continued.

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 Wunnummin Lake area: Prest, V. K., 2.  
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 Pennsylvania, Lehigh Co.: Fraser, D. M., 1; Miller, B. L., 1.  
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 Quebec, apatite belt, W. Portland Tp.: Moorhouse, W. W., 5.  
 Barry Lake area: Milner, R. L., 1.  
 Brock River area: Kindle, E. D., 1.  
 Cadillac synclinal belt: Norman, G. W. H., 3.  
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 Flavrian Lake area: Robinson, W. G., 1.  
 Gaspé Pen.: Alcock, F. J., 2.  
 Grenville Prov.: Faessler, C., 2.  
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 South Dakota, Black Hills granite domes: Runner, J. J., 1.  
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 Pseudo-conglomerates: Runner, J. J., 2.  
 Tennessee, Laurel Bloomery area: Ferguson, H. W., 1.  
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 United States, Basin and Range prov.: Nolan, T. B., 1.  
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 Rocky Mtn. oil and gas fields: Dobbin, C. E., 2.  
 Utah, Ashbrook silver dist.: Peterson, V. E., 1.  
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 Carroll-Grayson Cos.: Hawkins, A. C., 8.  
 Clarke Co.: Butts, C., 3.  
 Elkton area: King, F. B., 3.

## Pre-Cambrian—Continued.

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- Frederick Co.: Butts, C., 3.  
 Grayson Co. intrus.: Stose, A. J., 1.  
 Irish Creek area: Koschmann, A. H., 2.  
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 Piedmont ls. belt: Bevan, A. C., 7.  
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# 412 BIBLIOGRAPHY OF NORTH AMERICAN GEOLOGY, 1942 AND 1943

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## Quebec—Continued.

*Petrology—Continued.*

- Lake Wakeham area: Claveau, J., 3.
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*Physiographic geology.*

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## Quicksilver.

- Alaska: Joesting, H. R., 1.

## Quicksilver—Continued.

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## Radioactivity—Continued.

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Sand—Continued.

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## Sand—Continued.

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- Michigan, shoestring oil fields: Ball, M. W., 1.  
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- California, Santa Maria dist., ancient dunes: Woodring, W. P., 3.  
 New Mexico, Grants area: Bryan, K., 5.  
 Oregon, paleoecology, bogs: Hansen, H. P., 10.  
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## Sand grains, estimating two-dimensional sphericity: Rittenhouse, G., 5.

## Sand grains, measuring intercept sphericity: Rittenhouse, G., 2.

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- Alabama, Tenn. Valley region: Harper, R. M., 1.  
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 Illinois, Fox River area: Willman, H. B., 4.  
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 Mexico, Valsequillo canal area: Alvarez Carvajal, M., 1.  
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 Galisto fm.: Stearns, C. E., 2.

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- Ohio, Bera ss., Bedford sh. flow structures: Cooper, J. R., 1.  
 Cleveland area: Weidman, P. A., 1.  
 Ontario, London fault area Paleozoics: Caley, J. F., 1.  
 Pennsylvania, Brookville quad.: Graeber, C. K., 1.  
 Lehigh Co., Hardyston fm.: Miller, B. L., 2.  
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 Rome, Rutledge fms., Watts Bar Dam: Fox, P. P., 3.  
 Texas, Halymenites: Patterson, J. M., 2.  
 Santiago Peak quad.: Eifer, G. K., Jr., 1.  
 Vermont, west-cent.: Cady, W. M., 1.  
 Virginia, Elkton area: King, P. B., 3.  
 Heavy minerals in: Bierer, J. H., 1.  
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 Eastend Cret. fm. fauna: Russell, L. S., 2.  
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Mississippi, Pontotoc Co.: Priddy, R. R., 3.

Mollusca, Cuba., Pleist.: Jaume, M. L., 1.  
New Mexico, Penn.: Young, J. A., Jr., 1.  
Pendleton fm. fauna, Tex.-La.: Wasem, R., 1.

Pitkin fm. fauna, Ark.: Easton, W. H., 3.  
Round Mtn. silt, Miocene, Calif.: Keen, A. M., 1.

Pennsylvania, French Creek: Tomlinson, W. H., 2.

Scenery, origin, Colo.: Pearl, R. M., 1.

Scenic W. Va.: Hare, C. E., 1.

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British Columbia: Hedley, M. S., 2.  
California, Confidence dist.: Little, J. M., 1.

Darwin Hills, Inyo Co.: Wilson, L. K., 1.

Ghost Canyon tungsten deposits: Little, J. M., 3.

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Tungsten deposits NE. of Visalia: Jenkins, W. O., 1.  
Twin Lakes area: Chesterman, C. W., 1.

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Morphology of: Donnay, 4.

Nevada, Nightingale dist.: Smith, Ward C., 2.

Rose Creek tungsten mine: Roberts, R. J., 2.

Texas, Gillespie Co.: Mathis, R. W., 1.  
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Alabama, Pinckneyville quartz-diorite complex: Gault, H. R., 1.

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Schists—Continued.

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Pennsylvania, Lehigh Co. pre-Camb.: Fraser, D. M., 1.

Wissahickon fm. type locality: Postel, A. W., 2.

Quebec, Barry Lake area: Milner, R. L., 1.

South Dakota, Black Hills pre-Camb. domes: Runner, J. J., 1.

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Scolecite, Nev.: Gianella, V. P., 1.

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Ontario, Ord.: Eller, E. R., 1.

Scolithus. Sil. faunas, W. Va.: Woodward, H. P., 1.

Scorodite, Hobart Butte, Oreg.: Denning, R. M., 1.

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Alaska, Bohemia Basin, Yakobi Is.: Reed, J. C., 2.

Chicagof mining dist.: Reed, J. C., 1.

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Arizona, Hopi Buttes area: Hack, J. T., 2.

Tombstone dist.: Butler, B. S., 1.

Arkansas, Pike Co.: Herold, P. G., 1.

Black River fms., N. Y.-Ontario: Young, F. P., Jr., 1.

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- Pinchi Lake mercury belt: Armstrong, J. E., 3.
- California, Cargo Muchacho Mts.: Henshaw, P. C., 2.
- Confidence dist.: Little, J. M., 1.
- Crocker Flat landslide area: Simonson, R. R., 1.
- Devils Den oil field: Van Couvering, M., 1.
- Franciscan-Knoxville problem: Taliaferro, N. L., 2.
- Imperial carbon dioxide gas field: Rook, S. H., 1.
- Marysville (Sutter) Buttes gas field: Johnson, H. R., 1.
- Park dist.: Bailey, E. H., 2.
- Petaluma area: Johnson, F. A., 1.
- Point Arena-Fort Ross area: Weaver, C. E., 2.
- Santa Clara River drainage area: Loel, W., 1.
- Sierra Nevada manganese deposits: Taliaferro, 6.
- Sierra Nevada NE. of Visalia: Durrell, C., 2.
- Stayton dist.: Bailey, E. H., 1.
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- Canada, Laurentian area: Mauffette, P., 1.
- North Bank St. Lawrence, Bersimis to Matamec: Faessler, C., 1.
- Canadian Shield Archean sedimentation: Pettijohn, F. J., 1.
- Central America: Mullerried, 5; Weaver, C. E., 1.
- Colorado, Beaver-Tarryall area, Park Co.: Singewald, Q. D., 2.
- Cripple Creek dist.: Koschmann, A. H., 1.
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- Virilla Canyon, Meseta Central: Crosby, I. B., 2.
- Cuba, geol. and oil prosp.: Palmer, R. H., 1.
- Derivation, reservoir rocks: Howard, W. V., 7.
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- Geological extrapolation and sediments: Woolnough, W. G., 1.
- Georgia, Sand-Lookout Mtn. area: Sullivan, J. W., 2.
- Georgia-Florida oil explor.: Carroll, D. L., 3.
- Gravity anomalies in sed. basins: Skeels, D. C., 2.
- Greenland, Traill Is.: Schaub, H. P., 1.

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- Hawaii, Maui Is.: Stearns, H. T., 3.
- Idaho, Rocky Bar dist.: Anderson, A. L., 7.
- Shoshone area: Harrington, E. R., 2.
- Illinois, Marseilles, Ottawa, Streator quads.: Willman, H. B., 2.
- Kansas, Hamilton, Kearny Cos.: McLaughlin, T. G., 2.
- Meade Co.: Frye, J. C., 4.
- Kentucky, Floyd Co.: Jillson, W. R., 6.
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- Lithification, early oil fm.: Howard, W. V., 6.
- Lithology, sea-floor off Calif.: Emery, K. O., 1.
- Maine, Aroostook Co.: White, W. S., 1.
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- Manitoba, Bird River area: Dateman, J. D., 2.
- Massachusetts, Boylston St., Boston, fish weir: Johnson, F., 1; Stetson, H. C., 1.
- Connecticut River Valley: Bain, G. W., 1.
- Pelham gneiss dome: Balk, R., 1.
- Metric grade scale: Alling, H. L., 2.
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- Northern: Kellum, L. B., 1.
- Pilares dist.: Antúnez Echegaray, F., 1.
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- New Brunswick: Alcock, F. J., 3.
- Reserve Brook ore deposits: MacKenzie, G. S., 2.
- Newfoundland, St. Lawrence dist.: Van Alstine, R. E., 1.
- New Hampshire, Mt. Cube area: Hadley, J. B., 2.
- New Mexico, Cimarron Range: Smith, J. F., Jr., 1.

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- Magdalena mining dist.: Loughlin, G. F., 2.  
 Seven Rivers fm.: Bates, R. L., 2.  
 Sierra Cuchillo: Jahns, R. H., 4.  
 New York, Lake George area: Newland, D. H., 1.  
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 St. Clair ls. near Marble City: Ham, W. E., 3.  
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 Eagle Lake area: Moorhouse, W. W., 1.  
 Eastern Crow River area: Evans, J. E. L., 1.  
 Fort Hope-Martin Falls area: Prest, V. K., 3.  
 Gorham Tp.: Macdonald, R. D., 1.  
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 Hutchison Lake area: Macdonald, R. D., 3.  
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 Mishibishu Lake area: Evans, J. E. L., 3.  
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 Panama, Tert.: Olsson, A. A., 1.

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- Pecos River Valley, Tex.-N. Mex.: Theis, C. V., 1.  
 Pennsylvania, Lehigh Co.: Miller, B. L., 1.  
 2; Wherry, E. T., 1.  
 Martinsburg fm.: Willard, B., 1.  
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 Lake Wakeham area: Claveau, J., 3.  
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 North Quitman Mts.: Huffington, R. M., 1.  
 Sam Fordyce field: Earl, E. L., 1.  
 Santiago Peak quad.: Eifler, G. K., Jr., 1.  
 Shafter mining dist.: Ross, C. P., 7.  
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 Virginia, Appalachian geosyncline: Lammers, E. C. H., 1.  
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 Pre-Cambrian land mass: Brown, W. R., 1.  
 Tuscarora ss., Little North Mtn.: Edmundson, R. S., 1.

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- Washington, Blewett iron deposit, Chelan Co.: Broughton, W. A., 3.  
 Metaline quad.: Park, C. F., Jr., 4.  
 Olympic Pen.: Park, C. F., Jr., 1.  
 Tucannon River area: Huntting, M. T., 2.  
 West Virginia: Hare, C. E., 1.  
 Wyoming, Cache Creek area, Gros Ventre Mts.: Nelson, V. E., 1.  
 Rocks, soils, and selenium: Knight, S. H., 1.  
 Tetons, W., structural surfaces: Fryxell, F. M., 2.  
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- Alaska, perennially frozen ground: Taber, S., 1.  
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 Arizona, Grand Canyon deposits: McKee, E. D., 2.  
 Hopi Indians area: Hack, J. T., 1.  
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 Beach-material, supply: Darrow, W. E., 1.  
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 Bosmina quad., Conn.: Austin, T. S., 1.  
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 Canadian Shield, Archean: Pettijohn, F. J., 1.  
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- Foraminifera, rate of sed. deposit: Myers, E. H., 1, 2.  
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 Heavy minerals, transp., deposit, N. Mex.: Rittenhouse, G., 4.  
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 Islands formed in Wabash River, Ind.: Brune, G. M., 1.  
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 Oceanography and submarine geology: Sverdrup, H. U., 2.  
 Oceans: Sverdrup, H. U., 1.  
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- Paleogeography and petroleum explor.: Adams, J. H., 1.  
 Paleontology, use by oil industry: Howe, H. V., 3.  
 Petroleum and sedimentation: Trask, P. D., 2.  
 Petroleum reserves: Smith, N. C., 1.  
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 Sand compacting factors: Van Tuyl, F. M., 1.  
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 Size analysis, suspended sediment: Nelson, M. E., 1.  
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## Silurian—Continued.

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Virginia, Appalachian Valley: Butts, C., 1.  
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## Slate—Continued.

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- Source of alumina: Burgess, B. C., 1.
- Historical geology.*
- Chesterfield Co.: Fries, C., Jr., 2.

## South Carolina—Continued.

*Historical geology*—Continued

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*Mineralogy.*

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## South Dakota—Continued.

*Mineralogy*—Continued.

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Graphite: McConnell, D., 1.

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*Paleontology.*

Birds, Oligocene: Wetmore, A., 1.

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*Petrology.*

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Surface: Rothrock, E. P., 5.

*Physiographic geology.*

Medicine Butte anticline: Petsch, B. C., 1.

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*Underground water.*

Deep wells, Rapid City area: Gries, J. P., 3.

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Spessartite. See also Garnet.

Virginia, SW.: Jonas, A. I., 1.

Weathering: Holden, R. J., 2.

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Arizona, Bisbee dist.: Rove, O. N., 1.

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Newfoundland, Port au Port Pen.: Watson, K. D., 3.

New York, Lockport dolomite: Jensen, D. E., 1.

**Sphalerite—Continued.**

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 Thomson, J. Ellis, 2.  
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 V. E., 1.  
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 F., Jr., 4.

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 W. D., 1.

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 S., 2.

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 L., 2.  
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 L., 1.  
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 riel, A., 1.

Spongiae. See also Coelenterata; Inverte-  
 brata (general).

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 W., 7.  
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 E., 1.  
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 best, L. G., 1.  
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 R. W., 1.  
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 J. G., 1.  
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 Harrington, J. W., 1.  
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 U. S.: Howell, B. F., 9.  
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 H. W., 5.  
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 R. I., 3.  
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Spores, micropaleontology and oil explor.:  
 Croneis, C. G., 1.

Springs. See also Hot springs; Thermal  
 waters; Underground water.

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 Segura Paguaga, A., 1.  
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 W., 1.

**Springs—Continued.**

- Hawaii, glacial springs: Wentworth, 4.  
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 C., 2.  
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 area: Hendricks, T. A., 1.  
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 Douglas, G. V., 6.

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Stephanite, Calif.: Murdoch, J., 2.

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 C. G., 1.

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- Alaska, Stampede Creek area: White,  
 D. E., 1.  
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 Brennan, C. V., 1.  
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 L., 6.  
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 J. D., 1.

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 Drake, H. Y., 1.

Stocks. See also Intrusions.

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 V., 1.  
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 field: Johnson, H. R., 1.  
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 W., 1.  
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 wald, Q. D., 2.  
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 Jahns, R. H., 2.  
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 Montana, Libby quad.: Gibson, R., 1.  
 Three Forks area: Berry, G. W., 1.  
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 R. W., 2.  
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 Loughlin, G. F., 2.  
 Questa dist.: Vanderwilt, J. W., 3.  
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 dist.: Kidd, D. F., 1.

## Stocks—Continued.

- Ontario, gold mineralization: Moorhouse, W. W., 4.  
 Poohbah Lake: Allen, C. C., 1.  
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 Stone. See also Building stone; Road materials.  
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Szaibelyite, N. Am.: Schairer, W. T., 3.

Tables of formations. See Geologic formations, tables.

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 Cores, large oil sand, testing: Plummer, F. B., 4.

## Technique—Continued.

- Delesse-Rosiwal method, rock determination: Postel, A. W., 1.
- Detrital mineral grains, slides of: Herbert, P., Jr., 1.
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- Dry polishing, opaque minerals: Fraser, H. J., 1.
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- Electric earth resistivity apparatus: Stouder, R. E., 1.
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- Emeralds, synthetic: Rogers, A. F., 2.
- Errors, measuring strata: Secrist, M. H., 1.
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- Felker di-met rock saw: Fairbairn, H. W., 6.
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## Technique—Continued.

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- Indiana, electric logs in subsurface studies: Cohee, G. V., 3.
- Interference figures with greater contrast: Foster, W. D., 1.
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Technique—Continued.

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- Radioactivity structure determinations: Stothart, R. A., 1.
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- Stereoscopic projection and map reading: Fisher, D. J., 2.
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- Thin sections, grinding: Frederickson, A. F., 1.
- Topographic sketches made from contour maps: White, W. A., 2.
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Technique—Continued.

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- Tectorophysics, physics of earth deformation: Maceiwan, J. B., 1.
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- Clay, bentonitic, Eocene: Whitlatch, G. I., 3.
- Laurel Bloomery area: Ferguson, H. W., 1.
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- Correlation by spores, Penn.: Bentall, R., 1.
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- Anthozoa, Missn.: Easton, W. H., 4, 7.
- Correlation, Angel-Battle Creek coal seams: Bentall, R., 2.
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## Tennessee—Continued.

*Paleontology*—Continued.

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 Faunas, Penn. invertebrate: Summerson, C. H., 1.  
 Lagoon deposit, fossiliferous, Douglas Dam: Laurence, R. A., 3.  
 Ostracoda, non-marine Penn., S. Appalachians: Scott, H. W., 6.  
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 Vertebrate near Gassaway: Whitlatch, G. I., 1.

*Petrology*.

- Lagoon deposit, Douglas Dam: Laurence, R. A., 3.  
 Limonite, Ky. Dam: Fox, P. P., 2.  
 Nolichucky fm., Cherokee Dam: Laurence, R. A., 1.  
 Rome, Rutledge fms., Watts Bar Dam: Fox, P. P., 3.  
 Sandstone blocks, Eocene, Henry Co.: Whitlatch, G. I., 2.

*Physical geology*.

- Anticline, classic: Fox, P. P., 1.  
 Watts Bar Dam: Fox, P. P., 1.  
 Core from Chickamauga Dam: McGavock, C. B., Jr., 1.  
 Lagoon deposit, Douglas Dam: Laurence, R. A., 3.  
 Laurel Bloomery area: Ferguson, H. W., 1.  
 Limonite, Ky. Dam: Fox, P. P., 2.  
 Recaptured stream: Laurence, R. A., 2.  
 Rome, Rutledge fms., Watts Bar Dam: Fox, P. P., 3.

*Physiographic geology*.

- Central Tenn.: Wilson, C. W., Jr., 1.  
 Map, oil and gas, middle Tenn.: Born, K. E., 2.

*Underground water*.

- Mineral springs and wells: Whitlatch, G. I., 4.

Teredololithus, collective group name: Bartsch, P., 1.

Terraces. See also Beaches; Benches; Changes of level; Glacial lakes; Shore lines.

- Alaska, Matanuska Valley: Martin, P. F., 1.  
 Prince William Sound area: Cooper, W. S., 1.  
 Alberta: Allan, J. A., 1.  
 Arizona, Hopi Indians area: Hack, J. T., 1.  
 British Columbia, Okanagan Valley origin: Schofield, S. J., 1.  
 Southern: Davis, N. F. G., 1.  
 California, Coast Range, late Pleist.: Bailey, T. L., 1.  
 North Midway area, Midway-Sunset oil field: Woodward, W. T., 1.  
 Petaluma area: Johnson, F. A., 1.  
 San Benito quad.: Wilson, I. F., 1.

## Terraces—Continued.

## California—Continued.

- Sierra Nevada NE. of Visalia: Durrell, C., 2.  
 Ventura region: Putnam, W. C., 1.  
 Costa Rica, Virilla Canyon, Meseta Central: Crosby, I. B., 2.  
 Cuba, Isla de Pinos: Massip y Valdés, S., 1.  
 Floor of the ocean: Daly, R. A., 1.  
 Florida, Holmes Co.: Vernon, R. O., 1.  
 Southern, natural features: Davis, J. H., Jr., 1.  
 Tributary valley lakes: Vernon, R. O., 2.  
 Washington Co.: Vernon, R. O., 1.  
 Iowa, varved Pleist. sediments, Cedar Rapids: Wilson, L. R., 4.  
 Kansas, Ellis, Russell Cos. oil fields: Frye, J. C., 5.  
 Hamilton, Kearney Cos.: McLaughlin, T. G., 2.  
 Meade Co.: Frye, J. C., 4.  
 Pleistocene: Frye, J. C., 3.  
 Kentucky: McFarlan, A. C., 2.  
 Louisiana, Vernon Parish: Welch, R. N., 1.  
 Massachusetts, Conn. River Valley: Bain, G. W., 1; Jahns, R. H., 1.  
 Mississippi, Camp McCain area: Brown, G. F., 1.  
 Clay Co.: Bergquist, H. R., 2.  
 Missouri, Nebraskan-Kansas drift boundary: Holmes, C. D., 1.  
 Nevada, Pyramid Lake: Lomas, M., 1.  
 New Jersey, Cape May fm. marine topog.: MacClintock, P., 1.  
 New York, Wellsville quad.: Woodruff, J. G., 1.  
 North America, Atlantic Coast: Flint, R. F., 4.  
 Deglaciation features: Flint, R. F., 2.  
 Great Lakes area: Martin, H. M. M., 1.  
 North Carolina Coastal Plain: Richards, H. G., 2.  
 North Dakota, Turtle River State Park: Laird, W. M., 3.  
 Ontario, North Bay: Lang, A. H., 4.  
 Oregon, chromiferous sands, origin: Griggs, A. B., 1.  
 Portland area: Treasher, R. C., 2.  
 Southwest Coast: Twenhofel, 7.  
 Pacific Northwest, U. S.: Smith, W. D., 1.  
 Pecos River Valley, Tex.-N. Mex.: Theis, C. V., 1.  
 South Dakota, White River Valley: Rothrock, E. P., 2.  
 Spits, bars, etc., origin: Evans, O. F., 3.  
 Tennessee, middle, oil and gas area: Born, K. E., 2.  
 Texas: Evans, G. L., 1.  
 Rio Grande Valley: S. Tex. G. Soc., 1.  
 Vermont, Champlain Valley: Chapman, D. H., 1.  
 Great Ice Age: Jacobs, E. C., 2.  
 Vermont Valley: Gordon, C. E., 1.  
 Virginia, Elkton area: King, P. B., 3.  
 Lyndhurst-Vesuvius area: Knechtel, M. M., 2.

## Terraces—Continued.

- Washington, Metaline quad.: Park, C. F., Jr., 4.  
 Wisconsin, NE.: Thwaites, F. T., 2.  
 Wyoming, Noir Valley: Miner, N. A., 1.

Terrestrial magnetism and earth's interior:  
 Lynch, W. A., 2.

## Tertiary. See also Paleontology, Tertiary.

- Alaska, Eagle-Circle dist.: Mertie, J. B., Jr., 1.  
 Gerstle River dist.: Moffit, F. H., 1.  
 Kenai Pen.: Guild, P. W., 1.  
 Nabesna area: Wayland, R. G., 2.  
 Nome, buried beaches: MacNeil, F. S., 1.  
 Nutzotin Mts. area: Moffit, F. H., 2.  
 Seward Pen.: Alaska Plann. Coun., 1.  
 Alberta: Allan, J. A., 1; Farmilo, A. W., 1.  
 Marble Mtn. area: Beach, H. H., 1.  
 Antigua, corals: Thomas, H. D., 1.  
 Arizona, Ajo copper dist.: Gilluly, J., 1.  
 Bisbee dist.: Rove, O. N., 1.  
 Hopi Buttes area: Hack, J. T., 2.  
 Uinkaret volcanic field: Koons, E. D., 2.  
 Arkansas, Magnolia oil field: Carpenter, C. B., 1; Winham, H. F., 1.  
 Midway field: Nicholson, G. B., 1.  
 Pike Co.: Herold, P. G., 1.  
 Barbados: Renz, H. H., 1.  
 British Columbia: Gunning, H. C., 2.  
 Eldorado prospect: Brennan, C. V., 1.  
 Okanagan Valley origin: Schofield, S. S., 1.  
 Pinchi Lake area: Freeze, A. C., 1.  
 Pinchi Lake mercury belt: Armstrong, J. E., 3.  
 California, Bardsdale oil field: Snedden, L. B., 2.  
 Belridge oil field: Wharton, J. B., Jr., 1.  
 Beverly Hills oil field: Soper, E. K., 3.  
 Bradley-San Miguel dist.: Taliaferro, 4.  
 Buena Vista Hills area, Midway-Sunset oil field: McMasters, J. H., 1.  
 Buttonwillow gas field: Chambers, L. S., 2.  
 Caliente Range area: Eaton, J. E., 1.  
 Canal oil field: Williams, R. N., Jr., 1.  
 Canal, Strand fields: Walling, R. W., 1.  
 Cantua-Vallecitos area: Atwill, E. R., 2.  
 Capitan oil field: Kribbs, G. R., 1.  
 Chino oil field: Krueger, M. L., 1.  
 Coalinga oil field: Birkhauser, M., 1.  
 Coast Range, late Pleist.: Bailey, T. L., 1.  
 Crocker Flat landslide area: Simonson, R. R., 1.  
 Death Valley area: Stose, G. W., 2.  
 Del Valle oil field: Sherman, R. V., 1;  
 Stockman, L. P., 1; Tarbet, L. A., 1.  
 Devils Den oil field: Van Couvering, M., 1.  
 Dominguez field: Grinsfelder, S., 1.  
 Dudley Ridge gas field: Henney, G., 1.  
 Duxbury Point area: Douglas, J. M., 1.  
 East Cat Canyon oil field: Cross, R. K., 1.

## Tertiary—Continued.

## California—Continued.

- East Coalinga Extension field: Kaplow, E. J., 1.  
 East Coalinga oil field: Chambers, L. S., 1.  
 East Coyote Hills oil field: Dudley, P. H., 1.  
 Edison oil field: Edwards, E. C., 1, 4;  
 Kasline, F. E., 1.  
 Elk Hills oil field: Porter, L. E., 1.  
 El Segundo oil field: Reese, R. G., 1.  
 Elwood oil field: Hill, M. L., 2.  
 Eocene Foraminifera, type Lodo fm.: Martin, L. T., 1.  
 Eocene, Santa Ynez Mts.: Kelley, F. R., 1.  
 Fairfield Knolls gas field: Kirby, J. M., 2.  
 Foraminifera as index fossils: Adams, B. C., 1.  
 Franciscan-Knoxville problem: Taliaferro, 2.  
 Fruitvale oil field: Miller, R. H., 1.  
 Gato Ridge area, Cat Canyon oil field: Cross, R. K., 2.  
 Gaviota-Concepcion area: Porter, W. W., II, 1.  
 Geologic horizons of fields: Howard, P. J., 1.  
 Gibson area, Midway-Sunset oil field: Woodward, W. T., 2.  
 Goleta oil field: Vickery, C. P., 1.  
 Greeley oil field: Updike, F. H., 1;  
 Winham, W. P., 1.  
 Halfmoon Bay dist.: Crandall, R. R., 1.  
 Huasna oil area: Taliaferro, 3.  
 Humboldt Co.: MacGinitie, H. D., 1.  
 Huntington Beach oil field: Weaver, D. K., 1.  
 Huntington Beach Old Field oil field: Carriel, J. T., 1.  
 Imperial carbon dioxide gas field: Rook, S. H., 1.  
 Inglewood oil field: Driver, H. L., 1.  
 Kettleman Hills oil field: Galloway, J., 1.  
 Kern Front, Kern River oil field: Edwards, E. C., 2, 3.  
 Kern River area, Kern River oil field: Stevens, J. B., 2.  
 La Goleta gas field: Swayze, R. O., 1.  
 Lawndale oil field: Reese, R. G., 2.  
 Lompoc oil field: Dibblee, T. W., Jr., 1.  
 Long Beach oil field: Stolz, H. P., 2.  
 Los Angeles City oil field: Soper, E. K., 1.  
 Lost Hills oil field: Follansbee, G. S., Jr., 1.  
 McDonald Island gas field: Knox, G. L., 1.  
 McKittrick oil field: Stevens, J. B., 1.  
 McKittrick Front oil field, Cymric areas: Atwill, E. R., 3.  
 Martinez fm. age: Watson, E. A., 1.  
 Marysville (Sutter) Buttes gas field: Johnson, H. R., 1.

## Tertiary—Continued.

## California—Continued.

- Montebello oil field: Reese, R. G., 3.  
 Moody Gulch oil field: Krueger, M. L., 3.  
 Morgan Hill area: Gilbert, C. M., 1.  
 Mt. Diablo area: Clark, B. L., 2; Cross, C. M., 1.  
 Newhall oil field: Kew, W. S. W., 1.  
 Newport oil field: Parker, S. F., 1.  
 North Midway area, Midway-Sunset oil field: Woodward, W. T., 1.  
 Northwest Wilmington oil field: Cabeen, W. R., 1.  
 Paloma field: Wood, J. T., Jr., 1.  
 Park dist.: Bailey, E. H., 2.  
 Paskenta region: Rist, R. L., 1.  
 Petaluma area: Johnson, F. A., 1.  
 Petroleum and gas, strat. occurrence: Kribbs, G. R., 3.  
 Piru oil field: Hobson, H. D., 1.  
 Playa del Rey oil field: Metzner, L. H., 1.  
 Point Arena-Fort Ross area: Weaver, C. E., 2.  
 Potrero oil field: Willis, R., 2.  
 Republic area, Midway-Sunset oil field: Young, U., 1.  
 Richfield oil field: Gardiner, C. M., 1.  
 Rincon oil field: Bailey, W. C., 1; Stewart, R. E., 1.  
 Rio Bravo oil field: Kasline, F. E., 2; Noble, E. B., 2.  
 Rio Vista gas field: Soper, E. K., 4.  
 Round Mtn. oil field: Rogers, R. G., 1.  
 Rumsey Hills area: Kirby, J. M., 3.  
 San Benito quad.: Wilson, I. F., 1.  
 San Diego Co.: Hertlein, L. G., 1.  
 San Gabriel Mts.: Williams, J. E., 1.  
 Santa Clara River drainage area: Loel, W., 1.  
 Santa Cruz Co.: Hubbard, H. G., 1.  
 Santa Fe Springs oil field: Winter, H. E., 1.  
 Santa Maria dist.: Woodring, 2.  
 Santa Maria (Orcutt) oil field: Dreyer, F. E., 1.  
 Santa Maria Valley oil field: Canfield, C. R., 1.  
 Santa Paula oil field: Waterfall, L. N., 1.  
 Sargent oil field: Michelin, J., 1.  
 Seal Beach oil field: Bowes, G. H., 1.  
 Semitropic gas field: Valentine, W. W., 1.  
 Sespe oil field: Clements, T., 1.  
 Simi oil field: Stipp, T. F., 1.  
 Sites area: Kirby, J. M., 4.  
 Shells Canyon area, Bardsdale oil field: Snedden, L. B., 3.  
 Soledad quad.: Schombel, L. F., 1.  
 South Mtn. oil field: Snedden, L. B., 1.  
 Strand oil field: Cross, C. M., 2.  
 Tejon fm., type locality: Marks, J. G., 1.  
 Ten Section oil field: Gentry, A. W., 1.  
 Torrance oil field: Cabeen, W. R., 1; Davis, E. L., 1.

## Tertiary—Continued.

## California—Continued.

- Trico gas field: Doell, E. C., 1.  
 Vaqueros fm. age: Schenck, H. G., 2.  
 Vaqueros fm. type locality: Thorup, R. R., 1.  
 Ventura Ave. oil field: Thoms, C. C., 1.  
 Ventura region: Putnam, W. C., 1.  
 Wasco oil field: Barnes, R. M., 1.  
 Webster area, Midway-Sunset oil field: Ayars, R. N., 1.  
 West Cat Canyon oil field: Manlove, C., 1.  
 West Coyote Hills oil field: Reese, R. G., 4.  
 West Montebello field: Stolz, H. P., 1, 3.  
 Wheeler Ridge oil field: Gester, S. H., 1.  
 Whittier oil field: Holman, W. H., 1.  
 Williams, Twenty-Five Hill areas, Midway-Sunset oil field: Hillis, D. L., 1.  
 Willows gas field: Williams, R. N., Jr., 2.  
 Wilmington oil field: Crown, W. J., 1; Winterburn, R., 1.  
 Yorba Linda part, Coyote Hills oil field: Parker, F. S., 2.  
 Canada, Front Ranges, Rocky Mts.: Atwood, W. W., 1.  
 Oil and gas fields: Hume, G. S., 2.  
 Western oil fields: Hunter, C. M., 1.  
 Cascade Range: Williams, H., 1.  
 Cenozoic fms., Atlantic, Gulf Coastal Plain and Caribbean region: Cooke, C. W., 4.  
 Central America, NW.: Mullerried, 5.  
 Coal, origin and composition: Mott, R. A., 1.  
 Colorado, Alma dist.: Singewald, Q. D., 1.  
 Arkansas River gorge: Kessler, F. C., 1.  
 Aspen dist.: Vanderwilt, J. W., 2.  
 Beaver-Tarryall area, Park Co.: Singewald, Q. D., 2.  
 Denver Basin: Brown, R. W., 4.  
 Sediments: Curtis, B. F., 1.  
 Dike rocks, Front Range: Bray, J. M., 2.  
 Front Range: Bray, J. M., 2.  
 Gold Hill area: Goddard, E. N., 1.  
 Jamestown area: Bray, J. M., 1, 3.  
 Continental problems: Wood, H. E., 2d, 1.  
 Costa Rica, Amoura sh.: Goudkoff, P. P., 1.  
 Virilla Canyon, Meseta Central: Crosby, I. B., 2.  
 Cuba, Florida area, Camaguey: Broderman, J., 5.  
 Geology and oil prosp.: Palmer, R. H., 1.  
 Habana Prov.: Broderman, J., 2, 3.  
 Pinar del Río Prov.: Vermunt, L. W. J., 1.  
 Vento Valley: Broderman, J., 1.  
 Dinosaurs, hadrosaurian, distrib.: Lull, R. S., 2.  
 Elk Basin field, Mont.-Wyo.: Hendrickson, V. J., 1.  
 Florida: Vernon, R. O., 3.  
 Everglades: Parker, G. G., 1.  
 Holmes Co.: Vernon, R. O., 1.

## Tertiary—Continued.

## Florida—Continued.

- Peninsula, solution: Stubbs, S. A., 1.  
 Southern, natural features: Davis, J. H., Jr., 1.  
 Washington Co.: Vernon, R. O., 1.  
 Well studies: Cole, W. S., 1.  
 Georgia, Coastal Plain: Cooke, C. W., 5.  
 Southeast-Florida N., oil explor.: Carroll, D. L., 3.  
 Greenland, large landslide: Stauber, H., 1.  
 Traill Is.: Schaub, H. P., 1.  
 Gulf Coast oil poss.: Howard, W. V., 2.  
 Hantkenina and sub-genera: Thalmann, H. E., 3.  
 Hawaii, Maui Is.: Stearns, H. T., 3.  
 Idaho, Bannock Range: Ludlum, J. C., 2.  
 Dixie dist.: Roberts, R. J., 3.  
 Meyers Cove area: Anderson, A. L., 6.  
 Rocky Bar dist.: Anderson, A. L., 7.  
 Shoshone area: Harrington, E. R., 2.  
 Illinois, Marseilles, Ottawa, Streator quads.: Willman, H. B., 2.  
 Outlines of geology: Keyes, 25.  
 Southern: Bell, A. H., 6; Krause, A., 1.  
 Wildcat drilling since 1936: Carter, C. W., 1.  
 Jamaica, Guy's Hill road sec.: Matley, C. A., 1.  
 Kansas, Ellis, Russell Cos. oil fields: Frye, J. C., 5.  
 Ford Co.: Waite, H. A., 1.  
 Hamilton, Kearny Cos.: McLaughlin, T. G., 2.  
 Meade Co.: Frye, J. C., 4.  
 Morton Co.: McLaughlin, T. G., 1.  
 Oil and gas fields: Moore, R. C., 7.  
 Phillips Co.: Landes, K. K., 2.  
 Zenith pool: Imbt, W. C., 1.  
 Kansas-Oklahoma, Hugoton field: Garlough, J. L., 1.  
 Kentucky: McFarlan, A. C., 2.  
 Kentucky River Pliocene channel: Jilison, W. R., 4.  
 Laramie River Valley, Colo.-Wyo.: Beckwith, R. H., 1.  
 Lithology of sea-floor off Calif.: Emery, K. O., 1.  
 Louisiana, Anse la Butte dome: Bates, F. W., 1.  
 Eola oil field: Oil and Gas Jour., 1.  
 Jennings oil field: Roach, C. B., 1.  
 University field: Halbouty, M. T., 1.  
 Vernon Parish: Welch, R. N., 1.  
 Louisiana and Texas, Pendleton fm.: Wasem, R., 1.  
 Massachusetts, Conn. River Valley: Bain, G. W., 1.  
 Mexico, Alistos, gold-nickel deposit: Krieger, P., 1.  
 Fresnillo mine veins: Stone, J. B., 1.  
 Guadalajara: Díaz, S., 1.  
 Northern: Kellum, L. B., 1; King, P. B., 1.

## Tertiary—Continued.

## Mexico—Continued.

- Orogenesis and relief: Robles Ramos, R., 1.  
 Rio Nazas Valley, Coahuila: Waitz, P., 2.  
 Sierra Madre Oriental: Heim, A., 1.  
 Tin deposits: Foshag, W. F., 1.  
 Valley of Tixtla: Mullerried, 9.  
 Volcanoes: De la O. Carreño, A., 1.  
 Mississippi, Adams Co.: Vestal, F. E., 1.  
 Camp McCain area: Brown, G. F., 1.  
 Camp Van Dorn area: Brown, G. F., 2.  
 Choctaw Co.: Vestal, F. E., 2.  
 Claiborne: Thomas, E. P., 1.  
 Clay Co.: Bergquist, H. R., 2.  
 Montgomery Co.: Priddy, R. R., 2.  
 Pontotoc Co.: Priddy, R. R., 3.  
 Scott Co.: Bergquist, H. R., 1.  
 Tallahatchie Co.: Priddy, R. R., 1.  
 Union Co.: Conant, L. C., 1.  
 Missouri, Stoddard Co.: Stewart, D. R., 1.  
 Montana, Rocky Boy stock: Pecora, W. T., 3.  
 Sawtooth Range: Deiss, C. F., 2.  
 Nebraska, geol. sections: Condra, G. E., 1.  
 Nevada, dating diastrophic events: Longwell, C. R., 2.  
 Lander Co.: Fries, C., Jr., 1.  
 Three Kids dist.: Hunt, C. B., 1.  
 New England-Hudson Valley area: Longwell, 4.  
 New Jersey, Miocene: Richards, H. G., 1.  
 New Mexico: Bates, R. L., 1.  
 Central mining dist.: Schmitt, H. A., 1.  
 Cerro Colorado: Wright, H. E., Jr., 1.  
 Cimarron Range: Smith, J. F., Jr., 1.  
 Cretaceous-Tertiary boundary: Keyes, 9.  
 Galistos fm.: Stearns, C. E., 2.  
 Magdalena mining dist.: Loughlin, G. F., 2.  
 Sierra Cuchillo: Jahns, R. H., 4.  
 North America, Lake Ontario homocline: Kay, G. M., 2.  
 North Carolina Coastal Plain: Richards, H. G., 2.  
 North Dakota: Kline, V. H., 1; Seager, O. A., 2.  
 Cannonball fm.: Fox, S. K., Jr., 1.  
 Dakota Basin: Hennen, R. V., 1.  
 Morton Co.: Laird, W. M., 2.  
 Turtle Mts. manganese: Hendricks, T. A., 1.  
 Williston Basin wildcat test: Ehlers, A., 1.  
 Oklahoma, Cimarron Co.: Schoff, S. L., 1.  
 Ground water: Dott, R. H., 1.  
 Oligocene, status: Durham, J. W., 6.  
 Ontario, Ottawa-Bonnechere graben area: Kay, G. M., 2.  
 Opalite dist., Oreg.-Nev.: Yates, R. G., 1.  
 Oregon: Treasher, R. C., 1.  
 Chromiferous sands, origin: Griggs, A. B., 1.  
 Coos Bay fms.: Weaver, C. E., 3.  
 Crater Lake Nat. Park: Williams, H., 1.

## Tertiary—Continued.

## Oregon—Continued.

- Nickel Mtn. area: Pecora, W. T., 1.  
 North-central: Hodge, E. T., 1.  
 Portland area: Treasher, R. C., 2.  
 Snake-Imnaha Rivers jct. area: Libbey, F. W., 2.  
 Southwest Coast: Twenhofel, 7.  
 Steens and Pueblo Mts.: Ross, C. P., 3.  
 Tyrrell area: Lowry, W. D., 1.  
 Wallowa batholith: Krauskopf, K. B., 1.  
 Willamette Valley: Durham, J. W., 5;  
 Piper, A. M., 1.  
 Pacific Northwest, U. S.: Smith, W. D., 1.  
 Paleobotany and Cret.-Tert. boundary: Dorf, E., 2.  
 Panama: Olsson, A. A., 1.  
 Pecos River Valley, Tex.-N. Mex.: Theis, C. V., 1.  
 Quebec, St. Jean-Beloeil areas: Clark, T. H., 2.  
 Rodessa field, Ark.-La.-Tex.: Hill, H. B., 1.  
 Sand belt area, Tex.-N. Mex.: Denham, R. L., 1.  
 Saskatchewan, Big Muddy Valley: Houldsworth, E., 1.  
 South Dakota, Badlands: Richardson, G. H., 1.  
 Chamberlain area: Gries, J. P., 1.  
 Medicine Butte anticline: Petsch, B. C., 1.  
 Surface: Rothrock, E. P., 5.  
 White River Valley: Rothrock, E. P., 2.  
 Tennessee, Eocene: Whitlatch, G. I., 3.  
 Texas: Evans, G. L., 1; S. Tex. G. Soc., 2.  
 East Texas field: Minor, H. E., 1.  
 Eocene, Laredo-Rio Grande City: Patterson, J. M., 1.  
 Esperson and Barbers Hill salt dome: Oil and Gas Jour., 1.  
 Fort Worth-Midland area: Scott, G., 1.  
 Gonzales Co.: Chelf, C. R., 1.  
 Hardin field (Davis sand lens): Casey, S. R., Jr., 1.  
 Hitchcock field: Halbouty, M. T., 2.  
 Houston area: Rose, N. A., 1.  
 Jackson Co. fields: Eby, J. B., 2; Hornberger, J., Jr., 1.  
 Lopez field: Best, J. B., 1.  
 O'Hern field: Barnett, D. G., 1.  
 North Quitman Mts.: Huffington, R. M., 1.  
 Plymouth field: Tatum, J. L., 1.  
 Sam Fordyce field: Earl, E. L., 1.  
 Santiago Peak quad.: Eifler, G. K., Jr., 1.  
 Seguin fm.: Beckman, M. W., 1.  
 Shafter mining dist.: Ross, C. P., 7.  
 South, Jackson fm.: Daugherty, C. G., Jr., 1.  
 Washburn field: Esgen, W. K., 1.  
 Wasson field: Schneider, W. T., 1.  
 Wilcox sand trend: Rinehart Oil News Co., 1.  
 Texas and Louisiana, Pendleton fm.: Wasem, R., 1.  
 Trinidad: Renz, H. H., 1.

## Tertiary—Continued.

- United States, Basin and Range prov.: Nolan, T. B., 1.  
 Dakota Basin: Ballard, N., 2.  
 Miocene oil zones: Oil and Gas Jour., 2.  
 Oligocene oil zones: Oil and Gas Jour., 2.  
 Pliocene oil zones: Oil and Gas Jour., 2.  
 Rocky Mtn. oil and gas fields: Dobbin, C. E., 2.  
 Rocky Mts.: Knight, S. H., 2.  
 Utah, Cedar Hills: Schoff, S. L., 2.  
 Uinta Basin: Barb, C. F., 2.  
 West Tintic mining dist.: Stringham, B. F., 1.  
 Virginia, Coastal Plain: Cederstrom, D. J., 7.  
 Elkton area: King, P. B., 3.  
 Eocene: Gildersleeve, B., 1.  
 Lyndhurst-Vesuvius dist., manganese deposits: Knechtel, 2.  
 Washington, Cowlitz clay-alumina deposit: Allen, V. T., 1.  
 Metaline quad.: Park, C. F., Jr., 4.  
 Olympic Pen.: Park, C. F., Jr., 1;  
 Anonymous, 1.  
 West-Texas-New Mexico area: King, P. B., 2.  
 Wyoming, Cache Creek area, Gros Ventre Mts.: Nelson, V. E., 1.  
 Camp Davis trough: Eardley, A. J., 2.  
 Casper Mtn.: Hares, C. J., 1.  
 Gros Ventre and N. Hoback Ranges: Nelson, V. E., 2.  
 Heart Mtn. and South Fork thrusts: Pierce, W. G., 2.  
 Rocks, soils, and selenium: Knight, S. H., 1.  
 Teton Mts.: Edmund, R. W., 1.  
 Wolf Creek area, St. Elias Range: Sharp, R. P., 7.  
 Tetrahedron theory of the earth: Corral y Alemán, J. I., del, 1.  
 Texas.  
 Canyons of Texas: Schoffelmayer, V. H., 1.  
 Soil phenomena and climatic changes: Bryan, K., 6.  
 Areas described.  
 Shafter mining dist.: Ross, C. P., 7.  
 Economic geology.  
 Atascosa Co.: McGammon, J. H., II, 1.  
 Barnhart field, Reagan Co.: Cole, C. T., 2.  
 Bentonite, Houston Co.: Webb, S. N., 1.  
 Old Brownell Townsite: Shafer, G. H., 2.  
 Bleaching clays, Gonzales Co.: Chelf, C. R., 1.  
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 Bryozoa, Upper Dev.: McNair, A. H., 1.  
 Cambrian, Lower, Middle, Great Basin: Wheeler, H. E., 1.  
 Chitinozoa, Paleozoic: Cooper, C. L., 6.  
 Cirratulids, supposed fossil, Pacific Coast: Packard, E. L., 1.  
 Corals, Carb. Miss. Valley: Easton, W. H., 6.  
 Cretaceous, Tert., Pacific Coast: Durham, J. W., 4.  
 Cycads, fossil: Lee, H. E., 1.  
 Cytheridea, Eocene, Gulf Coast: Stephenson, M. B., 1.  
 Diatomaceous deposits, accumulation: Conger, P. S., 1.  
 Diatomite, Pacific NW.: Eyerly, G. B., 1.  
 Echinoids, Cenozoic: Cooke, C. W., 1.  
 Faunas, Perm. Leonard ser.: Clifton, R. L., 1.  
 Pre-Tertiary in SW.: Camp, C. L., 5.  
 Flaked weapon points, ancient man: Renaud, E. B., 1.  
 Flora, Miocene, Columbian Plateau: Chaney, R. W., 1.  
 Upper Cret., Rocky Mtn. area: Dorf, E., 1.  
 Galeodea, Tert., Pacific Coast: Durham, J. W., 2.



United States—Continued.

*Paleontology*—Continued.

- Gastroliths, true and false: Salo, O. J., 1.
- Hederella, Penn., Midwest: Condra, G. E., 5.
- Herbs, Tert., paleoecology, High Plains: Elias, M. K., 2.
- Jurassic fms., Gulf area: Imlay, R. W., 5.
- Macrofossils, Cret., Tert., Atlantic Coastal Plain wells: Richards, H. G., 5.
- Mounts, Reptilia, Amphibia, Permo-Carb.: Romer, A. S., 3.
- Mytilacea, Carb. Pelecypoda: Newell, N. D., 2.
- Nautiloids, Perm. western: Miller, A. K., 4.
- Ostracoda, Tert., Gulf Coastal Plain: Murray, G. E., Jr., 1.
- Post-Pleistocene veg. and climate, Pacific NW.: Hansen, H. P., 12.
- Pre-Columbian agr., SW.: Bryan, K., 1.
- Prehistoric trees of the U. S.: Brown, R. W., 7.
- Productidae, cardinal process: Sutton, A. H., 3.
- New species: Sutton, A. H., 1.
- Pullenia genus and species: Cushman, 2.
- Receptaculitidae, Sil., Ord., Miss. Valley: Howell, B. F., 9.
- Rhopocrinus, Carb.: Kirk, E., 1.
- Sarocrinus, Misn.: Kirk, E., 3.
- Tertiary grasses and herbs, High Plains: Elias, M. K., 1.
- Triticites, Carb.: Burma, B. H., 1.
- Trilobita, Camb., revision: Raasch, G. O., 1.
- Yuma, Folsom artifacts: Renaud, E. B., 2.

*Petrology.*

- Appalachians, distortion of thickness by folding: Cloos, E., 1.
- Cambrian, Lower, Middle, Great Basin: Wheeler, H. E., 1.
- Columbia lava basins and plateaus: Freeman, O. W., 2.
- Gastroliths, true and false: Salo, O. J., 1.
- Igneous rocks, rare metals in: Sandell, E. B., 1.
- Pacific Northwest W. of Cascades: Smith, W. D., 1.
- Phosphate rock fm., W.: Green, J. R., 2.
- Ring dike, origin: Billings, M. P., 3.
- Rocky Mtn. prov.: Forrester, J. D., 1.
- Tuscaloosa fm. SE. Gulf Coastal Plain: Munyan, A. C., 1.
- Zoning, ore deposits, Tri-State dist.: McKnight, E. T., 2.

*Physical geology.*

- Appalachian folds and structures: Lambers, E. C. H., 2.
- Appalachians, distortion of thickness by folding: Cloos, E., 1.
- Basin and Range prov.: Nolan, T. B., 1.
- Cambrian, Lower, Middle, Great Basin: Wheeler, H. E., 1.

United States—Continued.

*Physical geology*—Continued.

- Columbia lava basins and plateaus: Freeman, O. W., 2.
- Cottonwood-American Fork area: Calkins, F. C., 2.
- Dakota Basin: Ballard, N., 2.
- Earthquakes: Earthquake Notes, 1; 1940, Neumann, F., 1.
- Geologic aspect of torrential floods: Granger, A. E., 1.
- Geophysics in Appalachians: Randall, L. E., 1.
- Mississippi Valley lead-zinc dist.: Behre, C. H., Jr., 1.
- Ore shoots on warped fault planes: Emmons, W. H., 1.
- Pacific Northwest: Freeman, O. W., 1.
- West of Cascades: Smith, W. D., 1.
- Ring dikes, origin: Billings, M. P., 3.
- Rocky Mtn. oil and gas area: Dobbin, C. E., 2.
- Rocky Mtn. prov.: Forrester, J. D., 1.
- Rocky Mts. evolution: Knight, S. H., 2.
- Seismological field work, 1941-42: Ulrich, F. P., 1.
- Soil-creep and earthflow, Appalachian Plateaus: Sharpe, C. F. S., 1.
- Ventifacts in glacial deposits: Thiesmeyer, L. R., 2.

*Physiographic geology.*

- Appalachians, S., erosion: Wright, F. J., 1.
- Basin and Range prov.: Nolan, T. B., 1.
- Columbia lava basins and plateaus: Freeman, O. W., 2.
- Deltas, outlet: Logan, R. F., 1.
- Limestone caverns, vadose, phreatic features: Bretz, J. H., 1.
- Mississippi River glacial shiftings: Levett, F., 3.
- Pacific Northwest: Freeman, O. W., 1.
- West of Cascades: Smith, W. D., 1.
- Penplain in the making: Keyes, 24.
- Pre-Columbian agri., SW.: Bryan, K., 1.
- Regional rainfalls and erosion: Visser, S. S., 1.
- Rocky Mtn. prov.: Forrester, J. D., 1.
- Rocky Mts. evolution: Knight, S. H., 2.
- Southwestern geology: Baker, C. L., 3.
- Ventifacts in glacial deposits: Thiesmeyer, L. R., 2.

*Underground water.*

- Ground water, coastal, salty, chem. composition: Foster, M. D., 2.
- Elevation changes, S. coastal basin: Gleason, G. B., 1.
- General: Meinzer, O. E., 2, 4, 6.
- Studies in SW.: Meinzer, O. E., 5.
- Limestone caverns, vadose, phreatic features: Bretz, J. H., 1.
- Water-well drilling, early history: Carlston, C. W., 1.

Universal stage, 5 rotation axes: Emmons, R. C., 1.

University oil field, La.: Halbouty, M. T., 1.

- Uraninite, crystal zones, N. C.: Alter, C. M., 1.
- Uranium. See also Carnotite.  
Age of solar system, measurement: Evans, R. D., 2.  
North Carolina, crystal zones: Alter, C. M., 1.  
Radiogenic heat in rocks: Keovil, N. B., 6.
- Utah.
- Geologic factors in settlement and devel.: Schneider, H., 1.
- Areas described.*  
Cottonwood-American Fork area: Calkins, F. C., 2.
- Economic geology.*  
Ashbrook silver dist.: Peterson, V. E., 1.  
Bituminous sands, Uinta Basin: Ball, J. O., 1; Barb, C. F., 2.  
Cottonwood-American Fork area: Calkins, F. C., 2.  
Phosphate reserves: Williams, J. Stewart, 1.  
Vanadium: Argall, G. O., Jr., 2; Fischer, R. P., 1.  
West Tintic mining dist.: Stringham, B. F., 1.
- Historical geology.*  
Ashbrook silver dist.: Peterson, V. E., 1.  
Carboniferous fms. Uinta, Wasatch Mts.: Williams, J. Stewart, 2.  
Cedar Hills orogeny: Schoff, S. L., 2.  
Cottonwood-American Fork area: Calkins, F. C., 2.  
Paleozoic seas, marginal: McKee, E. D., 3.  
Uinta Mts.: Thomas, H. D., 1.  
West Tintic mining dist.: Stringham, B. F., 1.
- Mineralogy.*  
Ashbrook silver dist.: Peterson, V. E., 1.  
Bismoclite: Frondel, C., 4.  
Tintic mines: Frondel, C., 5.  
Bismuth arsenates: Frondel, C., 5.  
Bituminous sands, Uinta Basin: Barb, C. F., 2.  
Calcite crystals: Hays, J. J., 1.  
Cottonwood-American Fork area: Calkins, F. C., 2.  
Vanadium: Argall, G. O., Jr., 2.  
Variscite nodules, Fairfield: Larsen, E. S., 3d, 1.  
West Tintic mining dist.: Stringham, B. F., 1.
- Paleontology.*  
Asphalt Ridge Cret. fauna: Tolmachoff, I. P., 1.  
Carboniferous fms. Uinta, Wasatch Mts.: Williams, J. Stewart, 2.  
Cottonwood-American Fork area: Calkins, F. C., 2.  
Lizards, Cret.: Gilmore, C. W., 4.  
Morrison "gastroliths" questioned: Stokes, W. L., 1.
- Utah—Continued.
- Paleontology—Continued.*  
Palaeocoryne attached to Fenestella: Elias, M. K., 5.  
Pinocochus, Cret.: Gilmore, C. W., 2.  
Polyglyphanodon, Cret.: Gilmore, C. W., 1.  
Rhombotrypella, Penn.: Condra, G. E., 6.
- Petrology.*  
Ashbrook silver dist.: Peterson, V. E., 1.  
Bituminous sands, Uinta Basin: Barb, C. F., 2.  
Feldspar phenocrysts, Cottonwood granodiorite: Stringham, B. F., 2.  
Laccolithic mts., oil poss.: Hunt, C. B., 2.  
Morrison "gastroliths" questioned: Stokes, W. L., 1.  
Utah Lake sediments: Trask, P. D., 2.  
West Tintic mining dist.: Stringham, B. F., 1.
- Physical geology.*  
Ashbrook silver dist.: Peterson, V. E., 1.  
Carboniferous fms. Uinta, Wasatch Mts.: Williams, J. Stewart, 2.  
Cedar Hills orogeny: Schoff, S. L., 2.  
Laccolithic mts., oil poss.: Hunt, C. B., 2.  
Natural bridges: Janssen, R. E., 2.  
Variscite nodules, Fairfield: Larsen, E. S., 3d, 1.
- Physiographic geology.*  
Cottonwood-American Fork area: Calkins, F. C., 2.  
Natural bridges: Vokes, H. E., 8.  
San Juan River meanders: Vokes, H. E., 6.
- Utilization of geology and geologists in war time: G. Soc. Am., 1.
- Uvarovite, Calif.: McDonnell, D., 1.
- Vanadium.  
Mexico, San Antonio mine, Chihuahua: Hewitt, W. P., 1.  
Minerals in world affairs: Lovering, T. S., 3.  
New York, Lake Sanford area: Balsley, J. R., Jr., 1.  
Tahawus mine: Killinger, P. E., 1.  
Phosphoria fm. Idaho-Wyo.: Rubey, W. W., 1.  
Rare-element prosp. in pegmatites: Quirke, T. T., 2.  
United States: Argall, G. O., Jr., 2.  
Utah: Fischer, R. P., 1.
- Vaqueros fm. type locality, Calif.: Thorup, R. R., 1.
- Variations, earth's crustal layers: Gutenberg, B., 7.
- Variscite, Fairfield, Utah, paragenesis of nodules: Larsen, E. S., 3d, 1.
- Varved clays. See also Sedimentation.  
Canadian Shield Archean sedimentation: Pettijohn, F. J., 1.  
Massachusetts, Conn. River Valley: Bain, G. W., 1.  
Ontario, Dryden-Wabigoon area: Satterly, J., 3.

## Varved clays—Continued.

## Ontario—Continued.

- Eagle Lake area: Moorhouse, W. W., 1.  
 Langmuir-Sheraton area: Berry, L. G., 2.

## Varves. See also Paleoclimatology; Sedimentation.

- Climatic changes: Russell, R. J., 1.  
 Ice Age: Gillette, H. P., 3.  
 Ohio, Sandusky Bay sediments: Wilson, I. T., 2.

- Vermont, Champlain Valley: Chapman, D. H., 1.

- Great Ice Age: Jacobs, E. C., 2.

## Vein, fissure, asymmetrically banded: Ingerson, F. E., 1.

## Velocity and sedimentation: Krynine, P. D., 3.

## Ventifacts. See also Wind work.

## Glacial anticyclones and Pleist. glaciation: Hobbs, W. H., 7.

- Iowa, Iowan glaciation: Leverett, F., 2.  
 Massachusetts, Cape Cod, Pleist.: Mather, K. F., 2.

- Montana, dreikanter: Salo, O. J., 2.

- North America, glacial anticyclones and continental glaciers: Hobbs, W. H., 3.

- United States, midwestglacial deposits: Thiesmeyer, L., 2.

- Wind-polished rocks, trans-Pecos area: Bryan, K., 3.

- Wind transportation, extramarginal glacier zones: Hobbs, W. H., 1.

- Wind work and glaciation: Thiesmeyer, L. R., 3.

- Wisconsin, Kansas drift: Thiesmeyer, L. R., 1.

- Older drift: Stratton, C. G., 1.

## Ventura Ave. oil field, Calif.: Thoms, C. C., 1.

## Vermes. See also Invertebrata (general).

- Alberta, Moose Mtn.-Morley area: Beach, H. H., 3.

- Arkansas, Pitkin ls.: Easton, W. H., 1.

- Cirratulidae, Pacific Coast, U. S.: Packard, E. L., 1.

- Ecology of marine organisms: Ladd, H. S., 1.

- Faunas, Leonard Perm. ser., U. S.: Clifton, R. L., 1.

- Silurian, W. Va.: Woodward, H. P., 1.

- Foralites burrows, Camb., N. Y.: Howell, B. F., 13.

- Mississippi, Clay Co.: Bergquist, H. H., 2.

- Pontotoc Co.: Priddy, R. R., 3.

- New York, Esopus grit Dev. fauna: Howell, B. F., 5.

- Ohio, Prout ls.-Plum Brook sh.: Stumm, E. C., 1.

- Oldhamia is a worm track: Ruedemann, R., 1.

- Ontario, London area Paleozoics: Caley, J. F., 1.

- Pennsylvania, Lehigh Co., Hardyston fm.: Miller, B. L., 2.

- Pitkin fm. fauna, Ark.: Easton, W. H., 3.

## Vermes—Continued.

- Pre-Cambrian oldest fossil horizon, Calif.: Keyes, 26.

- Teredo borings in Cupressinoxylon, Cret., Md.: Anonymous, 28.

- Teredolithus, collective group name: Bartsch, P., 1.

## Vermiculite, N. Am., rare alkalies in micas: Stevens, R. E., 1.

## Vermont.

- Biennial rept., geologist, 1939-42: Jacobs, E. C., 1.

*Economic geology.*

- Asbestos: Bain, G. W., 2.

- Copper mines: Jacobs, E. C., 1.

- Mineral resources, 1939-42: Jacobs, E. C., 1.

- Talc deposits: Bain, G. W., 2.

*Historical geology.*

- Abandoned valley West Charleston: Doll, C. G., 1.

- Champlain sea: Chapman, D. H., 1.

- Paleozoic revision: Doll, C. G., 2.

- West-central, stratigraphy, structure: Cady, W. M., 1.

*Mineralogy.*

- Asbestos deposits: Bain, G. W., 2.

- Copper mines: Jacobs, E. C., 1.

- Mineral localities: Waite, E., 1.

- South Strafford meteorite: Leonard, F. C., 6.

- Talc deposits: Bain, G. W., 2.

*Paleontology.*

- Eocene faunas, Vertebrata: Gildersleeve, B., 1.

- Paleozoic revision: Doll, C. G., 2.

- Spirifer, Dev. in mica schist, South Strafford: Doll, C. G., 3.

*Petrology.*

- Paleozoic revision: Doll, C. G., 2.

- X-ray study, slate and shale: Fairbairn, H. W., 4.

*Physical geology.*

- Asbestos deposits: Bain, G. W., 2.

- Paleozoic revision: Doll, C. G., 2.

- Talc deposits: Bain, G. W., 2.

- West-central stratigraphy, structure: Cady, W. M., 1.

*Physiographic geology.*

- Abandoned valley, West Charleston: Doll, C. G., 1.

- Champlain Sea: Chapman, D. H., 1.

- Champlain Valley: Jacobs, E. C., 1.

- Glacial, post-glacial history: Chapman, D. H., 1.

- Glacial deposits, Vermont Valley: Gordon, C. E., 1.

- Great Ice Age: Jacobs, E. C., 1, 2.

## Vertebrata (general). See also Amphibia, Aves, etc.

- Bibliography: Camp, C. L., 4.

- California, Ventura region: Putnam, W. C., 1.

## Vertebrata—Continued.

- California, Ventura region: Putnam, W. C., 1.  
 Criteria for classn.: Simpson, G. G., 7.  
 Ecology of marine organisms: Ladd, H. S., 1.  
 El Salvador, Pleist.: Stirton, R. A., 3.  
 Eocene faunas, Vt.: Gildersleeve, B., 1.  
 Faunas, pre-Tert., SW. of U. S.: Camp, C. L., 5.  
 Georgia, Coastal Plain: Cooke, C. W., 5.  
 Kansas, Pleist. terrace: Frye, J. C., 3.  
 Mississippi, Clay Co.: Bergquist, H. R., 2.  
 Pontotoc Co.: Priddy, R. R., 3.  
 North America, discovery of fossils: Simpson, G. G., 6.  
 Ohio, Olentangy sh. fauna: Baker, R. C., 1.  
 Oregon, Miocene: Wallace, R. E., 1.  
 Pitkin fm. fauna, Ark.: Easton, W. H., 3.  
 Preparation, fossil skeletons: Schultz, C. B., 3.  
 South Dakota, Pliocene: Gregory, J. T., 1; Hesse, C. J., 1.  
 White River Badlands: Patterson, B., 1.  
 Tennessee, Gassaway: Whitlatch, G. I., 1.  
 Texas: Evans, G. L., 1.  
 Vesiculated mud, SW. Ohio streams: Griffin, R. H., 2.  
 Viola fm. oil pools, Kans.: Imbt, W. C., 2.  
 Violarite, Cuniptau mine, Ontario: Sandefur, R. T., 1.  
 Virgin Islands. See also West Indies.  
 Bibliography: Reid, C. F., 1.

*Paleontology.*

- Foraminifera, Tert., St. Croix: Cushman, 2.

## Virginia.

- Bibliography, geol.: Roberts, J. K., 1.  
 Geology and min. res.: Bevan, A. C., 3.  
 Development of geol. thought: Roberts, J. K., 2.  
 Thomas Jefferson and science: Clark, A. H., 2.  
 Thomas Jefferson, pioneer paleontologist: Schultz, C. B., 2.

*Areas described.*

- Appalachian Valley: Butts, C., 1.  
 Walker Mtn. S. end: Butts, C., 2.

*Economic geology.*

- Bibliography on geology and min. res.:  
 Bevan, A. C., 3.  
 Cedar Creek Valley: Monroe, W. H., 2.  
 Diatomite, Petersburg area: McGill, W. M., 1.  
 Dolomite: Bevan, A. C., 8.  
 Early Grove gas field: Averitt, P., 1.  
 Eocene: Gildersleeve, B., 1.  
 Feldspars: Dear, P. S., 1.  
 Geologic resources in war and peace: Bevan, A. C., 5.  
 Limestones: Bass, C. E., 1; Bevan, A. C., 1.

## Virginia—Continued.

*Economic geology—Continued.*

- Manganese, Appalachian Valley, origin: Stose, G. W., 1.  
 Elkton area: King, P. B., 3.  
 Lyndhurst-Vesuvius dist.: Knechtel, M. M., 2.  
 Veins, SW.: Jonas, A. I., 1.  
 Metallic resources: Bevan, A. C., 6.  
 Natural gas, Rockingham Co.: Price, P. H., 2.  
 Tin, Irish Creek: Koschmann, A. H., 2.  
 Titanium, Roseland dist.: Ross, C. S., 1.  
 War minerals: Bevan, A. C., 2.

*Historical geology.*

- Appalachian geosyncline: Lammers, E. C. H., 1.  
 Appalachian Valley: Butts, C., 1; Kay, G. M., 4.  
 Bibliography on geology: Roberts, J. K., 1.  
 Geology and min. res.: Bevan, A. C., 3.  
 Buchanan-Cove Mtn.-Jennings Creek field trip: Holden, R. J., 1.  
 Catocin fm.: Bloomer, R. O., 2.  
 Cedar Creek Valley: Monroe, W. H., 2.  
 Clarke Co.: Butts, C., 3.  
 Coastal Plain: Cederstrom, D. G., 7.  
 Cobble, Blue Ridge, transported: Steidtmann, E., 2.  
 Correlations, Middle Ord.: Huffman, G. G., 1.  
 Deep well, Russell Co.: Martens, J. H. C., 2.  
 Dolomite: Bevan, A. C., 8.  
 Early Grove gas field: Averitt, P., 1.  
 Elkton area: King, P. B., 3.  
 Eocene: Gildersleeve, B., 1.  
 Frederick Co.: Butts, C., 3.  
 Irish Creek: Koschmann, A. H., 2.  
 James River Basin: Roberts, J. K., 4.  
 Limestones, Ord.: Kay, G. M., 7.  
 Little North Mtn. structure: Giles, A. W., 1.  
 Lyndhurst-Vesuvius dist.: Knechtel, M. M., 2.  
 Martinsburg fm., Massanutten Mtn.: Sechrist, M. H., 2.  
 Miocene: Gardner, J. A., 1.  
 Moccasin fm.: Cooper, B. N., 2.  
 Onondaga group: Rehn, E. E., 1.  
 Ordovician, Clinch Mtn.: Cooper, B. N., 3.  
 Petersburg granite, Piedmont: Pegau, A. A., 1.  
 Piedmont Paleozoic ls. belt: Bevan, A. C., 7.  
 Pre-Cambrian landmass in E.: Brown, W. R., 1.  
 Roanoke-Salem area field trip: Holden, R. J., 3.  
 Silurian sections: Hunter, J. S., Jr., 1.  
 Soil Survey work, SW. Va.: Porter, H. C., 1.  
 Tazewell Co. Ord.: Cooper, B. N., 1.  
 Thrust-fault in granodiorite: Nelson, W. A., 1.

## Virginia—Continued.

*Historical geology*—Continued

Valley peneplain near Lexington: Coulbourn, U. F., 1.

Walker Mtn.: Butts, C., 2; Edmundson, R. S., 2.

*Mineralogy.*

Barite vein, Lexington: Steidtmann, E., 1.

Cedar Creek Valley: Monroe, W. H., 2.

Eocene: Gildersleeve; B., 1.

Feldspars: Dear, P. S., 1.

Gallium in beryl: Brannock, K. C., 2.

Heavy minerals, Sil. ss., Dev. lss.: Bierer, J. H., 1.

Insoluble residues, Sil., Dev., lss.: Jones, H. D., Jr., 1.

Manganese, Appalachian Valley, origin: Stose, G. W., 1.

Elkton area: King, P. B., 3.

Lyndhurst-Vesuvius dist.: Knechtel, 2.

Southwest: Jonas, A. I., 1.

Microfite, morphology: Donnay, 2.

Minerals, Riverton: Hawkins, A. C., 5.

Tin, Irish Creek: Koschmann, A. H., 2.

Titanium, Roseland dist.: Ross, C. S., 1.

Turquoise crystals: Robinson, C. H., 1.

War minerals: Bevan, A. C., 2.

*Paleontology.*

Appalachian Valley: Butts, C., 1; Kay, G. M., 4.

Athens fauna, Roanoke area: Fischer, A. G., 1.

Eocene: Gildersleeve, B., 1.

Gonioceras, Ord.: Flower, R. H., 6.

Martinsburg fm., Massanutten Mtn.: Secrist, M. H., 2.

Receptaculites, internal structure: Harrington, J. W., 1.

Tazewell Co., Ord.: Cooper, B. N., 1.

Trilobites, silicified: Mosheim, L. P., 1.

*Petrology.*

Buchanan-Cove Mtn.-Jennings Creek field trip: Holden, R. J., 1.

Catoctin fm.: Bloomer, R. O., 2.

Cobble, Blue Ridge; transported: Steidtmann, E., 2.

Deep well, Russel Co.: Martens, J. H. C., 2.

Dolomites: Bevan, A. C., 8.

Granodiorite, origin: Pegau, A. A., 2.

Heavy minerals, Sil. ss.: Bierer, J. H., 1.

Insoluble residues, Cambro-Ord. lss.: Tolley, C. D., 1.

Petersburg granite, Piedmont: Pegau, A. A., 1.

Piedmont Paleozoic belt: Bevan, A. C., 7.

Rhodinite, Piedmont: Overstreet, W. C., 1.

Sandstone, flexible: Hawkins, A. C., 1.

Silicified fault-gouge, Burkeville-Crewe area: Husted, J. E., 1.

Soils from lss.: Obenshain, S. S., 1.

Soil Survey work, SW. Va.: Porter, H. C., 1.

Tin, Irish Creek: Koschmann, A. H., 2.

Titanium, Roseland dist.: Ross, C. S., 1.

Walker Mtn. S. end: Butts, C., 2.

## Virginia—Continued.

*Physical geology.*

Appalachian geosyncline: Lammers, E. C. H., 1.

Appalachian Valley: Butts, C., 1.

Buchanan-Cove Mtn.-Jennings Creek field trip: Holden, R. J., 1.

Catoctin fm.: Bloomer, R. O., 2.

Clarke Co.: Butts, C., 3.

Early Grove gas field: Averitt, P., 1.

Elkton area: King, P. B., 3.

En echelon tension fractures: Shainin, V. E., 2.

Fold, pre-Camb. complex, Carroll-Grayson Cos.: Hawkins, A. C., 8.

Frederick Co.: Butts, C., 3.

Intrusion, pre-Camb., Grayson Co.: Stose, A. J., 1.

Irish Creek area: Koschmann, A. H., 2.

Little North Mtn. structure: Giles, A. W., 1.

Lyndhurst-Vesuvius dist.: Knechtel, 2.

Natural bridges: Janssen, R. E., 2.

Rhodinite, Piedmont area: Overstreet, W. C., 1.

Soils from lss.: Obenshain, S. S., 1.

Spessartite, weathering: Holden, R. J., 2.

Thrust-fault in granodiorite: Nelson, W. A., 1.

Tuscarora ss., Little North Mtn.: Edmundson, R. S., 1.

Varve-like clay, Buena Vista: Bloomer, R. O., 1.

Walker Mtn.: Butts, C., 2; Edmundson, R. S., 2.

*Physiographic geology.*

Appalachian Valley: Butts, C., 1.

James River Basin: Roberts, J. K., 4.

Valley peneplain near Lexington: Coulbourn, U. F., 1.

*Underground water.*

Artesian waters from Cret. rocks: Cederstrom, D. J., 6.

Chloride in ground water, Coastal Plain: Cederstrom, D. J., 5.

Coastal Plain: Cederstrom, D. J., 7.

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*Volcanic ash.*

Alaska, Chicago mining dist.: Reed, J. C., 1.

Hawaii, Kilauea ash deposits: Finch, R. H., 2.

Kansas: Moore, R. C., 1.

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Texas, Polk, adjoining Counties: Shafer, G. H., 1.

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Arizona, cored bombs from volcanic cones: Brady, L. F., 1.

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Petaluma area: Johnson, F. A., 1.

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Neo-volcanism: Robles Ramos, R., 3.

Northern: King, P. B., 1.

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Cascade Range, U. S.: Williams, H., 1.

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Central America: Zies, E. G., 1.

Northwest: Mullerried, 5.

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Deformation of strata by explosions: Boon, J. D., 1.

Floor of the ocean: Daly, R. A., 1.

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Hawaii, Halemauau, lava surgings and explosive eruptions, 1924: Finch, R. H., 3.

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Kilauea, ground tilt: Waesche, H. H., 1.

Maui Is.: Stearns, H. T., 3.

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Origin of Haleakala Crater, Maui: Stearns, H. T., 2.

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Schulz, P. E., 1; 1942, Macdonald,

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Orogenesis and relief: Robles Ramos, R., 1.

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W., 1; De la O. Carreño, A., 1; Kil-

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Pough, F. H., 1; Robles Ramos, R., 3;

Trask, P. D., 4; Waitz, P., 4; Anon-

ymous, 19, 21.

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West Indies: Perret, F. A., 1.

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Central America, NW.: Mullerried, 5.

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Volcanic eruptions and post-Pleist. vegetation: Hansen, H. P., 2.

Pacific NW., U. S.: Smith, W. D., 1.

Wabash Co., Ill., oil poss.: Easton, W. H., 5.

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North Dakota, Turtle Mts. manganese: Hendricks, T. A., 1.

Pennsylvania, manganese minerals: Foose, R. M., 3.

Walnut Bend oil field, Tex.: Hilseweck, W. J., 1.

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War role of a Geological Survey: Bevan, A. C., 4.

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Mima mounds, gopher origin: Dalquest, W. W., 1.

## Areas described.

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Metaline quad.: Park, C. F., Jr., 4.

Olympic Pen.: Anonymous, 1.

## Economic geology.

Alumina-clay deposit, Cowlitz: Allen, V. T., 1.

Blewett iron deposit, Chelan Co.: Broughton, W. A., 3.

Chelan Co. min. properties: Huntting, M. T., 3.

Coal: Green, S. H., 1.

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Buckhorn area: Broughton, W. A., 2.

Magnetite deposit at Turk: Bennett, W. A. G., 1.

Manganese, Olympic Pen.: King, R., 1; Park, C. F., Jr., 1; Anonymous, 1.

Metaline quad.: Park, C. F., Jr., 4.

Silica sands: Wilson, H., 1.

Snohomish Co. min. properties: Broughton, W. A., 1.

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Tungsten, Silver Hill: Page, L. R., 1.

Wenatchee-Ellensburg-Yakima area: Glover, S. L., 2.

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Buckhorn iron area: Broughton, W. A., 2.

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## Washington—Continued.

## Historical geology—Continued

Manganese deposits, Olympic Pen.: Park, C. F., Jr., 1.

Metaline quad.: Park, C. F., Jr., 4.

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Agate, blue: Dake, H. C., 2.

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Corals, Eocene, Oligocene: Durham, J. W., 1.

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Type Lincoln fm. area: Cushman, 2.

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Peat deposit, near Mt. Adams: Hansen, H. P., 5.

Paleoecology: Hansen, H. P., 9.

Pollen study, Orcas Is. bogs: Hansen, H. P., 8.

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Cedar Reservoir Dam failure: Mackin, J. H., 1.

## Washington—Continued.

*Physiographic geology*—Continued.

- Glacial Lake Leverett: Hobbs, W. H., 5.  
 Glacier lobe, Pleist.: Hobbs, W. H., 5.  
 Glaciers, Cascade Mts., terminal speed: Phillips, K. N., 1.  
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*Underground water.*  
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*Water gaps.*  
 Appalachian physiography: Ver Steeg, K., 2.  
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 Wave-size effect on ripple marks: Evans, O. F., 4.  
 Waves, sand-transporting agent: Grant, U. S. IV, 1.

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- Alaska, perennially frozen ground: Taber, S., 1.  
 Arizona, Ajo copper dist.: Gilluly, J., 1.  
 California, disintegrating soil slips: Kesseli, J. E., 1.  
 Clays, soils, and geol. processes: Ross, C. S., 4.  
 Graphic representation, chem. weathering: Reiche, P., 2.  
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 Looking toward a quantitative geology: Wickwire, G. T., 2.  
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 New England, granite sheet structure: Jahns, R. H., 3.  
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## Weathering—Continued.

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 Sandstone, rate of: Emery, K. O., 2.  
 Soil mechanics and foundations: Plummer, F. L., 1.  
 Stratigraphical analysis: Payne, T. G., 1.  
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*Economic geology.*  
 Phosphates, calcium, mineralogy: Frondel, C., 3.  
*Historical geology.*  
 Cenozoic fms., Atlantic, Gulf Coastal Plain and Caribbean region: Cooke, C. W., 4.  
*Mineralogy.*  
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 West Virginia.  
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 Corniferous oil and gas fields: Lafferty, R. C., Jr., 1.  
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## West Virginia—Continued.

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- Petroleum and gas: Reger, D. B., 2.
- Salt, rock: Martens, J. H. C., 3.
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- Wind and soil: Hobbs, W. H., 6.

*Wind gaps.*

- Appalachian physiography: Ver Steeg, K., 2.

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- Wind work. See also Ventifacts; Wind gaps. Alberta: Allan, J. A., 1.

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Pollen studies, 5 bogs: Potzger, J. E., 4.  
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*Petrology.*

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Grassy Lake sediments: Twenhofel, W. H., 4.  
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Sedimentation, accelerated, Galena River Valley: Adams, C., 1.  
Ventifacts, Kansan drift: Thiesmeyer, L. R., 1.

*Physiographic geology.*

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Pleistocene, NE.: Thwaites, F. T., 2.  
Ventifacts, Kansan drift: Thiesmeyer, L. R., 1.

## Witherite.

- Kentucky: Jillson, W. R., 3.  
Ontario: Johnson, B. L., 1.  
United States: Johnson, B. L., 2.

## Wolframite, tungsten: Li, K.-C., 1.

Wollastonite, system  $\text{CaSiO}_3\text{-CaAl}_2\text{Si}_2\text{O}_8\text{-NaAlSiO}_4$ : Gummer, W. K., 1.

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- Nitrogen nat. gas well: Cook, H. J., 1.

*Economic geology.*

- Bentonite: Baker, V. R., 2.  
Big Horn Basin black-oil horizons: Williams, N., 1.  
Colorado, Front Range min. belt: Lovering, T. S., 2.  
Elk Basin oil and gas field: Hendrickson, V. J., 1.  
Jade: Rhoads, B. A., 1.  
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Trona: Smith, H. I., 1.  
Vanadium, Phosphoria fm.: Rubey, W. W., 1.  
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*Historical geology.*

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Cache Creek area, Gros Ventre Mts.: Nelson, V. E., 1.  
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Eo-Triassic, lower, correl.: Newell, N. D., 1.  
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*Mineralogy.*

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Dolomite pseudomorphs after aragonite crystals: Andrews, D. A., 1.  
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## Wyoming—Continued.

*Mineralogy*—Continued.

Vanadium, Phosphoria fm.: Rubey, W. W., 1.

*Paleontology*.

Age, Perm. fish-bearing strata: Westoll, T. S., 1.

Alga on wood, fossil, Eden Valley: Anonymous, 11.

Araucarioxylon, Cret.: Andrews, H. N., Jr., 5.

Astropecten, Juras.: Miller, A. K., 6.

Cephalopoda, Ord., Bighorn Mts.: Miller, A. K., 3.

Coral, Jurassic: Wells, J. W., 2.

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Fern, climbing, Cret.: Brown, R. W., 5.

Flora, Eocene, Red Desert area: Wilson, L. R., 10.

Lance fm. at type locality: Dorf, 1.

Footprints, Chugwater fm.: Lull, R. S., 1.

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Laotira, Upper Camb.: Caster, K. E., 1.

Lizards, Paleocene, Polecat Bench: Gilmore, C. W., 3.

Mammal footprints, Oligocene: Chaffee, R. G., 1.

Mammalia, Almy fm.: Gazin, C. L., 3.

Morrison "gastroliths" questioned: Stokes, W. L., 1.

Oreodont, camel, Miocene: Colbert, E. H., 6.

Tempskya, Cret.: Andrews, H. N., Jr., 6.

Tertiary trough, Camp Davis: Eardley, A. J., 2.

Uintatherium, mounted skeleton: Gilmore, C. W., 6.

Xenocranium, Oligocene: Colbert, E. H., 5.

Yuma, Folsom artifacts: Renaud, E. B., 2.

*Petrology*.

Bentonite: Baker, V. R., 2.

Dolomite pseudomorphs after aragonite crystals: Andrews, D. A., 1.

Jade: Rhoads, B. A., 1.

Laramie River Valley structure: Beckwith, R. H., 1.

Morrison "gastroliths" questioned: Stokes, W. L., 1.

Rocks, soils, and selenium: Knight, S. H., 1.

Squaw fm. near Lander: Burma, B. H., 2.

Tube agates, fm.: Ridgway, C., 1.

*Physical geology*.

Cache Creek area, Gros Ventre Mts.: Nelson, V. E., 1.

Casper Mtn. fault: Hares, C. J., 1.

Colorado Front Range min. belt: Lovering, T. S., 2.

Elk Basin oil and gas field: Hendrickson, V. J., 1.

## Wyoming—Continued.

*Physical geology*—Continued

Grand Teton Nat. Park pre-Camb.: Horberg, L., 1.

Gros Ventre Range: Church, V., 1; Swenson, F. A., 2.

Gros Ventre and N. Hoback Ranges: Nelson, V. E., 2.

Heart Mtn. and South Fork thrusts: Pierce, W. G., 2.

Laramie River Valley structure: Beckwith, R. H., 1.

Mudflows, alpine, Grand Tetons: Fryxell, 1.

Natural bridges, Warm Springs Canyon: Delo, D. M., 1.

Paleozoic, Late, sediments, SE.: Knight, S. H., 3.

Squaw fm., near Lander: Burma, R. H., 2.

Tertiary trough, Camp Davis: Eardley, A. J., 2.

Teton Mts.: Baker, V. R., 1; Edmund, R. W., 1; Fryxell, 2.

Vanadium deposits, Phosphoria fm.: Rubey, W. W., 1.

*Physiographic geology*.

Cache Creek area, Gros Ventre Mts.: Nelson, V. E., 1.

Elk Basin oil and gas field: Hendrickson, V. J., 1.

Gros Ventre Mts. NW. flank: Swenson, F. A., 2.

Noir Valley glaciation: Miner, N. A., 1.

Paleozoic, Late, sediments, SE.: Knight, S. H., 3.

Teton Mts.: Baker, V. R., 1; Edmund, R. W., 1.

*Underground water*.

Ground-water resources, Chugwater Creek, Laramie and North Laramie River Valleys: Edwards, A. R., 1.

## Xenoliths.

New York City, lamprophyric dikes, Manhattan schist: Colony, R. J., 1.

Oregon, Wallowa batholith: Krauskopf, K. B., 1.

South Dakota, Black Hills pre-Camb. domes: Runner, J. J., 1.

X-ray crystallography: Buerger, M. J., 1.

X-ray determination, quartz crystal orientation: Bond, W. L., 1.

X-ray diffraction, graphic interpretation: White, W. C., 1.

X-ray identification of minerals: Peacock, M. A., 3.

North America, manganese oxides: Fleischer, M., 1.

X-ray patterns of ore minerals: Harcourt, G. A., 1.

X-ray powder photos., apparatus: Buerger, M. J., 3.

X-ray studies, foliated rocks: Fairbairn, H. W., 4.

- Yorba Linda part, Coyote Hills oil field, Calif.: Parker, F. S., 2.
- Yukon.**
- Economic geology.*  
Alaska Highway area min. poss.: Thomas, L. O., 1.
- Historical geology.*  
Wolf Creek area, St. Elias Range: Sharp, R. P., 7.
- Mineralogy.*  
Alaska Highway area min. poss.: Thomas, L. O., 1.
- Petrology.*  
Wolf Creek area, St. Elias Range: Sharp, R. P., 7.
- Physical geology.*  
Soil structures, St. Elias Range: Sharp, R. P., 6.  
Wolf Creek area, St. Elias Range: Sharp, R. P., 7.
- Physiographic geology.*  
Glacial geology, Alaska Military Highway, Dawson Creek to Whitehorse: Denny, C. S., 1.  
Mudflow levees, Wolf Creek area: Sharp, R. P., 5.  
Wolf Creek area, St. Elias Range: Sharp, R. P., 7.
- Zeolites.**  
California, Mt. Blanco, Death Valley: Funk, B. G., 1.  
Southern: Murdoch, J., 1.
- Zinc.**
- Arkansas: Just, E., 1.  
British Columbia: Gunning, H. C., 2.  
Britannia mines: Ebbutt, F., 1.  
Emerald property: Hedley, M. S., 1.  
Metal mining: British Columbia Dept. Mines, 1.  
Colorado, Leadville dist.: Loughlin, G. F., 1.  
Idaho, metal, coal mining dists.: Ross, C. P., 1.  
Ore control by rock structure: McKinstry, H. E., 2.  
Manitoba, Sherritt-Gordon mine: Derry, D. R., 1.  
Mexico, Fresnillo mine veins: Stone, J. B., 1.  
Monterrey to Laredo, Tex.: S. Tex. G. Soc., 3.
- Zinc—Continued.**
- Mexico—Continued.  
Northern, sed. deposits: Triplett, W. H., 1.  
San Antonio mine, Chihuahua: Hewitt, W. P., 1.  
Tin deposits: Foshag, W. F., 1.  
Minerals in world affairs: Lovering, T. S., 3.  
Mississippi Valley, upper: Behre, C. H., Jr., 1.  
Missouri, Joplin area: Smith, W. S. T., 2.  
New Brunswick, Reserve Brook area: MacKenzie, G. S., 2.  
Newfoundland, Port au Port Pen.: Watson, K. D., 3.  
New Mexico, Magdalena mining dist.: Loughlin, G. F., 2.  
New York, Edwards-Balmat dist.: Brown, J. S., 1.  
North America, pyrometamorphic ore deposits: Knopf, A., 1.  
Structural features of ore deposits: Newhouse, W. H., 2.  
Ontario, Big Duck-Aguasabon Lakes area: Bartley, M. W., 1.  
Pennsylvania, Lehigh Co. min. res.: Miller, B. L., 3.  
Quebec, Gaspé: Gill, J. E., 2; Jones, I. W., 1.  
Tri-State, lead and zinc dist.: Fowler, G. M., 1; Jakosky, 1, 2.  
Utah, Cottonwood, American Fork area: Calkins, F. C., 2.  
Virginia, war minerals: Bevan, A. C., 2.  
Washington, Metaline quad.: Park, C. F., Jr., 4.  
Snohomish Co. min. properties: Broughton, W. A., 1.  
Yukon, Alaska Highway area min. poss.: Thomas, L. O., 1.
- Zinnwaldite, N. Am., rare alkalis in micas:**  
Stevens, R. E., 1.
- Zircon.**
- Fluorescence: De Ment, J. A., 1.  
Rare-element prosp. on pegmatites: Quirke, T. T., 2.
- Zoisite.**
- Newfoundland, zoisite-gabbro alteration: Watson, K. D., 1.  
United States, occurrences: Schaller, W. T., 2.