Annotated Bibliography of Studies on the Geology, Geochemistry, Mineral Resources, and Geophysical Character of the Early Mesozoic Basins of the Eastern United States, 1880–1984

U.S. GEOLOGICAL SURVEY BULLETIN 1688

Annotated Bibliography of Studies on the Geology, Geochemistry, Mineral Resources, and Geophysical Character of the Early Mesozoic Basins of the Eastern United States, 1880–1984

By JACOB MARGOLIS, G.R. ROBINSON, JR., and
C.M. SCHAFER

An annotated bibliography covering early Mesozoic geology of Massachusetts, Connecticut, New Jersey, Pennsylvania, Virginia, Maryland, North Carolina, and other Eastern States. Bibliography is indexed by author, topic, and geographic area

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Annotated Bibliography of Studies on the Geology, Geochemistry, Mineral Resources, and Geophysical Character of the Early Mesozoic Basins of the Eastern United States, 1880–1984

By Jacob Margolis, G.R. Robinson, Jr., *and* C.M. Schafer

INTRODUCTION

This bibliography is an annotated list of references pertaining to the geology, stratigraphy, lithology, petrology, geochemistry, mineral resources, and geophysical character of the early Mesozoic basins of the Eastern United States. The list has been restricted by excluding references on paleontology and paleobotany which are descriptive in nature and which do not apply to stratigraphic correlation. The coverage focuses on references pertaining to the onshore and offshore early Mesozoic geology of Massachusetts, Connecticut, New Jersey, Pennsylvania, Virginia, Maryland, North Carolina, and South Carolina, although references covering areas in other Eastern States are included. In addition, selected references of a regional or global nature and references covering Mesozoic geology in the Maritime Provinces of Canada, the United States Gulf Coast, northwest Africa, and Western Europe are included where comparison is applicable to the Eastern United States Mesozoic basins.

This bibliography covers a period from approximately 1880 to 1984. Information available prior to 1880 is included for a few major references of historic significance, but coverage is incomplete. An extensive bibliography of references available prior to 1892 is given in Russell (1892). The reference coverage for 1984, when the library search was terminated, is incomplete. With few exceptions, copies of all articles were used to prepare the annotation. When an article was not available, such as many unpublished master's theses, the reference is included without a summary section in the annotation.

Evaluating the quality of the data given in the cited references is beyond the scope of this report. This bibliography is designed as a practical tool for geoscientists studying the Eastern United States early Mesozoic basins; it is intended to identify data sources that can be used to assess the breadth of existing information, to identify deficiencies in data, and to plan future research efforts. The bibliography is a first step toward evaluating the adequacy of existing geologic and geophysical map coverage, identifying sources of information regarding existing drill-hole and water-well coverage, and identifying information on geochemical anomalies, anomalous mineral occurrences, prospects, and mines.

The annotated bibliography presented here was largely compiled and annotated by Jacob Margolis. The annotation system was developed by G.R. Robinson, Jr., who assisted with the compilation, annotation, and editing of the data file. C.M. Schafer developed computer routines to sort the data file and entered the data into the computer file. Financial support for this work came from the Strategic and Critical Minerals Research Program of the U.S. Geological Survey.

ANNOTATION

The annotated citations are listed alphabetically by author in the bibliography section. The annotation consists of information in six categories: (1) type of information, (2) summary, (3) keyword abstract, (4) geographic area of coverage, (5) map, and (6) data.

Each citation in the bibliography is assigned a sequential reference number that is used to index the bibliography by area, keyword, and map-type categories. A code letter immediately following the reference number indicates the type-of-information category of the citation. The five remaining categories of information are presented sequentially below the reference citation.

Type of information.—Each reference is categorized as a paper, field guidebook, thesis, abstract, and (or) map. More than one type-of-information classification may be given to an entry. The map classification is given to publications providing accurate information in a map format having a defined scale and location of cultural and physiographic features. The type-of-information classification is identified by the alphabetical code immediately following the reference number at the beginning of each citation:

Type of information	*Code*
Paper	P
Abstract	A
Map	M
Field guide	F
Thesis	T

Summary.—The summary is a short paragraph describing the topics covered by the reference, types of data, and important conclusions or observations. In the case of lengthy reports, the summary outlines the topics covered, with less emphasis on specific conclusions. Map references having minimal accompanying text do not have a summary section provided in the entry. In addition, a summary is not provided if a copy of the publication was not available for annotation (for example, most master's theses). Several abbreviations are used in the summary section. They are Fm(s) for formation(s) and directional abbreviations such as NW for northwest and SE for southeast. No effort has been made to evaluate the quality of data; however, the summary may refer the reader to another reference in the bibliography that contains either complementary or contradictory information or conclusions.

Keyword abstract.—The keyword information enables the reader to review quickly the general subject matter covered in each entry. The keywords used in annotating the bibliography are listed alphabetically in table 1. Keywords flagged with an asterisk in table 1 were used to develop the subject index of the bibliography. Words in brackets, [ ], following the keywords in table 1 are either associated keywords or give further information regarding the keyword. For example, the commodity keywords "coal," "gold," and "silver" are always accompanied by the "economic geology" keyword in the annotation. Similarly, the keywords "magnetism" and "gravity" are accompanied in the annotation by the keyword "geophysics"; "hornfels" is accompanied by "metamorphism," and "Ar/

Table 1. Alphabetical listing of keyword file used in annotating the bibliography
[*indicates use of keyword in the subject index of the bibliography. Words in [] following the keyword are either associated keywords or provide further information about the keyword]

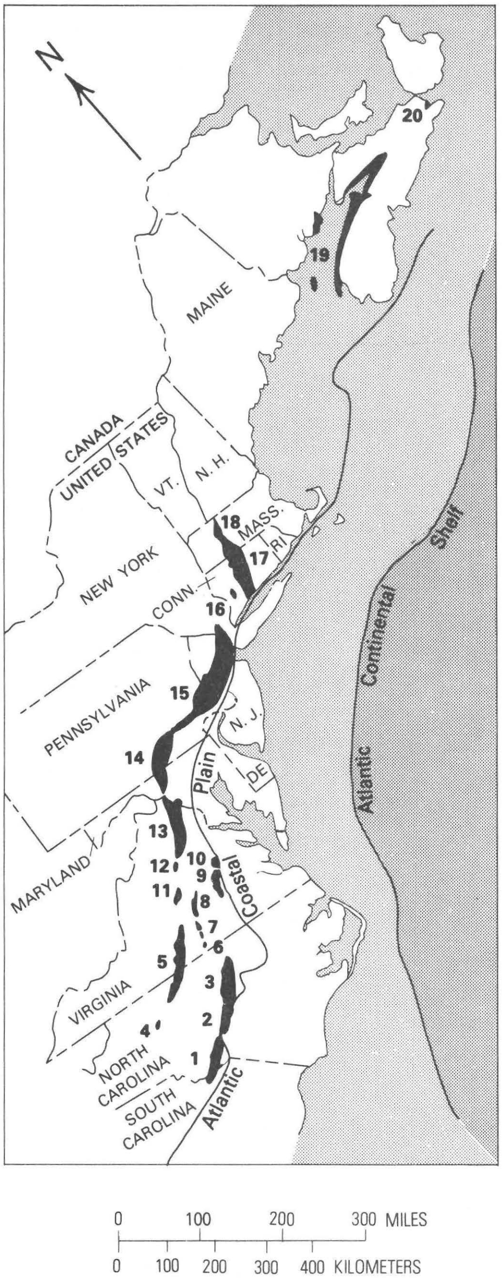
Aeromagnetism [geophysics]	K/Ar dating [radiometric age]*
Aeroradioactivity [geophysics]	Lead [economic geology]*
Ar/Ar dating [radiometric age]*	Magnetism [geophysics]*
Barite [economic geology]*	Metamorphism*
Basalt [rock type]*	Mineralogy [accompanied by rock type]*
Bedrock geology	Molybdenum [economic geology]
Bibliography*	Nd/Sr isotopes [radiometric age]
Buried basins*	Oil [economic geology]*
Chemistry [refers to water]	Oil shale [economic geology]
Climate*	Paleomagnetism [geophysics]
Coal [economic geology]*	Paleontology*
Copper [economic geology]*	Petrology [accompanied by rock type]*
Diabase [rock type]*	Radioactivity [geophysics]*
Economic geology [accompanied by commodity type]*	Radiometric age*
Faults*	Rb/Sr isotopes [radiometric age]
Fission-track dating [radiometric age]	Resistivity [geophysics]*
Gas [economic geology]*	Salt [economic geology]*
General geology [a broad category combining regional geology, stratigraphy, and structure]*	Sedimentation*
Geochemistry [usually accompanied by rock type]*	Sediment [rock type]
Geophysics*	Seismic profiles [geophysics]*
Gold [economic geology]*	Silver [economic geology]*
Granophyre [rock type]	SLAR[1] [geophysics]*
Gravity [geophysics]*	Stratigraphy*
Helium dating [radiometric age—water]	Structure*
Hornfels [rock type] [metamorphism]	Surficial geology
Hydrology*	Tectonics*
Iron [economic geology]*	Uranium [economic geology]*
Isotopes [geochemistry]*	Zeolites [mineralogy]
	Zinc [economic geology]*

[1]Side-looking airborne radar.

Ar dating" is accompanied by "radiometric age." Keywords identified in brackets in table 1 as rock type (that is, basalt, diabase, granophyre, hornfels, and sediments) are used in situations where information in a reference applies preferentially to a specific rock type.

Geographic area of coverage.—The geographic area entry for each annotation identifies, where appropriate, the applicable early Mesozoic basin, State, county, or 7 1/2-minute USGS topographic quadrangle covered by the reference. Figure 1 shows the locations and names of the early Mesozoic basins used in this category. Generally, all four items are not noted unless the entry concerns a specific locality or where such specification is appropriate. For the majority of entries, the basin name and the State are cited. More than one basin, State, county, or quadrangle may appear for an entry. A State name only may appear for those entries concerned with features, such as buried basins or Jurassic diabase dikes in the Piedmont, that are not restricted to an exposed early Mesozoic basin.

The term "regional" indicates that the reference applies to a significant portion of the early Mesozoic basin system (or Newark Supergroup) of the Eastern United States and not necessarily to one particular basin or State.



EXPLANATION

1. Wadesboro (N.C.–S.C.)
2. Deep River (N.C.)
3. Durham (N.C.)
4. Davie County (N.C.)
5. Dan River and Danville (N.C.–Va.)
6. Scottsburg (Va.)
7. Basins north of Scottsburg (Va.)
8. Farmville (Va.)
9. Richmond (Va.)
10. Taylorsville (Va.)
11. Scottsville (Va.)
12. Barboursville (Va.)
13. Culpeper (Va.–Md.)
14. Gettysburg (Md.–Pa.)
15. Newark (N.J.–Pa.–N.Y.)
16. Pomperaug (Conn.)
17. Hartford (Conn.–Mass.)
18. Deerfield (Mass.)
19. Fundy or Minas (Nova Scotia–Canada)
20. Chedabucto (Nova Scotia–Canada)

Figure 1. Exposed basins (black areas) of the Newark Supergroup in Eastern North America.

The term "Gulf Coast" refers to the onshore and offshore areas of the Southern States of the United States having coastlines on the Gulf of Mexico. The term "Maritime Province" refers to the Gulf of Maine and onshore and offshore areas of Newfoundland and the Maritime Provinces of Canada (Nova Scotia, New Brunswick, and Prince Edward Island). Other geographic areas outside the Eastern United States are noted by country. These include Morocco, Liberia, Greenland, and Eastern Canada. Selected references covering these areas are included because of their complementary nature to the study of Eastern United States early Mesozoic basins.

Map category.—The map annotation indicates whether a reference entry contains mapping data (such as geologic maps, geologic cross sections, columnar sections, mine sketches, or sample localities).

One or more subcategories of maps may appear: geologic, geophysical, section, or miscellaneous. The map scale, if known, is given in brackets following each subcategory. The geology (geol) subcategory covers bedrock geology maps, lithology maps, and structural geology maps. The geophysics (geophys) subcategory is subdivided into gravity, aeromagnetism, or aeroradioactivity maps. The section (section) subcategory covers geologic cross sections, stratigraphic columns, columnar sections, core or drill-hole logs, geophysical drill-hole logs, and so forth. The miscellaneous (misc) subcategory includes map types not covered by the other categories, such as depth-to-bedrock maps, isopach maps, and mine-location or sample-location maps.

Data.—The data category indicates whether a reference entry includes photographs or tabular or graphic information on chemistry or mineralogy.

INDEXING THE BIBLIOGRAPHY BY AREA, KEYWORD, AND MAP TYPE

The bibliography is indexed in three ways: by area, keyword, and map type. The geographic area index provides a breakdown of the bibliography by geographic area. The subject index provides a breakdown of the keyword file, subsorted by geographic area and data type. The map-type index provides a breakdown of all map-reference citations by map category. Table 2 gives the organization of the indexes by area, keyword, and map-type categories. The keywords used in the subject index are flagged with an asterisk in table 1. In each index, a cited reference is indicated by using the sequential reference number that precedes the entry in the bibliography.

In each index, code letters following the reference numbers indicate the type-of-information classification of the entries:

Type of information	*Code*
Paper	P
Abstract	A
Map	M
Field guide	F
Thesis	T

More than one code letter may be given to an entry.

HOW TO USE THE BIBLIOGRAPHY—AN EXAMPLE

The following example illustrates how to use the bibliography. If the reader is interested in information restricted to a certain subject, the keyword list given in table 2 should be consulted first to determine if a suitable keyword has been used in indexing the bibliography. If suitable keywords are found, the subject index should be consulted to find a list of reference numbers for each keyword. The reference numbers are listed sequentially in the bibliography and can be used to identify specific references.

If, for example, the reader is interested in mineralogical studies of thermally altered rocks around diabase sheets in the Culpeper basin of Virginia, the keyword "metamorphism" used in the subject index is most appropriate. The metamorphism category in the section index has been subdivided by geographic area and lists three references covering the Culpeper basin of Virginia: 750 A, 1177 P, and 1178 P. The code letters following the reference number identify the reference as an abstract (A), paper (P), map (M), field guidebook (F), or thesis (T). Locating these reference numbers in the bibliography gives the following citations:

750 A: Lee, K.Y., 1982, Thermal metamorphism of Triassic and Jurassic sedimentary rocks in the Culpeper basin, Virginia: Geological Society of America, Abstracts with Programs, v. 14, p. 34.

1117 P: Shannon, Earl V., 1925, An occurrence of xonotlite at Leesburg, Virginia: American Mineralogist, v. 10, p. 12–13.

1178 P: Shannon, Earl V., 1926, Mineralogy and petrology of Triassic limestone conglomerate metamorphosed by intrusive diabase at Leesburg, Virginia: U.S. National Museum, Proceedings, v. 66, Art. 28, 31 p.

A similar procedure can be followed to obtain a list of references for a particular geographic area or a specific map type.

Table 2. Organization of bibliography indexes by area, keyword, and map-type categories

Geographic-area breakdown

- Connecticut
- Florida
- Georgia
- Gulf Coast
- Maritime
- Maryland
- Massachusetts, Deerfield basin
- Massachusetts, Hartford basin
- Massachusetts, other
- Morocco
- New Jersey
- New York
- North Carolina, Dan River basin
- North Carolina, Durham-Wadesboro-Deep River basins
- North Carolina, other
- Pennsylvania, Gettysburg basin
- Pennsylvania, Newark basin
- Pennsylvania, other
- Regional
- South Carolina
- Virginia, Culpeper basin
- Virginia, Danville basin
- Virginia, Farmville basin
- Virginia, Richmond basin
- Virginia, other

Keyword breakdown

- Basalt, subsort by geographic area
- Bibliography, subsort by geographic area
- Buried basins, subsort by geographic area
- Climate, subsort by geographic area
- Diabase, subsort by geographic area
- Economic geology, subsort by geographic area
- Economic geology, subsort by commodity category:
    - Barite
    - Coal
    - Copper
    - Gas
    - Gold
    - Iron
    - Lead
    - Oil
    - Salt

Keyword breakdown—Continued

    - Silver
    - Uranium
    - Zinc
- Faults, subsort by geographic area
- General geology, subsort by geographic area
- Geochemistry, subsort by geographic area
- Geophysics, subsort by geographic area
- Geophysics, subsort by type:
    - Gravity
    - Magnetism
    - Radioactivity
    - Resistivity
    - Seismic profiles
    - SLAR[1]
- Hydrology, subsort by geographic area
- Isotopes, subsort by geographic area
- Metamorphism, subsort by geographic area
- Mineralogy, subsort by geographic area
- Paleontology, subsort by geographic area
- Petrology, subsort by geographic area
- Radiometric age, subsort by geographic area
- Radiometric age, subsort by type:
    - Ar/Ar dating
    - K/Ar dating
    - Other methods
- Sedimentation, subsort by geographic area
- Stratigraphy, subsort by geographic area
- Structure, subsort by geographic area
- Tectonics, subsort by geographic area

Map-type breakdown

- Geophysics maps, subsort by type:
    - Aeromagnetism
    - Gravity
    - Other geophysics maps
        - Aeroradioactivity
        - Basement depth contour
        - Landsat
        - Seismicity
- Geophysics maps, subsort by geographic area
- Geologic maps, subsort by geographic area
- Other maps

[1]Side-looking airborne radar.

ACKNOWLEDGMENTS

The authors thank the staff of the U.S. Geological Survey Library at the National Center, Reston, Va., for their cooperation and assistance in this effort and for their diligence in locating obscure or incomplete references. A.J. Froelich and M.P. Foose, both of the U.S. Geological Survey, provided valuable reviews of this manuscript and identified many errors and omissions. Nicholas G. McDonald shared information from an unpublished bibliography prepared for the State of Connecticut Natural Resources Center, Department of Environmental Protec-

tion that he has compiled covering the Hartford basin in Massachusetts and Connecticut. His bibliography contains many references of an historical nature not included in this report.

REFERENCE CITED

Russell, I.C., 1892, Correlation papers, the Newark System: U.S. Geological Survey Bulletin 85, 344 p.

SECTION 1. GEOGRAPHIC-AREA INDEX

Ref. No.	Ref. Type	Ref. No.	Ref. Type	Ref. No.	Ref. Type	Ref. No.	Ref. Type
Connecticut		297	P	556	P	814	PM
		298	P	582	PM	833	A
1	P	299	P	590	P	847	A
7	PM	302	P	593	P	858	T
8	P	303	PM	594	P	860	T
14	A	304	P	595	P	861	F
15	A	305	P	596	P	862	A
22	P	306	F	613	P	896	PM
27	T	308	F	614	P	906	T
28	P	320	P	615	P	907	A
29	P	334	T	617	A	915	P
30	P	349	P	619	P	916	P
46	P	351	P	620	F	920	P
62	P	356	A	621	P	928	P
69	P	396	PM	622	P	942	T
80	A	403	P	623	A	943	F
92	M	404	P	626	A	969	M
93	M	405	A	627	P	971	P
110	A	406	P	628	F	974	T
183	M	407	P	629	A	975	M
186	A	408	A	630	P	984	M
192	P	409	P	632	A	985	M
201	PM	410	P	633	T	986	M
206	P	411	P	635	M	987	M
210	T	421	P	664	P	988	M
211	A	422	M	680	A	992	A
230	T	423	M	681	A	994	P
231	P	424	P	687	P	995	P
232	P	436	P	688	P	996	P
233	P	440	PM	691	F	997	A
235	P	452	A	698	A	999	P
243	P	454	T	699	P	1002	T
244	PM	455	P	705	T	1010	PM
245	M	456	M	708	PM	1015	M
246	M	457	M	709	A	1016	M
247	M	474	P	710	PM	1019	M
254	P	501	A	717	P	1023	T
255	P	502	F	734	A	1037	P
258	P	503	F	755	PM	1043	P
265	M	504	A	762	A	1053	T
273	A	509	P	764	A	1060	T
276	P	516	M	800	A	1064	A
277	P	523	M	802	P	1065	A
278	P	524	M	803	P	1068	T
279	P	527	P	804	P	1071	P
293	P	528	M	805	P	1072	F
294	P	537	M	806	F	1073	F
295	P	539	P	812	P	1080	P
296	P	540	P	813	P	1081	T

Connecticut--Cont.

Ref. No.	Ref. Type
1090	A
1098	F
1099	P
1100	M
1112	P
1113	P
1115	P
1117	P
1123	T
1124	P
1125	P
1128	A
1129	M
1130	M
1134	F
1137	A
1138	A
1141	A
1142	P
1143	F
1147	P
1148	T
1160	P
1161	M
1162	M
1163	M
1164	M
1165	M
1167	T
1168	PM
1171	P
1176	A
1184	P
1185	T
1188	M
1190	T
1193	P
1201	T
1203	A
1205	P
1206	P
1212	P
1216	PM
1217	PM
1262	P
1280	T
1281	A
1294	P
1304	M
1305	M
1306	M
1307	M
1308	M
1311	M
1313	M
1314	M
1315	M
1316	M
1318	M
1319	M
1320	M
1321	M
1322	M
1323	M
1324	M
1325	M
1326	M
1327	M
1328	M
1329	M
1330	M
1370	P
1378	T
1388	T
1389	P
1390	P
1404	T
1410	P
1428	P
1445	A
1446	A
1447	A

Florida

Ref. No.	Ref. Type
25	P
26	P
32	P

Georgia

Ref. No.	Ref. Type
25	P
237	PM
281	PM
283	P
328	T
330	A
331	P
488	A
751	A
761	P
841	P
842	A
843	P
902	P
977	P
1020	P
1057	A
1111	P
1387	A

Gulf Coast

Ref. No.	Ref. Type
1005	P
1006	P

Maritime

Ref. No.	Ref. Type
58	P
59	P
223	P
333	P
359	P
459	P
598	P
616	P
618	A
624	P
625	A
643	P
644	P
645	F
675	P
689	P
690	P
725	P
726	P
727	P
735	T
931	P
938	A
951	P
952	A
953	P
954	P
955	P
972	T
1024	F
1025	P
1026	P
1027	P
1039	A
1170	P
1223	F
1227	A
1250	P
1266	P
1267	P
1346	P
1347	P
1374	P

Maryland

Ref. No.	Ref. Type
16	P
99	M
100	M
158	M
316	F
332	A
353	P
389	M
393	P
425	M
426	M
429	M
659	M
724	P
738	M
746	P
748	P
784	P
789	M
893	P
919	M
924	P
950	T
1057	A
1067	M
1074	P
1201	T
1203	A
1204	A
1206	P
1235	P
1259	T
1260	A
1262	P
1334	M
1345	M
1459	M

Massachusetts, Deerfield basin

Ref. No.	Ref. Type
19	M
20	M

Massachusetts, Deerfield basin --Cont.

Ref. No.	Ref. Type
21	M
47	P
48	P
53	M
54	M
55	M
178	M
184	A
185	A
229	P
243	P
370	P
371	P
475	P
522	P
525	T
556	P
679	P
715	T
788	P
795	M
796	M
798	M
891	M
892	M
1009	M
1013	M
1014	M
1225	T
1226	P
1294	P
1309	M
1336	M
1389	P
1390	P
1405	T
1406	P
1408	F
1410	P
1437	M
1438	M
1439	M
1440	A
1441	T
1447	A

Massachusetts, Hartford basin

Ref. No.	Ref. Type
28	P
45	F
56	PM
63	P
124	M
125	M
178	M
179	F
184	A
199	A
200	A
220	T
229	P
243	P
247	M
258	P
293	P
327	T
350	P
356	A
357	T
361	P
362	P
363	P
364	P
365	PM
366	P
367	P
368	P
369	P
370	P
371	P
383	P
402	P
514	A
515	T
525	T
536	T
537	M
556	P
559	T
560	A
587	T
590	P
591	P
592	P
593	P
617	A
628	F
639	P
641	T
697	M
703	P
705	T
706	P
757	M
792	M
793	M
794	M
797	M
799	M
800	A
803	P
806	F
833	A
900	P
944	P
948	P
949	P
960	P
969	M
970	P
978	M
979	M
1007	M
1008	M
1012	M
1016	M
1017	M
1018	M
1019	M
1069	A
1070	P
1097	A
1132	T
1133	T
1137	A
1149	T
1162	M
1174	P
1175	P
1213	T
1218	T
1224	P
1268	T
1294	P
1336	M
1388	T
1389	P
1390	P
1407	A
1410	P
1440	A
1445	A
1447	A

Massachusetts, other

Ref. No.	Ref. Type
261	T
399	P
400	A
674	P
925	P
947	P
965	M
1169	M
1202	A

Morocco

Ref. No.	Ref. Type
50	A
91	T
187	T
188	A
189	P
263	P
378	P
517	P
530	T
531	A
663	T
808	P
839	A
840	P
851	P
1361	P

New Jersey

Ref. No.	Ref. Type
1	P
2	P
5	F
6	A
10	A

Ref. No.	Ref. Type	Ref. No.	Ref. Type	Ref. No.	Ref. Type	Ref. No.	Ref. Type
New Jersey--Cont.		390	P	752	P	1000	P
		391	P	763	P	1011	A
12	T	392	P	766	P	1036	P
17	M	398	P	767	P	1037	P
18	M	420	P	768	P	1040	P
37	A	443	A	769	P	1041	P
61	P	468	P	770	P	1042	P
65	PM	483	P	771	P	1054	P
67	P	494	P	772	P	1055	A
70	PM	495	P	773	P	1056	F
71	P	497	P	775	P	1079	F
79	T	507	P	790	P	1083	A
80	A	532	P	817	P	1116	P
96	P	542	P	830	P	1117	P
98	A	543	P	831	P	1126	T
104	P	544	P	833	A	1131	P
114	P	545	P	834	A	1137	A
116	M	546	P	835	F	1139	P
117	M	547	A	848	P	1150	P
118	M	548	P	849	T	1152	F
119	M	552	F	850	T	1153	A
120	M	553	P	852	P	1155	P
121	M	557	P	864	T	1171	P
122	M	561	M	868	T	1182	A
123	M	562	M	870	P	1210	A
198	F	563	M	871	P	1214	P
222	PM	564	M	878	P	1234	P
241	P	565	M	879	P	1249	M
250	P	566	M	880	P	1252	A
251	P	567	M	882	A	1253	T
252	P	568	M	901	P	1254	T
253	P	569	M	904	A	1291	P
260	P	570	M	920	P	1300	P
270	P	571	M	922	P	1302	P
285	P	572	M	923	P	1303	A
286	A	584	P	927	P	1342	M
287	P	605	P	928	P	1350	F
288	PM	612	A	929	F	1351	P
289	PM	634	P	930	F	1352	P
293	P	636	P	932	A	1353	P
326	T	640	P	936	P	1354	P
335	M	646	P	940	P	1355	P
336	M	647	F	945	M	1356	A
339	P	648	F	946	P	1357	A
344	T	672	P	956	P	1358	F
346	F	673	T	964	P	1359	A
373	A	678	P	976	F	1360	P
374	P	682	P	980	M	1362	A
384	P	711	P	981	M	1367	A
385	P	712	PM	982	M	1368	P
386	P	714	P	983	M	1369	P
387	P	744	T	989	P	1370	P

New Jersey--Cont.

Ref. No.	Ref. Type
1371	P
1372	P
1373	F
1388	T
1389	P
1390	P
1391	P
1392	P
1394	T
1422	P
1429	P
1431	P
1436	P
1442	A
1446	A
1451	P
1454	P

New York

Ref. No.	Ref. Type
5	F
81	A
82	A
97	T
209	A
212	T
398	P
437	A
443	A
562	M
612	A
702	P
704	T
712	PM
713	P
791	A
809	P
810	T
904	A
936	P
941	T
946	P
973	PM
981	M
982	M
983	M
1054	P
1146	F
1151	T
1282	PM
1358	F
1373	F
1411	P

North Carolina, Dan River basin

Ref. No.	Ref. Type
207	P
225	M
442	A
903	F
911	P
934	P
1001	T
1085	P
1086	T
1232	PM
1251	P
1272	A
1273	T
1274	A
1276	P
1277	A
1279	F
1337	M
1339	M
1452	P

North Carolina, Durham-Wadesboro-Deep River basins

Ref. No.	Ref. Type
3	PM
9	PM
31	T
39	P
40	A
41	A
42	PM
43	FM
44	A
51	A
57	T
75	P
78	F
87	A
88	P
94	P
191	T
197	T
214	A
215	A
218	PM
219	PM
236	T
256	T
266	T
267	A
268	A
325	T
343	A
360	T
395	T
397	P
476	A
496	T
533	A
534	T
535	PM
578	P
599	T
600	A
601	T
602	P
604	P
637	T
651	P
658	P
666	A
667	A
670	T
700	A
701	P
756	A
832	P
854	P
912	P
957	A
958	PM
1032	A
1033	A
1034	P
1050	P
1051	T
1052	P
1066	PM
1158	P
1166	P
1181	T
1191	T
1219	T
1229	P
1251	P
1264	T
1265	A
1285	P
1317	M
1331	M
1332	M
1333	M
1335	M
1338	M
1340	M
1363	P
1413	A
1414	A
1415	P
1443	P
1452	P
1458	T

North Carolina, other

Ref. No.	Ref. Type
111	P
112	PM
182	PM
205	P
249	PM
280	T
281	PM
283	P
329	P
340	A
341	P
492	P
603	T
665	A
669	A
745	P
753	P
777	T
823	P
963	T
1045	A
1048	P
1049	P
1078	A
1159	P
1207	A
1221	T
1230	A
1231	PM
1255	T
1269	A
1275	P
1284	P
1387	A
1427	T

Ref. No.	Ref. Type
Pennsylvania, Gettysburg basin	
34	P
37	A
72	P
74	P
84	M
95	T
106	P
113	P
153	M
154	M
155	M
156	M
157	M
158	M
159	M
160	M
161	M
162	M
163	M
164	M
165	M
166	M
167	M
168	M
169	M
170	M
171	M
172	M
175	M
176	M
240	P
264	P
291	P
323	P
324	P
355	T
379	A
380	P
388	PM
414	P
415	P
416	PM
417	P
439	F
445	PM
446	M
447	P
448	F
449	M
450	F
461	P
462	T
463	A
464	P
465	A
466	A
484	P
493	P
498	FM
499	F
500	M
529	P
579	A
580	T
585	P
586	P
608	P
609	PM
610	P
611	P
631	P
638	PM
652	PM
662	PM
677	P
718	T
720	A
721	A
722	P
723	P
724	P
789	M
826	M
874	P
883	A
884	P
885	F
886	P
918	P
922	P
1021	T
1103	M
1104	PM
1105	P
1106	P
1107	P
1114	PM
1180	T
1195	T
1197	P
1198	A
1199	A
1200	P
1215	P
1236	PM
1237	PM
1238	P
1239	P
1240	PM
1241	P
1242	M
1243	P
1246	PM
1247	PM
1248	P
1256	P
1270	PM
1290	P
1364	T
1365	P
1376	P
1377	P
1418	P
1419	P
1449	PM
1450	P
1455	P
Pennsylvania, Newark basin	
37	A
64	M
66	PM
67	P
68	T
72	P
73	P
74	P
85	M
103	P
105	P
106	P
107	P
108	P
113	P
120	M
121	M
122	M
126	M
127	M
128	M
129	M
130	M
131	M
132	M
133	M
134	M
135	M
136	M
137	M
138	M
139	M
140	M
141	M
142	M
143	M
144	M
145	M
146	M
147	M
148	M
149	M
150	M
151	M
152	M
173	M
174	M
196	P
222	PM
264	P
323	P
324	P
335	M
336	M
344	T
346	F
347	P
348	P
379	A
380	P
381	P
382	A
413	P
441	T
444	T
446	M
447	P
448	F
450	F
451	T
460	T
461	P
462	T
464	P
465	A
466	A

Ref. No.	Ref. Type
Pennsylvania, Newark basin --Cont.	
498	FM
499	F
500	M
505	P
518	P
541	P
548	P
580	T
581	P
585	P
608	P
610	P
631	P
660	PM
661	PM
673	T
677	P
693	P
716	T
720	A
733	T
736	A
760	P
807	PM
820	P
821	P
822	P
824	M
825	M
827	PM
828	M
855	P
868	T
870	P
872	P
873	P
874	P
875	P
876	P
877	P
878	P
879	P
882	A
883	A
886	P
887	P
897	P
898	PM
899	PM
910	A
922	P
928	P
932	A
936	P
1021	T
1022	PM
1061	P
1062	P
1079	F
1084	P
1101	P
1102	P
1105	P
1106	P
1107	P
1110	T
1127	P
1137	A
1156	A
1173	T
1186	A
1187	P
1189	P
1194	PM
1195	T
1196	P
1198	A
1199	A
1200	P
1215	P
1228	P
1233	P
1239	P
1244	A
1245	A
1256	P
1290	P
1292	T
1296	P
1300	P
1302	P
1303	A
1352	P
1353	P
1354	P
1356	A
1358	F
1359	A
1362	A
1364	T
1365	P
1409	P
1416	P
1417	P
1418	P
1419	P
1420	P
1421	P
1423	PM
1435	PM
1449	PM
1455	P
1462	P
Pennsylvania, other	
234	P
606	P
765	P
927	P
1108	A
1289	P
1424	P
1425	P
Regional	
33	P
35	P
38	P
49	P
50	A
88	P
90	P
102	A
109	P
115	T
193	P
194	P
195	A
202	P
204	P
221	P
227	T
242	P
257	T
259	P
263	P
271	P
272	P
274	P
275	P
290	P
300	P
301	P
307	P
309	P
310	A
311	A
312	A
313	A
314	P
317	P
342	P
345	P
372	P
377	P
401	P
418	P
419	F
431	P
453	P
458	P
466	A
467	A
490	A
508	P
510	A
511	P
512	T
519	P
538	P
549	A
550	P
554	P
588	P
589	P
597	P
668	A
683	P
684	P
692	P
694	P
695	P
696	A
720	A
729	P
743	P
758	P
759	P
774	P
781	A
783	P
801	P
805	P
811	P

Regional--Cont.

Ref. No.	Ref. Type
818	P
819	P
829	P
835	F
836	P
837	P
838	A
853	P
857	P
859	A
863	P
866	A
869	PM
881	P
909	P
926	T
933	A
935	P
937	A
939	P
967	A
968	A
993	P
1004	A
1005	P
1035	A
1038	A
1044	P
1046	A
1047	A
1058	P
1059	P
1063	P
1075	P
1076	P
1077	P
1087	A
1088	P
1089	A
1109	A
1118	P
1119	P
1120	P
1121	P
1122	P
1135	P
1136	A
1140	P
1144	A
1145	A
1154	P
1183	P
1205	P
1206	P
1208	P
1209	T
1211	T
1263	P
1283	A
1293	P
1297	P
1301	A
1348	P
1349	P
1361	P
1366	P
1379	P
1382	P
1386	T
1393	P
1400	A
1401	T
1402	A
1403	P
1412	P
1426	P
1430	A
1444	P
1453	P
1461	P

South Carolina

Ref. No.	Ref. Type
76	P
77	PM
78	F
112	PM
208	P
228	P
281	PM
283	P
321	P
329	P
470	P
471	A
472	P
487	P
491	P
521	P
719	P
776	T
841	P
842	A
843	P
990	P
991	P
1020	P
1031	A
1048	P
1157	P
1192	A
1220	A
1221	T
1222	P
1284	P

Virginia, Culpeper basin

Ref. No.	Ref. Type
13	PM
24	A
36	P
83	M
86	F
101	P
177	M
180	F
213	P
224	P
248	F
262	A
269	PM
282	P
292	A
316	F
319	P
337	M
338	M
352	P
354	M
358	F
394	P
427	M
428	M
429	M
430	M
432	M
433	M
434	M
435	F
438	PM
473	P
485	A
486	T
513	P
520	P
555	T
576	T
577	A
583	P
607	P
642	M
649	M
653	P
655	M
656	M
657	M
671	T
676	PM
728	P
730	P
731	M
732	P
737	M
738	M
739	M
740	A
741	A
742	A
746	P
747	M
748	P
749	P
750	A
778	A
779	P
780	A
781	A
782	A
784	P
785	P
786	T
856	P
890	P
908	P
913	M
914	A
919	M
922	P
959	PM
962	A
1057	A
1082	F
1091	T
1094	P
1177	P
1178	P
1179	P
1261	A

Ref. No.	Ref. Type
Virginia, Culpeper basin --Cont.	
1286	P
1287	PM
1288	P
1299	A
1343	M
1344	M
1345	M
1370	P
1380	A
1381	P
1383	P
1385	P
1397	P
1432	M
1448	M
1456	A
1457	P
1459	M
1460	M
Virginia, Danville basin	
11	P
24	A
341	P
573	P
574	PM
575	M
754	PM
787	T
846	M
894	T
895	PM
934	P
1028	M
1029	M
1030	P
1085	P
1086	T
1272	A
1277	A
1278	A
1310	M
Virginia, Farmville basin	
24	A
190	PM
844	M
845	PM

Ref. No.	Ref. Type
1298	A
1433	F
1434	A
1452	P
Virginia, Richmond basin	
24	A
89	A
181	P
284	P
477	A
478	A
479	PM
480	A
481	M
482	A
558	P
816	P
921	P
1172	PM
1341	M
1452	P
Virginia, other	
4	P
23	T
217	P
238	A
375	PM
376	P
469	A
489	P
650	PM
654	PM
685	T
686	T
707	PM
815	PM
917	PM
966	P
1092	P
1093	P
1095	P
1096	A
1257	P
1312	M
1375	A
1384	P
1395	P
1396	A
1398	P
1399	M

SECTION 2. SUBJECT INDEX

Ref. No.	Ref. Type
North Carolina, other	
665	A
Pennsylvania, Newark basin	
1417	P
Regional	
33	P
35	P
194	P
195	A
274	P
300	P
309	P
774	P
835	F
993	P
1035	A
1038	A
1209	T
South Carolina	
471	A
487	P
491	P
991	P
Virginia, Culpeper basin	
742	A
856	P
1057	A
1381	P

KEYWORD: bibliography

Ref. No.	Ref. Type
Regional	
554	P
1121	P

Ref. No.	Ref. Type
Connecticut	
1193	P
1212	P
Pennsylvania, Gettysburg basin	
484	P
1106	P
Pennsylvania, Newark basin	
1106	P
Virginia	
815	PM

KEYWORD: buried basins

Ref. No.	Ref. Type
Connecticut	
110	A
Florida	
25	P
26	P
32	P
Georgia	
25	P
237	P
281	P
283	P
841	P
842	A
843	P
902	P
977	P
1020	P

Ref. No.	Ref. Type
Maritime Provinces	
459	P
1346	P
1347	P
Maryland	
16	P
353	P
1074	P
Massachusetts	
399	P
400	A
925	P
New York	
1411	P
North Carolina	
111	P
112	PM
281	P
283	P
823	P
1078	A
1159	P
Regional	
202	P
272	P
510	A
511	P
694	P
695	P
829	P
863	P
1075	P
1076	P
1077	P
1297	P

Ref. No.	Ref. Type
1382	P
1453	P
South Carolina	
76	P
112	PM
281	P
283	P
321	P
470	P
471	A
472	P
521	P
776	T
841	P
842	A
843	P
990	P
991	P
1020	P
1157	P
1192	A
Virginia, Richmond basin	
284	P
Virginia, other	
4	P

KEYWORD: climate

Ref. No.	Ref. Type
Connecticut	
621	P
622	P
710	PM
1115	P
Pennsylvania, Newark basin	
927	P
1352	P
1353	P

Regional

Ref. No.	Ref. Type
549	A
550	P
759	P
837	P
926	T
1058	P
1297	P

KEYWORD: diabase

Connecticut

Ref. No.	Ref. Type
273	A
306	F
455	P
509	P
688	P
705	T
717	P
847	A
992	A
999	P
1053	T
1068	T
1124	P
1160	P
1370	P

Georgia

Ref. No.	Ref. Type
330	A
331	P
488	A
751	A
761	P
1057	A
1111	P
1387	A

Maritime

Ref. No.	Ref. Type
725	P
735	T
952	A
953	P
954	P
1170	P
1250	P

Maryland

Ref. No.	Ref. Type
724	P
1057	A
1259	T
1260	A

Massachusetts, Deerfield basin

Ref. No.	Ref. Type
370	P

Massachusetts, Hartford basin

Ref. No.	Ref. Type
361	P
366	P
368	P
369	P
370	P
515	T
705	T
944	P
948	P
949	P
1174	P

Massachusetts, other

Ref. No.	Ref. Type
261	T
947	P

Morocco

Ref. No.	Ref. Type
91	T

New Jersey

Ref. No.	Ref. Type
61	P
98	A
287	P
326	T
387	P
398	P
420	P
532	P
584	P
634	P
640	P
744	T
767	P
770	P
773	P
848	P
852	P
901	P
964	P
989	P
1011	A
1040	P
1042	P
1083	A
1214	P
1234	P
1291	P
1368	P
1369	P
1370	P
1371	P
1372	P
1373	F
1429	P

New York

Ref. No.	Ref. Type
81	A
82	A
212	T
398	P
437	A
702	P
713	P
809	P
1373	F

North Carolina, Durham-Wadesboro-Deep River basins

Ref. No.	Ref. Type
578	P
666	A
667	A
670	T
701	P
1219	T

North Carolina, other

Ref. No.	Ref. Type
205	P
340	A
492	P
669	A
1045	A
1048	P
1049	P
1221	T
1230	A
1255	T
1284	P
1387	A

Pennsylvania, Gettysburg basin

Ref. No.	Ref. Type
291	P
355	T
493	P
608	P
610	P
611	P
718	T
720	A
721	A
722	P
724	P
1195	T
1198	A
1199	A
1200	P
1248	P
1290	P
1364	T
1365	P

Pennsylvania, Newark basin

Ref. No.	Ref. Type
413	P
608	P
610	P
720	A
1156	A
1187	P
1195	T
1198	A

Pennsylvania, Newark basin-Cont.

Ref. No.	Ref. Type
1199	A
1200	P
1290	P
1364	T
1365	P

Pennsylvania, other

Ref. No.	Ref. Type
765	P
1108	A

Regional

Ref. No.	Ref. Type
33	P
90	P
221	P
227	T
274	P
300	P
310	A
313	A
490	A
512	T
538	P
668	A
684	P
720	A
967	A
968	A
993	P
1004	A
1044	P
1046	A
1047	A
1109	A
1183	P
1208	P
1209	T
1211	T
1386	T
1401	T
1402	A
1403	P
1430	A

South Carolina

Ref. No.	Ref. Type
208	P
228	P
1031	A
1048	P
1220	A
1221	T
1222	P
1284	P

Virginia, Culpeper basin

Ref. No.	Ref. Type
86	F
292	A
473	P
520	P
583	P
728	P
890	P
908	P
962	A
1057	A
1179	P
1261	A
1288	P
1299	A
1370	P
1380	A
1381	P

Virginia, other

Ref. No.	Ref. Type
238	A
489	P
966	P
1092	P
1257	P
1384	P

KEYWORD: economic geology

Connecticut

Ref. No.	Ref. Type
1	P
69	P
206	P
421	P
502	F
590	P
595	P
614	P
630	P
734	A
915	P
969	M
974	T
1023	T
1080	P
1081	T
1128	A
1164	M
1184	P
1188	M
1193	P
1212	P
1294	P
1410	P
1428	P

Maritime

Ref. No.	Ref. Type
359	P
644	P
951	P

Massachusetts, Deerfield basin

Ref. No.	Ref. Type
370	P
1294	P
1410	P
1437	M
1438	M

Massachusetts, Hartford basin

Ref. No.	Ref. Type
63	P
350	P
365	PM
590	P
591	P
969	M
970	P
1294	P
1410	P

Massachusetts, other

Ref. No.	Ref. Type
965	M

Morocco

Ref. No.	Ref. Type
1361	P

New Jersey

Ref. No.	Ref. Type
1	P
65	PM
67	P
70	PM
71	P
96	P
250	P
252	P
260	P
286	A
288	PM
289	PM
326	T
494	P
495	P
542	P
544	P
553	P
646	P
648	F
678	P
711	P
714	P
752	P
766	P
769	P
830	P
849	T
870	P
922	P
1042	P
1153	A
1234	P
1300	P

New Jersey -Cont.

Ref. No.	Ref. Type
1302	P
1369	P
1391	P
1392	P
1451	P

New York

Ref. No.	Ref. Type
209	A
1146	F

North Carolina, Dan River basin

Ref. No.	Ref. Type
903	F
1232	PM
1251	P
1272	A
1452	P

North Carolina, Durham-Wadesboro-Deep River basins

Ref. No.	Ref. Type
42	PM
43	FM
75	P
87	A
197	T
214	A
215	A
219	PM
658	P
1066	PM
1251	P
1285	P
1363	P
1443	P
1452	P

North Carolina, other

Ref. No.	Ref. Type
341	P
745	P
1231	PM
1284	P

Pennsylvania, Gettysburg basin

Ref. No.	Ref. Type
34	P
113	P
291	P
323	P
324	P
414	P
415	P
416	PM
417	P
445	PM
448	F
449	M
450	F
484	P
498	FM
499	F
529	P
579	A
580	T
585	P
609	PM
610	P
611	P
631	P
677	P
721	A
723	P
918	P
922	P
1021	T
1104	PM
1105	P
1106	P
1107	P
1197	P
1199	A
1215	P
1237	PM
1240	PM
1246	PM
1247	PM
1290	P

Pennsylvania, Newark basin

Ref. No.	Ref. Type
64	M
66	PM
67	P
68	T
113	P
323	P
324	P
347	P
348	P
381	P
382	A
441	T
448	F
450	F
498	FM
499	F
541	P
580	T
585	P
610	P
631	P
677	P
693	P
733	T
760	P
820	P
821	P
827	PM
855	P
870	P
897	P
898	PM
922	P
1021	T
1061	P
1101	P
1102	P
1105	P
1106	P
1107	P
1189	P
1194	PM
1196	P
1199	A
1215	P
1233	P
1290	P
1292	T
1296	P
1300	P
1302	P
1409	P
1416	P
1435	PM
1462	P

Maryland

Ref. No.	Ref. Type
425	M

Regional

Ref. No.	Ref. Type
290	P
317	P
377	P
458	P
467	A
490	A
510	A
829	P
1087	A
1088	P
1089	A
1293	P
1301	A
1361	P
1393	P
1461	P

South Carolina

Ref. No.	Ref. Type
1284	P

Virginia, Culpeper basin

Ref. No.	Ref. Type
86	F
269	PM
319	P
352	P
427	M
434	M
438	PM
607	P
671	T
922	P
1383	P
1385	P

Virginia, Danville basin

Ref. No.	Ref. Type
341	P
573	P
1272	A

Virginia, Farmville basin

Ref. No.	Ref. Type
1433	F
1452	P

Virginia, Richmond basin

Ref. No.	Ref. Type
181	P
479	PM
558	P
921	P
1172	PM
1452	P

Virginia, other

Ref. No.	Ref. Type
376	P
815	PM
1095	P
1257	P
1398	P
1399	M

economic geology, subkeyword: barite

Ref. No.	Ref. Type
65	PM
69	P
250	P
326	T
348	P
350	P
352	P
365	P
421	P
427	M
434	M
438	PM
484	P
542	P
544	P
580	T
585	P
590	P
591	P
733	T
815	PM
965	M
970	P
1095	P
1101	P
1102	P
1128	A
1188	M
1193	P
1196	P
1212	P
1233	P
1257	P
1292	T
1385	P
1409	P
1416	P
1435	PM
1437	M

economic geology, subkeyword: coal

Ref. No.	Ref. Type
42	PM
43	FM
63	P
64	M
87	A
181	P
197	T
218	PM
219	PM
416	PM
479	PM
558	P
595	P
658	P
711	P
760	P
915	P
921	P
970	P
1066	PM
1087	A
1088	P
1089	A
1095	P
1172	PM
1231	PM
1232	PM
1251	P
1272	A
1285	P
1363	P
1398	P
1399	M
1433	F
1443	P
1452	P

economic geology, subkeyword: copper

Ref. No.	Ref. Type
1	P
65	PM
66	PM
67	P
69	P
70	PM
71	P
86	F
96	P
206	P
239	P
250	P
252	P
260	P
269	PM
286	A
288	PM
289	PM
347	P
348	P
350	P
359	P
370	P
376	P
414	P
425	M
427	M
434	M
450	F
484	P
490	A
494	P
495	P
502	F
506	P
544	P
553	P
590	P
591	P
607	P
630	P
677	P
678	P
714	P
733	T
752	P
766	P
769	P
815	PM
820	P
821	P
830	P
849	T
898	PM
922	P
951	P
965	M
969	M
974	T
1023	T
1066	PM
1080	P
1081	T
1095	P
1102	P
1104	PM
1105	P
1106	P
1128	A
1153	A
1164	M
1184	P

economic geology, subkeyword: copper -Cont.

Ref. No.	Ref. Type
1188	M
1193	P
1196	P
1197	P
1212	P
1237	PM
1240	PM
1247	PM
1293	P
1294	P
1383	P
1391	P
1392	P
1393	P
1409	P
1410	P
1416	P
1428	P
1435	PM
1438	M
1451	P

economic geology, subkeyword: gas

Ref. No.	Ref. Type
1146	F

economic geology, subkeyword: gold

Ref. No.	Ref. Type
75	P
214	A
215	A
614	P
678	P
820	P
903	F
1197	P
1284	P
1416	P

economic geology, subkeyword: iron

Ref. No.	Ref. Type
34	P
66	PM
68	T
216	P
290	P
291	P
323	P
324	P
377	P
381	P
382	A
414	P
415	P
417	P
441	T
445	PM
448	F
449	M
450	F
484	P
498	FM
499	F
529	P
541	P
579	A
580	T
585	P
609	PM
610	P
611	P
631	P
677	P
721	A
723	P
827	PM
918	P
922	P
1021	T
1042	P
1105	P
1106	P
1107	P
1189	P
1194	PM
1197	P
1199	A
1215	P
1237	PM
1240	PM
1246	PM
1247	PM
1290	P
1296	P
1369	P
1462	P

economic geology, subkeyword: lead

Ref. No.	Ref. Type
66	PM
113	P
239	P
347	P
348	P
350	P
365	PM
370	P
450	F
484	P
590	P
591	P
733	T
820	P
897	P
965	M
970	P
974	T
1061	P
1101	P
1102	P
1106	P
1128	A
1188	M
1196	P
1212	P
1294	P
1409	P
1410	P
1416	P
1435	PM
1437	M

economic geology, subkeyword: oil

Ref. No.	Ref. Type
42	PM
614	P
734	A
829	P
961	A
1146	F
1272	A
1363	P
1461	P

economic geology, subkeyword: salt

Ref. No.	Ref. Type
510	A
644	P
1361	P

economic geology, subkeyword: silver

Ref. No.	Ref. Type
69	P
113	P
269	PM
286	A
319	P
607	P
614	P
630	P
678	P
766	P
769	P
897	P
1101	P
1102	P
1106	P
1128	A
1153	A
1197	P
1409	P

economic geology, subkeyword: uranium

Ref. No.	Ref. Type
42	PM
209	A
317	P
341	P
458	P
467	A
502	F
573	P
646	P
648	F
671	T

economic geology, subkeyword: uranium-Cont.

Ref. No.	Ref. Type
693	P
745	P
855	P
870	P
1023	T
1106	P
1164	M
1294	P
1300	P
1301	A
1302	P

economic geology, subkeyword: zinc

Ref. No.	Ref. Type
66	PM
113	P
239	P
347	P
348	P
350	P
365	PM
370	P
450	F
484	P
590	P
591	P
733	T
820	P
897	P
965	M
970	P
1061	P
1101	P
1102	P
1106	P
1128	A
1188	M
1196	P
1212	P
1294	P
1409	P
1410	P
1416	P
1435	PM
1437	M

KEYWORD: faults
Connecticut

Ref. No.	Ref. Type
299	P
303	P
320	P
407	P
424	P
474	P
755	P
1002	T
1123	T
1125	P
1410	P
1445	A

Georgia

Ref. No.	Ref. Type
977	P

Massachusetts, Deerfield basin

Ref. No.	Ref. Type
119	P
679	P
1410	P
1441	T

Massachusetts, Hartford basin

Ref. No.	Ref. Type
229	P
1410	P
1445	A

New Jersey

Ref. No.	Ref. Type
6	A
386	P
398	P
547	A
612	A
817	P
835	F
904	A
1054	P
1055	A
1056	F
1139	P
1249	M

New York

Ref. No.	Ref. Type
398	P
612	A
791	A
904	A
1054	P

North Carolina, Dan River basin

Ref. No.	Ref. Type
207	P
903	F

North Carolina, Durham-Wadesboro-Deep River basins

Ref. No.	Ref. Type
41	A
236	T
476	A
535	P
958	P
1052	P
1265	A

North Carolina, other

Ref. No.	Ref. Type
903	F

Pennsylvania, Gettysburg basin

Ref. No.	Ref. Type
240	P
379	A
884	P
886	P
1239	P
1241	P

Pennsylvania, Newark basin

Ref. No.	Ref. Type
107	P
379	A
875	P
886	P
1156	A
1239	P

Regional

Ref. No.	Ref. Type
49	P
781	A
783	P
801	P
835	F
1135	P
1145	A
1412	P
1426	P
1444	P

South Carolina

Ref. No.	Ref. Type
321	P

Virginia, Culpeper basin

Ref. No.	Ref. Type
737	M
741	A
779	P
781	A

Virginia, Danville basin

Ref. No.	Ref. Type
574	P
787	T
895	P
1030	P

KEYWORD: general geology

Connecticut

Ref. No.	Ref. Type
46	P
62	P
80	A
183	M
201	PM
210	T
233	P
235	P
245	M
246	M
247	M
255	P
265	M
295	P
297	P
298	P
304	P
306	F
308	F
396	PM
410	P
411	P
422	M
423	M
440	PM
503	F
528	M
537	M
582	PM
596	P
613	P
619	P
620	F
628	F
632	A
687	P
691	F
708	PM
710	PM
755	PM
803	P
806	F
814	PM
896	PM
906	T
915	P
969	M
971	P
1010	PM
1060	T
1071	P
1072	F
1073	F
1098	F
1099	P
1117	P
1138	A
1143	F
1147	P
1161	M
1162	M
1163	M
1164	M
1165	M
1167	T
1168	PM
1188	M
1216	PM
1217	PM
1378	T

Georgia

Ref. No.	Ref. Type
761	P
841	P

Maritime

Ref. No.	Ref. Type
643	P
645	F
689	P
955	P
1024	F
1025	P
1026	P
1027	P
1227	A

Maryland

Ref. No.	Ref. Type
316	F
332	A
353	P
389	M
393	P
426	M
659	M
746	P
748	P
784	P
893	P
924	P
1067	M
1235	P

Massachusetts, Deerfield basin

Ref. No.	Ref. Type
47	P
53	M
54	M
55	M
370	P
371	P
679	P
1406	P
1408	F
1437	M
1438	M
1439	M

Massachusetts, Hartford basin

Ref. No.	Ref. Type
56	PM
179	F
247	M
362	P
364	P
365	PM
370	P
371	P
402	P
536	T
537	M
587	T
592	P
628	F
697	M
703	P
757	M
803	P
806	F
900	P
969	M
1149	T
1162	M

Massachusetts, other

Ref. No.	Ref. Type
674	P
925	P
1169	M

New Jersey

Ref. No.	Ref. Type
5	F
67	P
70	PM
80	A
250	P
251	P
253	P
287	P
288	PM
289	PM
326	T
335	M
336	M
346	F
384	P
390	P
548	P
552	F
647	F
648	F
682	P
711	P
712	PM
767	P
768	P
775	P
864	T
878	P
879	P
880	P
901	P
929	F
930	F
936	P
945	M

Ref. No.	Ref. Type
New Jersey -Cont.	
1079	F
1116	P
1117	P
1152	F
1350	F
1358	F
1373	F
1431	P
New York	
5	F
437	A
712	PM
713	P
810	T
936	P
973	PM
1146	F
1151	T
1282	PM
1358	F
1373	F
Morocco	
188	A
189	P
378	P
808	P
839	A
840	P
North Carolina, Dan River basin	
225	M
1001	T
1232	PM
1273	T
1276	P
1277	A
1279	F

Ref. No.	Ref. Type
North Carolina, Durham-Wadesboro-Deep River basins	
9	PM
43	FM
57	T
78	F
88	P
191	T
197	T
218	PM
219	PM
256	T
268	A
533	A
535	PM
700	A
701	P
912	P
958	PM
1032	A
1033	A
1034	P
1050	P
1051	T
1066	PM
1191	T
1219	T
1285	P
1413	A
1415	P
1443	P
North Carolina, other	
182	PM
205	P
249	PM
1231	PM
1275	P
Pennsylvania, Gettysburg basin	
84	M

Ref. No.	Ref. Type
95	T
323	P
388	PM
415	P
416	PM
439	F
445	PM
446	M
447	P
449	M
461	P
500	M
610	P
638	PM
662	PM
826	M
874	P
885	F
886	P
1103	M
1104	PM
1114	PM
1236	PM
1237	PM
1240	PM
1241	P
1242	M
1246	PM
1247	PM
1418	P
Pennsylvania, Newark basin	
64	M
66	PM
67	P
85	M
323	P
335	M
336	M
346	F
446	M
447	P
461	P
500	M
505	P
548	P

Ref. No.	Ref. Type
610	P
660	PM
661	PM
760	P
820	P
824	M
825	M
827	PM
828	M
872	P
873	P
874	P
876	P
877	P
878	P
879	P
886	P
898	PM
899	PM
910	A
936	P
1079	F
1084	P
1244	A
1245	A
1358	F
1417	P
1418	P
1423	PM
1435	PM
Pennsylvania, other	
606	P
765	P
1424	P
1425	P
Regional	
38	P
49	P
88	P
257	T
272	P
275	P
431	P

Regional -Cont.

Ref. No.	Ref. Type
453	P
588	P
589	P
597	P
743	P
759	P
836	P
869	PM
881	P
933	A
935	P
937	A
939	P
1063	P
1118	P
1119	P
1120	P
1121	P
1122	P
1183	P

South Carolina

Ref. No.	Ref. Type
78	F
208	P
841	P

Virginia, Culpeper basin

Ref. No.	Ref. Type
13	PM
83	M
248	F
316	F
337	M
338	M
354	M
358	F
435	F
438	PM
676	PM
742	A
746	P
747	M
748	P
749	P
780	A
784	P
786	T
856	P
913	M
959	PM
1082	F
1091	T
1287	PM
1432	M
1456	A

Virginia, Danville basin

Ref. No.	Ref. Type
574	PM
575	M
754	PM
846	M
894	T
895	PM
1028	M
1029	M
1277	A
1278	A

Virginia, Farmville basin

Ref. No.	Ref. Type
190	PM
844	M
845	PM
1433	F

Virginia, Richmond basin

Ref. No.	Ref. Type
181	P
284	P
478	A
479	PM
481	M
482	A
558	P
816	P
921	P
1172	PM

Virginia, other

Ref. No.	Ref. Type
217	P
375	PM
650	PM
685	T
707	PM
917	PM
1092	P
1093	P
1095	P
1096	A
1257	P
1384	P
1395	P
1396	A
1398	P
1399	M

KEYWORD:
geochemistry

Connecticut

Ref. No.	Ref. Type
27	T
30	P
527	P
540	P
633	T
664	P
847	A
996	P
997	A
1037	P
1068	T
1160	P
1281	A

Georgia

Ref. No.	Ref. Type
488	A

Maritime

Ref. No.	Ref. Type
333	P
953	P
954	P
1039	A
1250	P

Maryland

Ref. No.	Ref. Type
724	P
1260	A

Massachusetts, Hartford basin

Ref. No.	Ref. Type
402	P
559	T
1069	A
1224	P

Massachusetts, other

Ref. No.	Ref. Type
399	P

Morocco

Ref. No.	Ref. Type
91	T
839	A
840	P

New Jersey

Ref. No.	Ref. Type
98	A
285	P
420	P
443	A
634	P
744	T
852	P
964	P
989	P
1011	A
1036	P
1037	P
1040	P
1041	P
1126	T
1234	P
1351	P
1354	P

New Jersey -Cont.

Ref. No.	Ref. Type
1356	A
1360	P
1367	A
1368	P
1371	P
1372	P

New York

Ref. No.	Ref. Type
97	T
212	T
443	A

North Carolina, Dan River basin

Ref. No.	Ref. Type
27	T
30	P
34	P
35	P
90	P
91	T
97	T
98	A
194	P
195	A
212	T
226	P
228	P
280	T
285	P
315	A
318	A
333	P
345	P
399	P
402	P
420	P
443	A
471	A
473	P
487	P
488	A
489	P
490	A
491	P
492	P
493	P
520	P
527	P
540	P
559	T
579	A
583	P
608	P
611	P
633	T
634	P
664	P
668	A
669	A
671	T
686	T
718	T
720	A
724	P
728	P
744	T
839	A
840	P
847	A
852	P
867	P
905	P
953	P
954	P
964	P
967	A
968	A
989	P
993	P
996	P
997	A
998	A
1004	A
1011	A
1035	A
1036	P
1037	P
1039	A
1040	P
1041	P
1044	P
1045	A
1046	A
1049	P
1068	T
1069	A
1108	A
1109	A
1126	T
1160	P
1195	T
1198	A
1199	A
1200	P
1208	P
1209	T
1211	T
1220	A
1221	T
1222	P
1224	P
1230	A
1234	P
1250	P
1260	A
1271	A
1281	A
1284	P
1351	P
1354	P
1356	A
1360	P
1367	A
1368	P
1371	P
1372	P
1401	T
1402	A
1403	P

North Carolina, other

Ref. No.	Ref. Type
280	T
492	P
669	A
1045	A
1049	P
1221	T
1230	A
1284	P

Pennsylvania, Gettysburg basin

Ref. No.	Ref. Type
34	P
493	P
579	A
608	P
611	P
718	T
720	A
724	P
1195	T
1198	A
1199	A
1200	P

Pennsylvania, Newark basin

Ref. No.	Ref. Type
608	P
720	A
1195	T
1198	A
1199	A
1200	P
1354	P
1356	A

Pennsylvania, other

Ref. No.	Ref. Type
1108	A

Regional

Ref. No.	Ref. Type
35	P
90	P
194	P
195	A
345	P
490	A
668	A
720	A
967	A
968	A
993	P
1004	A
1035	A
1044	P
1046	A
1109	A
1208	P
1209	T
1211	T
1401	T
1402	A
1403	P

Ref. No.	Ref. Type

South Carolina

228	P
471	A
487	P
491	P
1220	A
1221	T
1222	P
1284	P

Virginia, Culpeper basin

473	P
520	P
583	P
671	T
728	P

Virginia, other

489	P
686	T

KEYWORD: geophysics

Connecticut

14	A
15	A
186	A
230	T
351	P
680	A
681	A
698	A
699	P
800	A
802	P
1016	M
1019	M
1404	T

Florida

32	P

Georgia

283	P
328	T
330	A
331	P
841	P
843	P
977	P

Maritime

58	P
59	P
223	P
598	P
675	P
725	P
1266	P
1267	P
1346	P

Maryland

99	M
100	M
158	M
789	M

Massachusetts, Deerfield basin

19	M
20	M
21	M
178	M
184	A
185	A

Massachusetts, Hartford basin

124	M
125	M
178	M
184	A
199	A
200	A
357	T
514	A
536	T
639	P
800	A

Massachusetts, other

261	T
399	P

Morocco

517	P

New Jersey

2	P
17	M
18	M
37	A
116	M
117	M
118	M
119	M
120	M
121	M
122	M
123	M
270	P
326	T
344	T
373	A
374	P
532	P
561	M
562	M
563	M
564	M
565	M
566	M
567	M
568	M
569	M
570	M
571	M
572	M
612	A
904	A
946	P

New York

562	M
612	A
702	P
704	T
904	A
946	P

North Carolina, Dan River basin

442	A

North Carolina, Durham-Wadesboro-Deep River basins

3	PM
41	A
42	PM
44	A
94	P
360	T
599	T
637	T
651	P
832	P
1229	P

North Carolina, other

112	PM
283	P
329	P
823	P

Pennsylvania, Gettysburg basin

37	A

Pennsylvania, Gettysburg basin -Cont.

Ref. No.	Ref. Type
72	P
74	P
153	M
154	M
155	M
156	M
157	M
158	M
159	M
160	M
161	M
162	M
163	M
164	M
165	M
166	M
167	M
168	M
169	M
170	M
171	M
172	M
175	M
176	M
789	M

Pennsylvania, Newark basin

Ref. No.	Ref. Type
37	A
72	P
73	P
74	P
120	M
121	M
122	M
126	M
127	M
128	M
129	M
130	M
131	M
132	M
133	M
134	M
135	M
136	M
137	M
138	M
139	M
140	M
141	M
142	M
143	M
144	M
145	M
146	M
147	M
148	M
149	M
150	M
151	M
152	M
173	M
174	M
344	T
381	P
382	A
441	T
451	T
541	P
581	P
716	T

Regional

Ref. No.	Ref. Type
33	P
115	T
271	P
307	P
309	P
311	A
312	A
314	P
342	P
511	P
694	P
695	P
696	A
729	P
1382	P

South Carolina

Ref. No.	Ref. Type
76	P
77	PM
112	PM
283	P
321	P
329	P
470	P
471	A
841	P
843	P
1157	P

Virginia, Culpeper basin

Ref. No.	Ref. Type
177	M
262	A
282	P
394	P
513	P
642	M
649	M
739	M
740	A

Virginia, Danville basin

Ref. No.	Ref. Type
573	P

Virginia, other

Ref. No.	Ref. Type
4	P
217	P
262	A
650	PM

geophysics, subkeyword: gravity

Ref. No.	Ref. Type
42	PM
60	T
178	M
199	A
200	A
230	T
282	P
351	P
357	T
442	A
451	T
581	P
650	PM
675	P
695	P
702	P
704	T
716	T
740	A
800	A
802	P
832	P
841	P
1016	M
1019	M
1020	P
1111	P
1180	T
1254	T
1256	P
1269	A
1434	A
1448	M
1458	T

geophysics, subkeyword: magnetism

Ref. No.	Ref. Type
14	A
15	A
17	M
18	M
19	M
20	M
21	M
37	A
42	PM
72	P
73	P
74	P
77	PM
99	M
100	M
115	T
116	M
117	M
118	M
119	M

Ref. No.	Ref. Type	Ref. No.	Ref. Type	Ref. No.	Ref. Type	Ref. No.	Ref. Type
geophysics,		171	M	696	A	1203	A
subkeyword:		172	M	698	A	1204	A
magnetism-Cont		173	M	699	P	1205	P
		174	M	702	P	1206	P
124	M	175	M	716	T	1207	A
125	M	176	M	725	P	1286	P
126	M	177	M	726	P	1288	P
127	M	184	A	727	P	1304	M
128	M	185	A	729	P	1305	M
129	M	186	A	789	M	1306	M
130	M	203	P	823	P	1307	M
131	M	217	P	843	P	1308	M
132	M	223	P	849	T	1309	M
133	M	261	T	868	T	1310	M
134	M	271	P	891	M	1311	M
135	M	282	P	892	M	1312	M
136	M	307	P	940	P	1313	M
137	M	309	P	955	P	1314	M
138	M	311	A	978	M	1315	M
139	M	312	A	979	M	1316	M
140	M	314	P	980	M	1317	M
141	M	329	P	981	M	1318	M
142	M	342	P	982	M	1319	M
143	M	394	P	983	M	1320	M
144	M	514	A	984	M	1321	M
145	M	517	P	985	M	1322	M
146	M	532	P	986	M	1323	M
147	M	536	T	987	M	1324	M
148	M	541	P	988	M	1325	M
149	M	561	M	990	M	1326	M
150	M	562	M	991	P	1327	M
151	M	563	M	1007	M	1328	M
152	M	564	M	1008	M	1329	M
153	M	565	M	1009	M	1330	M
154	M	566	M	1012	M	1331	M
155	M	567	M	1013	M	1332	M
156	M	568	M	1014	M	1333	M
157	M	569	M	1015	M	1334	M
158	M	570	M	1016	M	1335	M
159	M	571	M	1017	M	1337	M
160	M	572	M	1018	M	1338	M
161	M	581	P	1019	M	1341	M
162	M	598	P	1020	P	1342	M
163	M	639	P	1057	A	1343	M
164	M	649	M	1064	A	1344	M
165	M	650	PM	1083	A	1345	M
166	M	651	P	1111	P	1348	P
167	M	675	P	1170	P	1364	T
168	M	680	A	1173	T	1365	P
169	M	681	A	1201	T	1386	T
170	M	695	P	1202	A	1387	A

geophysics, subkeyword: magnetism-Cont.

Ref. No.	Ref. Type
1454	P
1462	P

geophysics, subkeyword: radioactivity

Ref. No.	Ref. Type
120	M
121	M
122	M
123	M
513	P
573	P
739	M
919	M
1336	M
1339	M
1340	M

geophysics, subkeyword: resistivity

Ref. No.	Ref. Type
3	PM
41	A
42	PM
94	P
282	P

geophysics, subkeyword: seismic profiles

Ref. No.	Ref. Type
4	P
32	P
41	A
42	PM
44	A
59	P
76	P
112	PM
262	A
322	P
675	P
694	P
841	P
843	P
904	A
946	P
977	P
1157	P
1229	P
1266	P
1267	P
1346	P
1382	P
1404	T

geophysics, subkeyword: SLAR

Ref. No.	Ref. Type
42	PM

KEYWORD: hydrology

Connecticut

Ref. No.	Ref. Type
436	P
664	P

Georgia

Ref. No.	Ref. Type
841	P
843	P

Maryland

Ref. No.	Ref. Type
429	M
893	P
924	P
1459	M

Massachusetts, Hartford basin

Ref. No.	Ref. Type
1132	T

New Jersey

Ref. No.	Ref. Type
923	P
1431	P

New York

Ref. No.	Ref. Type
973	PM

North Carolina

Ref. No.	Ref. Type
39	P
42	PM
94	P
360	T
397	P
637	T
753	P
854	P
911	P
1158	P
1443	P

North Carolina, Dan River basin

Ref. No.	Ref. Type
911	P

North Carolina, Durham-Wadesboro-Deep River basins

Ref. No.	Ref. Type
39	P
42	PM
94	P
360	T
397	P
637	T
854	P
1158	P
1443	P

North Carolina, other

Ref. No.	Ref. Type
753	P

Pennsylvania, Gettysburg basin

Ref. No.	Ref. Type
652	PM
1114	PM
1270	PM
1449	PM
1450	P

Pennsylvania, Newark basin

Ref. No.	Ref. Type
108	P
505	P
807	PM
1022	PM
1084	P
1449	PM

Regional

Ref. No.	Ref. Type
38	P
272	P

Virginia, Culpeper basin

Ref. No.	Ref. Type
213	P
429	M
430	M
432	M
433	M
653	P
654	PM
655	M
656	M
657	M
671	T
730	P
731	M
732	P
1459	M
1460	M

Virginia, Danville basin

Ref. No.	Ref. Type
754	PM

Ref. No. Ref. Type

KEYWORD: isotopes

Maritime

598 P

Pennsylvania, Gettysburg basin

34 P
579 A

Regional

967 A
968 A
1208 P
1209 T

Virginia, Culpeper basin

1261 A

KEYWORD: metamorphism

Connecticut

699 P
734 A

New Jersey

640 P
773 P
1011 A
1357 A
1359 A
1360 P

New York

81 A
82 A

North Carolina

280 T

Pennsylvania, Gettysburg basin

1243 P

Pennsylvania, Newark basin

1186 A
1296 P
1359 A
1417 P

Pennsylvania, other

234 P
1289 P

Virginia, Culpeper basin

750 A
1177 P
1178 P

KEYWORD: mineralogy

Connecticut

27 T
28 P
30 P
192 P
206 P
244 PM
254 P
273 A
404 P
455 P
501 A
539 P
556 P
594 P
615 P
627 P
680 A
688 P
708 PM
717 P
814 PM
992 A
999 P
1053 T
1176 A
1212 P
1280 T

Georgia

751 A
761 P

Maritime

359 P
953 P
954 P
1374 P

Massachusetts, Deerfield basin

185 A
370 P
556 P

Massachusetts, Hartford basin

28 P
361 P
364 P
366 P
370 P
556 P
559 T
706 P
944 P
948 P
949 P
1174 P
1175 P
1268 T

Massachusetts, other

261 T
947 P

New Jersey

10 A
61 P
71 P
114 P
198 F
339 P
387 P
391 P
392 P
468 P
483 P
507 P
542 P
543 P
545 P
546 P
584 P
640 P
672 P
763 P
770 P
771 P
773 P
790 P
830 P
831 P
848 P
871 P
964 P
976 F
989 P

New Jersey -Cont.

Ref. No.	Ref. Type
1011	A
1131	P
1150	P
1152	F
1155	P
1252	A
1253	T
1291	P
1351	P
1355	P
1356	A
1357	A
1359	A
1360	P
1362	A
1368	P
1372	P
1422	P
1429	P
1442	A

New York

Ref. No.	Ref. Type
209	A

North Carolina, Durham-Wadesboro-Deep River basins

Ref. No.	Ref. Type
343	A
578	P
601	T
602	P
666	A
667	A
670	T

North Carolina, other

Ref. No.	Ref. Type
280	T
340	A
665	A
1255	T

Pennsylvania, Gettysburg basin

Ref. No.	Ref. Type
291	P
355	T
450	F
585	P
608	P
721	A
722	P
1238	P
1243	P
1248	P

Pennsylvania, Newark basin

Ref. No.	Ref. Type
413	P
450	F
518	P
585	P
608	P
1062	P
1186	A
1187	P
1228	P
1356	A
1359	A
1362	A
1417	P
1421	P

Pennsylvania, other

Ref. No.	Ref. Type
234	P
1289	P

Regional

Ref. No.	Ref. Type
227	T
512	T
538	P

Virginia, Culpeper basin

Ref. No.	Ref. Type
86	F
101	P
180	F
292	A
890	P
908	P
914	A
962	A
1094	P
1177	P
1178	P
1179	P
1299	A
1457	P

Virginia, Danville basin

Ref. No.	Ref. Type
11	P
1030	P

Virginia, other

Ref. No.	Ref. Type
238	A
686	T
966	P
1092	P
1257	P

South Carolina

Ref. No.	Ref. Type
487	P
776	T
1031	A

KEYWORD: paleontology

Connecticut

Ref. No.	Ref. Type
22	P
243	P
258	P
296	P
349	P
593	P
596	P
812	P
813	P
858	T
860	T
861	F
916	P
920	P
928	P
943	F
1090	A

Maritime

Ref. No.	Ref. Type
644	P
938	A
1026	P

Massachusetts, Deerfield basin

Ref. No.	Ref. Type
243	P
370	P
371	P

Massachusetts, Hartford basin

Ref. No.	Ref. Type
243	P
258	P
370	P
371	P
593	P

Morocco

Ref. No.	Ref. Type
263	P

New Jersey

Ref. No.	Ref. Type
104	P
241	P
497	P
548	P
552	F
605	P
648	F
920	P
928	P

New Jersey -Cont.

Ref. No.	Ref. Type
929	F
930	F
932	A
936	P

New York

Ref. No.	Ref. Type
936	P

North Carolina, Dan River basin

Ref. No.	Ref. Type
934	P
1085	P
1086	T
1232	PM

North Carolina, Durham-Wadesboro-Deep River basins

Ref. No.	Ref. Type
43	FM
51	A
604	P
957	A
958	PM
1166	P

North Carolina, other

Ref. No.	Ref. Type
603	T

Pennsylvania, Gettysburg basin

Ref. No.	Ref. Type
106	P
264	P
586	P
1247	PM
1376	P
1377	P
1418	P
1419	P

Pennsylvania, Newark basin

Ref. No.	Ref. Type
103	P
106	P
107	P
196	P
264	P
548	P
736	A
820	P
822	P
928	P
932	A
936	P
1127	P
1418	P
1419	P
1435	PM

Regional

Ref. No.	Ref. Type
109	P
193	P
242	P
257	T
259	P
263	P
401	P
508	P
811	P
818	P
857	P
859	A
926	T
933	A
937	A
939	P
1059	P
1089	A
1154	P
1283	A
1297	P
1366	P
1379	P
1400	A

Virginia, Culpeper basin

Ref. No.	Ref. Type
24	A
36	P
485	A
486	T
778	A
1397	P

Virginia, Danville basin

Ref. No.	Ref. Type
24	A
934	P
1085	P
1086	T

Virginia, Farmville basin

Ref. No.	Ref. Type
24	A
1298	A

Virginia, Richmond basin

Ref. No.	Ref. Type
24	A
89	A
816	P
1172	PM

Virginia, other

Ref. No.	Ref. Type
23	T
707	PM
1095	P
1398	P

KEYWORD: petrology

Connecticut

Ref. No.	Ref. Type
27	T
29	P
30	P
235	P
596	P
615	P
623	A
632	A
633	T
688	P
705	T
764	A
847	A
862	A
992	A
994	P
995	P
996	P
1053	T
1065	A
1124	P
1185	T
1280	T
1281	A
1370	P
1388	T
1389	P
1390	P

Georgia

Ref. No.	Ref. Type
488	A
751	A

Maritime

Ref. No.	Ref. Type
735	T
952	A
953	P
954	P
1039	A
1250	P

Maryland

Ref. No.	Ref. Type
724	P
1259	T
1260	A

Massachusetts, Deerfield basin

Ref. No.	Ref. Type
370	P
1389	P
1390	P
1405	T

Massachusetts, Hartford basin

Ref. No.	Ref. Type
361	P
364	P
366	P
368	P
370	P
402	P
515	T
560	A
705	T
1268	T
1388	T
1389	P
1390	P

Morocco

Ref. No.	Ref. Type
91	T
839	A

New Jersey

Ref. No.	Ref. Type
61	P
391	P
584	P
640	P
744	T
770	P
773	P
852	P
964	P
989	P
1036	P
1040	P
1041	P
1126	T
1182	A
1214	P
1367	A
1368	P
1369	P
1370	P
1371	P
1372	P
1388	T
1389	P
1390	P

New York

Ref. No.	Ref. Type
82	A
97	T
212	T

North Carolina, Durham-Wadesboro-Deep River basins

Ref. No.	Ref. Type
578	P
666	A
667	A
670	T

North Carolina, other

Ref. No.	Ref. Type
340	A
665	A
669	A
777	T
1045	A
1049	P
1230	A
1255	T
1427	T

Pennsylvania, Gettysburg basin

Ref. No.	Ref. Type
291	P
355	T
585	P
608	P
611	P
718	T
720	A
721	A
722	P
724	P
1195	T
1198	A
1199	A
1200	P
1248	P
1290	P

Pennsylvania, Newark basin

Ref. No.	Ref. Type
585	P
608	P
720	A
1187	P
1195	T
1198	A
1199	A
1200	P
1290	P
1417	P

Pennsylvania, other

Ref. No.	Ref. Type
1108	A

Regional

Ref. No.	Ref. Type
35	P
195	A
227	T
290	P
345	P
490	A
538	P
720	A
993	P
1004	A
1038	A
1047	A
1109	A
1211	T
1403	P

South Carolina

Ref. No.	Ref. Type
228	P
487	P
1220	A
1222	P

Virginia, Culpeper basin

Ref. No.	Ref. Type
292	A
742	A
786	T
1094	P
1179	P
1261	A
1299	A
1370	P
1457	P

Virginia, other

Ref. No.	Ref. Type
238	A
1092	P

KEYWORD: radiometric age

Connecticut

Ref. No.	Ref. Type
1064	A
1171	P
1190	T
1262	P

Maritime

Ref. No.	Ref. Type
598	P

Maryland

Ref. No.	Ref. Type
1262	P

New Jersey

Ref. No.	Ref. Type
850	T
1171	P

Pennsylvania, Newark basin

Ref. No.	Ref. Type
382	A

South Carolina

Ref. No.	Ref. Type
719	P

Virginia, Culpeper basin

Ref. No.	Ref. Type
1261	A

Virginia, other

Ref. No.	Ref. Type
1375	A

radiometric age, subkeyword: Ar/Ar dating

Ref. No.	Ref. Type
270	P
719	P
1261	A

radiometric age, subkeyword: K/Ar dating

Ref. No.	Ref. Type
2	P
33	P
223	P
271	P
315	A
328	T
330	A
331	P
373	A
374	P
470	P
471	A
551	P
598	P
612	A
727	P
840	P
850	T
865	P
1064	A
1171	P
1190	T
1262	P
1375	A

radiometric age, subkeyword: other methods

Ref. No.	Ref. Type
381	P
382	P
1190	T

KEYWORD: sedimentation

Connecticut

Ref. No.	Ref. Type
27	T
30	P
80	A
211	A
293	P
334	T
452	A
454	T
556	P
617	A
619	P
620	F
621	P
622	P
623	A
626	A
627	P
628	F
629	A
691	F
709	A
710	PM
762	A
804	P
858	T
906	T
907	A
1060	T
1090	A
1115	P
1117	P
1141	A
1142	P
1389	P
1390	P

Maritime

Ref. No.	Ref. Type
616	P
618	A
624	P
625	A
689	P
690	P
931	P
972	T

Massachusetts, Deerfield basin

Ref. No.	Ref. Type
47	P
522	P
525	T
556	P
715	T
788	P
1225	T
1226	P
1389	P
1390	P
1405	T
1406	P

Massachusetts, Hartford basin

Ref. No.	Ref. Type
45	F
220	T
293	P
327	T
362	P
383	P
525	T
556	P
617	A
628	F
641	T
960	P
1070	P
1097	A
1133	T
1149	T
1213	T
1389	P
1390	P
1407	A

Morocco

Ref. No.	Ref. Type
188	A
189	P
378	P
530	T
531	A
663	T
808	P
851	P
1361	P

New Jersey

Ref. No.	Ref. Type
2	P
12	T
80	A
104	P
222	PM
293	P
390	P
548	P
673	T
790	P
835	F
879	P
882	A
927	P
929	F
932	A
956	P
1000	P
1117	P
1152	F
1210	A
1253	T
1300	P

New Jersey -Cont.

Ref. No.	Ref. Type
1302	P
1303	A
1350	F
1352	P
1353	P
1355	P
1356	A
1358	F
1362	A
1389	P
1390	P
1436	P

New York

Ref. No.	Ref. Type
941	T
1358	F

North Carolina, Dan River basin

Ref. No.	Ref. Type
934	P
1086	T
1274	A
1276	P
1277	A

North Carolina, Durham-Wadesboro-Deep River basins

Ref. No.	Ref. Type
31	T
88	P
266	T
267	A
268	A
325	T
600	A
602	P
756	A
958	PM
1052	P
1414	A
1415	P

North Carolina, other

Ref. No.	Ref. Type
777	T
963	T
1275	P
1427	T

Pennsylvania, Gettysburg basin

Ref. No.	Ref. Type
380	P
439	F
447	P
462	T
463	A
464	P
465	A
466	A
874	P
883	A
1455	P

Pennsylvania, Newark basin

Ref. No.	Ref. Type
222	PM
380	P
444	T
447	P
460	T
462	T
464	P
465	A
466	A
548	P
673	T
822	P
827	PM
873	P
874	P
879	P
882	A
883	A
910	A
932	A
1300	P
1302	P
1303	A
1352	P
1353	P
1356	A
1358	F
1362	A
1420	P
1455	P

Pennsylvania, other

Ref. No.	Ref. Type
927	P

Regional

Ref. No.	Ref. Type
88	P
275	P
418	P
419	F
466	A
467	A
692	P
781	A
801	P
835	F
836	P
837	P
926	T
933	A
1058	P
1119	P
1121	P
1349	P
1361	P

South Carolina

Ref. No.	Ref. Type
472	P

Virginia, Culpeper basin

Ref. No.	Ref. Type
224	P
485	A
486	T
555	T
576	T
577	A
778	A
779	P
781	A
782	A
785	P
1456	A
1457	P

Virginia, Danville basin

Ref. No.	Ref. Type
895	PM
934	P
1086	T
1277	A

Virginia, Farmville basin

Ref. No.	Ref. Type
1298	A

Virginia, Richmond basin

Ref. No.	Ref. Type
482	A

Virginia, other

Ref. No.	Ref. Type
686	T
1093	P
1396	A
1398	P

KEYWORD: stratigraphy

Connecticut

Ref. No.	Ref. Type
349	P
710	PM
942	T
1134	F
1143	F

Ref. No.	Ref. Type

Maritime

459	P
645	F
938	A
1025	P
1026	P

Maryland

784	P

Massachusetts,
Deerfield basin

370	P
371	P
1406	P

Massachusetts,
Hartford basin

45	F
362	P
370	P
371	P
1149	T
1218	T
1407	A

New Jersey

443	A
878	P
929	F
930	F
936	P

New York

443	A
713	P
936	P

North Carolina,
Dan River basin

1001	T
1251	P
1276	P

North Carolina,
Durham-Wadesboro-
Deep River basins

1066	PM
1251	P

Pennsylvania,
Gettysburg basin

461	P
1418	P

Pennsylvania,
Newark basin

461	P
872	P
876	P
877	P
878	P
936	P
1418	P

Regional

453	P
511	P
881	P
926	T
933	A
935	P
937	A
939	P
1063	P
1121	P
1349	P
1400	A

Virginia,
Culpeper basin

438	PM
784	P

Virginia,
Danville basin

575	M
895	PM
1278	A

Virginia,
Richmond basin

1172	PM

Virginia, other

1095	P

KEYWORD: structure

Connecticut

80	A
276	P
294	P
296	P
297	P
298	P
299	P
302	P
303	PM
305	P
320	P
351	P
407	P
408	A
409	P
410	P
424	P
504	A
804	P
805	P
833	A
896	PM
975	M
1002	T
1100	M
1117	P
1123	T
1125	P
1134	F
1137	A
1143	F
1147	P
1148	T
1168	PM
1410	P
1445	A
1446	A
1447	A

Georgia

842	A
977	P

Maritime

58	P
59	P
1027	P
1267	P

Massachusetts,
Deerfield basin

47	P
48	P
229	P
475	P
679	P
1410	P
1440	A
1441	T
1447	A

Massachusetts, Hartford basin

Ref. No.	Ref. Type
56	PM
229	P
833	A
1137	A
1218	T
1268	T
1410	P
1440	A
1445	A
1447	A

Morocco

Ref. No.	Ref. Type
50	A
189	P
840	P

New Jersey

Ref. No.	Ref. Type
6	A
67	P
79	T
80	A
198	F
253	P
344	T
384	P
385	P
386	P
547	A
548	P
557	P
612	A
636	P
711	P
768	P
817	P
833	A
834	A
835	F
880	P
882	A
904	A
936	P
946	P
1054	P
1055	A
1056	F
1117	P
1137	A
1139	P
1446	A

New York

Ref. No.	Ref. Type
612	A
791	A
809	P
904	A
936	P
946	P
1054	P
1282	PM

North Carolina, Dan River basin

Ref. No.	Ref. Type
442	A
903	F

North Carolina, Durham-Wadesboro-Deep River basins

Ref. No.	Ref. Type
43	FM
44	A
219	PM
236	T
395	T
476	A
496	T
534	T
535	PM
599	T
651	P
832	P
912	P
958	PM
1033	A
1034	P
1050	P
1052	P
1181	T
1264	T
1265	A

North Carolina, other

Ref. No.	Ref. Type
205	P
249	PM
1048	P
1269	A

Pennsylvania, Gettysburg basin

Ref. No.	Ref. Type
240	P
379	A
380	P
388	PM
445	PM
500	M
610	P
884	P
886	P
1104	PM
1180	T
1236	PM
1239	P
1241	P

Pennsylvania, Newark basin

Ref. No.	Ref. Type
66	PM
67	P
105	P
107	P
344	T
379	A
380	P
500	M
548	P
610	P
661	PM
716	T
827	PM
875	P
882	A
886	P
887	P
936	P
1137	A
1156	A
1239	P
1420	P
1435	PM
1462	P

Regional

Ref. No.	Ref. Type
38	P
49	P
50	A
102	A
272	P
300	P
301	P
307	P
310	A
683	P
684	P
694	P
781	A
783	P
805	P
835	F
838	A
853	P
866	A
1119	P
1121	P
1135	P
1136	A
1140	P
1144	A
1145	A
1412	P
1426	P
1444	P

South Carolina

Ref. No.	Ref. Type
842	A
1048	P
1157	P

Virginia, Culpeper basin

Ref. No.	Ref. Type
428	M

Ref. No.	Ref. Type

Virginia, Culpeper basin -Cont.

430	M
737	M
741	A
779	P
781	A
1432	M

Virginia, Danville basin

574	PM
787	T
895	PM

Virginia, Farmville basin

1434	A

Virginia, Richmond basin

477	A
479	PM
480	A
1172	PM

Virginia, other

469	A
1095	P
1257	P
1396	A

KEYWORD: tectonics

Connecticut

110	A
409	P
474	P
1137	A
1205	P
1446	A
1447	A

Gulf Coast

1005	P
1006	P

Maritime

58	P
59	P
644	P
675	P
1347	P

Maryland

950	T

Massachusetts, Deerfield basin

1447	A

Massachusetts, Hartford basin

1137	A
1447	A

Morocco

91	T
187	T
189	P
531	A
1361	P

New Jersey

384	P
386	P
835	F
1054	P
1056	F
1137	A
1446	A

New York

1054	P

North Carolina, Dan River basin

207	P

North Carolina, Durham-Wadesboro-Deep River basins

40	A

Pennsylvania, Gettysburg basin

380	P

Pennsylvania, Newark basin

380	P
1137	A

Regional

38	P
90	P
204	P
271	P
307	P
310	A
311	A
312	A
313	A
372	P
519	P
683	P
684	P
695	P
729	P
758	P
801	P
835	F
836	P
838	A
853	P
866	A
909	P
1005	P
1136	A
1140	P
1144	A
1145	A
1205	P
1263	P
1348	P
1361	P
1430	A
1444	P

South Carolina

521	P

SECTION 3. MAP-TYPE INDEX

GEOPHYSICS MAPS
Map Type: aeromagnetism

Ref No.	Scale
17	(1:31,680)
18	(1:31,680)
19	(1:24,000)
20	(1:24,000)
21	(1:24,000)
42	none given
43	(1:250,000)
77	(1:222,222)
99	(1:24,000)
100	(1:24,000)
116	(1:24,000)
117	(1:24,000)
118	(1:24,000)
119	(1:24,000)
120	(1:24,000)
121	(1:24,000)
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146	(1:24,000)
147	(1:24,000)
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149	(1:24,000)
150	(1:24,000)
151	(1:24,000)
152	(1:24,000)

Ref No.	Scale
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156	(1:24,000)
157	(1:24,000)
158	(1:24,000)
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161	(1:24,000)
162	(1:24,000)
163	(1:24,000)
164	(1:24,000)
165	(1:24,000)
166	(1:24,000)
167	(1:24,000)
168	(1:24,000)
169	(1:24,000)
170	(1:24,000)
171	(1:24,000)
172	(1:24,000)
173	(1:24,000)
174	(1:24,000)
175	(1:24,000)
176	(1:24,000)
177	(1:24,000)
281	(1:1,000,000)
561	(1:125,000)
562	(1:31,680)
563	(1:31,680)
564	(1:31,680)
565	(1:31,680)
566	(1:31,680)
567	(1:31,680)
568	(1:31,680)
569	(1:31,680)
570	(1:31,680)
571	(1:31,680)
572	(1:31,680)
649	(1:125,000)
650	(1:62,500)
789	(1:62,500)
891	(1:24,000)
892	(1:24,000)
978	(1:24,000)
979	(1:24,000)
980	(1:31,680)
981	(1:31,680)
982	(1:31,680)
983	(1:31,680)
984	(1:24,000)

Ref No.	Scale

Map type: aeromagnetism -Cont.

985	(1:24,000)
986	(1:24,000)
987	(1:24,000)
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1007	(1:24,000)
1008	(1:24,000)
1009	(1:24,000)
1012	(1:24,000)
1013	(1:24,000)
1014	(1:24,000)
1015	(1:24,000)
1016	(1:24,000)
1017	(1:24,000)
1018	(1:24,000)
1019	(1:24,000)
1304	(1:24,000)
1305	(1:24,000)
1306	(1:24,000)
1307	(1:24,000)
1308	(1:24,000)
1309	(1:24,000)
1310	(1:62,500)
1311	(1:24,000)
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1313	(1:24,000)
1314	(1:24,000)
1315	(1:24,000)
1316	(1:24,000)
1317	(1:62,500)
1318	(1:24,000)
1319	(1:24,000)
1320	(1:24,000)
1321	(1:24,000)
1322	(1:24,000)
1323	(1:24,000)
1324	(1:24,000)
1325	(1:24,000)
1326	(1:24,000)
1327	(1:24,000)
1328	(1:24,000)
1329	(1:24,000)
1330	(1:24,000)
1331	(1:62,500)
1332	(1:62,500)
1333	(1:62,500)
1334	(1:62,500)
1335	(1:50,000)
1337	(1:250,000)
1338	(1:250,000)

Ref No.	Scale
1339	(1:125,000)
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1341	(1:125,000)
1342	(1:250,000)
1343	(1:48,000)
1344	(1:48,000)
1345	(1:125,000)

Map Type: gravity

42	none given
178	(1:250,000)
650	(1:62,500)
1448	(1:125,000)

Map Type: other geophysics maps

3	(1:769,231)	basement depth contour
642	(1:48,000)	landsat
739	(1:125,000)	aeroradioactivity
919	(1:125,000)	aeroradioactivity
1249	(1:100,000)	seismicity
1336	(1:24,000)	aeroradioactivity

All geophysics maps - sorted by geographic area

Connecticut

984	(1:24,000)
985	(1:24,000)
986	(1:24,000)
987	(1:24,000)
988	(1:24,000)
1015	(1:24,000)
1016	(1:24,000)
1019	(1:24,000)
1304	(1:24,000)
1305	(1:24,000)
1306	(1:24,000)
1307	(1:24,000)
1308	(1:24,000)
1311	(1:24,000)
1313	(1:24,000)
1314	(1:24,000)
1315	(1:24,000)
1316	(1:24,000)
1318	(1:24,000)
1319	(1:24,000)

Ref No.	Scale

Connecticut-Cont.

1320	(1:24,000)
1321	(1:24,000)
1322	(1:24,000)
1323	(1:24,000)
1324	(1:24,000)
1325	(1:24,000)
1326	(1:24,000)
1327	(1:24,000)
1328	(1:24,000)
1329	(1:24,000)
1330	(1:24,000)

Georgia

281	(1:1,000,000)

Maryland

99	(1:24,000)
100	(1:24,000)
158	(1:24,000)
789	(1:62,500)
919	(1:125,000)
1334	(1:62,500)
1345	(1:125,000)

Massachusetts, Deerfield basin

19	(1:24,000)
20	(1:24,000)
21	(1:24,000)
178	(1:250,000)
891	(1:24,000)
892	(1:24,000)
1009	(1:24,000)
1013	(1:24,000)
1014	(1:24,000)
1309	(1:24,000)
1336	(1:24,000)

Massachusetts, Hartford basin

124	(1:24,000)
125	(1:24,000)
178	(1:250,000)
978	(1:24,000)

Ref No.	Scale
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1012	(1:24,000)
1016	(1:24,000)
1017	(1:24,000)
1018	(1:24,000)
1019	(1:24,000)
1336	(1:24,000)

New Jersey

17	(1:31,680)
18	(1:31,680)
116	(1:24,000)
117	(1:24,000)
118	(1:24,000)
119	(1:24,000)
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123	(1:24,000)
561	(1:125,000)
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563	(1:31,680)
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567	(1:31,680)
568	(1:31,680)
569	(1:31,680)
570	(1:31,680)
571	(1:31,680)
572	(1:31,680)
980	(1:31,680)
981	(1:31,680)
982	(1:31,680)
983	(1:31,680)
1249	(1:100,000)
1342	(1:250,000)

New York

562	(1:31,680)
981	(1:31,680)
982	(1:31,680)
983	(1:31,680)

Ref No.	Scale

North Carolina, Dan River basin

1337	(1:250,000)
1339	(1:250,000)

North Carolina, Durham-Wadesboro-Deep River basins

3	(1:769,231)
42	none given
43	(1:250,000)
1317	(1:62,500)
1331	(1:62,500)
1332	(1:62,500)
1333	(1:62,500)
1335	(1:250,000)
1338	(1:250,000)
1340	(1:250,000)

North Carolina, other

281	(1:1,000,000)

Pennsylvania, Gettysburg basin

153	(1:24,000)
154	(1:24,000)
155	(1:24,000)
156	(1:24,000)
157	(1:24,000)
158	(1:24,000)
159	(1:24,000)
160	(1:24,000)
161	(1:24,000)
162	(1:24,000)
163	(1:24,000)
164	(1:24,000)
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166	(1:24,000)
167	(1:24,000)
168	(1:24,000)
169	(1:24,000)
170	(1:24,000)
171	(1:24,000)
172	(1:24,000)
175	(1:24,000)
176	(1:24,000)
789	(1:62,500)
1016	(1:24,000)
1019	(1:24,000)

Ref No.	Scale

Pennsylvania, Newark basin

120	(1:24,000)
121	(1:24,000)
122	(1:24,000)
126	(1:24,000)
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148	(1:24,000)
149	(1:24,000)
150	(1:24,000)
151	(1:24,000)
152	(1:24,000)
173	(1:24,000)
174	(1:24,000)

Regional

869	(1:5,000,000)

South Carolina

3	(1:769,231)
42	none given
43	(1:250,000)
1317	(1:62,500)
1331	(1:62,500)
1332	(1:62,500)
1333	(1:62,500)
1335	(1:250,000)
1338	(1:250,000)

Ref No.	Scale

South Carolina-Cont.

1340	(1:250,000)
77	(1:222,222)
281	(1:1,000,000)

Virginia, Culpeper basin

177	(1:24,000)
642	(1:48,000)
649	(1:125,000)
739	(1:125,000)
919	(1:125,000)
1343	(1:48,000)
1344	(1:48,000)
1345	(1:125,000)
1448	(1:125,000)

Virginia, Danville basin

1310	(1:62,500)

Virginia, Richmond basin

1341	(1:125,000)

Virginia, other

650	(1:62,500)
1312	(1:62,500)

GEOLOGIC MAPS - sorted by geographic area

Connecticut

7	(1:31,680)
92	(1:24,000)
93	(1:24,000)
183	(1:24,000)
201	(1:57,600)
244	(1:31,680)
245	(1:24,000)
246	(1:24,000)
247	(1:24,000)
265	(1:24,000)
303	(1:503,000)

Ref No.	Scale
396	(1:24,000)
422	(1:24,000)
423	(1:24,000)
440	(1:31,680)
456	(1:24,000)
457	(1:24,000)
516	(1:24,000)
523	(1:24,000)
524	(1:24,000)
528	(1:24,000)
537	(1:24,000)
582	(1:31,680)
635	(1:24,000)
664	(1:250,000)
708	(1:126,720)
710	(1:126,720)
755	(1:24,000)
814	(1:24,000)
869	(1:100,000)
869	(1:5,000,000)
896	(1:63,360)
969	(1:24,000)
975	(1:24,000)
1010	(1:15,840)
1100	(1:250,000)
1129	(1:24,000)
1130	(1:24,000)
1161	(1:24,000)
1162	(1:24,000)
1163	(1:24,000)
1164	(1:24,000)
1165	(1:24,000)
1168	(1:24,000)
1188	(1:24,000)
1216	(1:24,000)
1217	(1:24,000)

Florida

869	(1:250,000)
869	(1:100,000)

Georgia

237	(1:1,968,925)
869	(1:250,000)
869	(1:100,000)

Ref No.	Scale

Gulf Coast

869	(1:5,000,000)
869	(1:250,000)

Maritime

869	(1:100,000)
869	(1:5,000,000)

Maryland

389	(1:24,000)
425	(1:62,500)
426	(1:62,500)
659	(1:62,500)
738	(1:125,000)
869	(1:100,000)
869	(1:5,000,000)
1067	(1:62,500)

Massachusetts, Deerfield basin

53	(1:31,680)
54	(1:31,680)
55	(1:31,680)
795	(1:24,000)
796	(1:24,000)
798	(1:24,000)
869	(1:250,000)
869	(1:100,000)
1437	(1:31,680)
1438	(1:31,680)
1439	(1:31,680)

Massachusetts, Hartford basin

56	(1:31,680)
247	(1:24,000)
365	(1:125,000)
537	(1:24,000)
697	(1:24,000)
757	(1:24,000)
792	(1:24,000)
793	(1:24,000)
794	(1:24,000)
797	(1:24,000)
799	(1:24,000)
869	(1:5,000,000)

Ref No.	Scale
869	(1:250,000)
969	(1:24,000)
1162	(1:24,000)

Massachusetts, other

869	(1:250,000)
869	(1:5,000,000)
1169	(1:31,680)

Morocco

869	(1:250,000)
869	(1:100,000)

New Jersey

65	(1:125,000)
70	(1:125,000)
222	(1:506,880)
288	(1:125,000)
289	(1:538,560)
335	(1:24,000)
336	(1:24,000)
712	(1:633,600)
869	(1:100,000)
869	(1:250,000)
945	(1:24,000)

New York

712	(1:633,600)
869	(1:5,000,000)
869	(1:250,000)
973	bar scale only
1282	(1:31,680)

North Carolina, Dan River

225	(1:130,000)
869	(1:5,000,000)
869	(1:250,000)
1232	(1:62,500)

Ref No.	Scale

North Carolina, Durham-Wadesboro-Deep River basins

9	(1:64,000)
218	(1:63,360)
219	(1:63,360)
535	(1:126,720)
869	(1:5,000,000)
869	(1:250,000)
958	(1:100,000)
1066	(1:96,000)

North Carolina, other

112	(1:3,960,000)
182	(1:97,477)
249	(1:62,500)
869	(1:100,000)
869	(1:5,000,000)
1231	(1:62,500)

Pennsylvania, Gettysburg basin

84	(1:24,000)
388	(1:24,000)
416	(1:25,344)
445	(1:24,000)
446	(1:24,000)
449	(1:24,000)
498	(1:63,360)
500	(1:24,000)
609	(1:63,360)
638	(1:24,000)
652	(1:62,500)
662	(1:62,500)
826	(1:24,000)
869	(1:250,000)
869	(1:5,000,000)
1103	(1:24,000)
1104	(1:24,000)
1114	(1:50,000)
1236	(1:62,500)
1237	(1:62,500)
1240	(1" = 2 miles)
1242	(1:62,500)
1246	(1:62,500)
1247	none given
1270	(1:50,000)
1449	(1:50,000)

Ref No.	Scale

Pennsylvania, Newark basin

64	(1:62,500)
66	(1:62,500)
85	(1:24,000)
222	(1:506,880)
335	(1:24,000)
336	(1:24,000)
446	(1:24,000)
498	(1:63,360)
500	(1:24,000)
660	(1:62,500)
661	(1:62,500)
807	(1:62,500)
824	(1:24,000)
825	(1:24,000)
827	(1:24,000)
828	(1:24,000)
869	(1:250,000)
869	(1:100,000)
898	(1:62,500)
899	(1:62,500)
1022	(1:125,000)
1194	(1:62,500)
1423	(1:62,500)
1435	(1:62,500)
1449	(1:50,000)

Pennsylvania, other

869	(1:5,000,000)
869	(1:100,000)

Regional

869	(1:100,000)
869	(1:5,000,000)
869	(1:250,000)

South Carolina

77	(1:540,541)
112	(1:3,960,000)
869	(1:250,000)
869	(1:100,000)

Virginia, Culpeper basin

13	(1:62,500)
83	(1:62,500)

Ref No.	Scale
Virginia, Culpeper basin -Cont.	
269	(1:90,112)
337	(1:48,000)
338	(1:48,000)
354	(1:24,000)
427	(1:48,000)
428	(1:48,000)
434	(1:125,000)
438	(1:62,500)
676	(1:125,000)
738	(1:125,000)
747	(1:24,000)
869	(1:5,000,000)
869	(1:100,000)
913	(1:48,000)
959	(1:31,680)
1287	(1:24,000)
1432	(1:24,000)
Virginia, Danville basin	
574	(1:24,000)
575	(1:24,000)
754	bar scale only
846	(1:24,000)
869	(1:100,000)
869	(1:5,000,000)
895	(1:62,500)
1028	(1:24,000)
1029	(1:24,000)
Virginia, Farmville basin	
190	(1:62,500)
844	(1:24,000)
845	(1:24,000)
869	(1:5,000,000)
869	(1:100,000)
Virginia, Richmond basin	
479	(1:24,000)
481	(1:24,000)
869	(1:5,000,000)
869	(1:100,000)
1172	(1" = 2 miles)

Ref No.	Scale
Virginia, other	
375	(1:62,500)
650	(1:62,500)
654	(1:24,000)
707	(1:24,000)
869	(1:5,000,000)
869	(1:250,000)
917	(1:62,500)
1399	(1:24,000)

OTHER MAPS

396	(1:24,000)
429	(1:125,000)
430	(1:48,000)
432	(1:48,000)
433	(1:48,000)
655	(1:48,000)
656	(1:48,000)
657	(1:48,000)
664	(1:250,000)
731	(1:48,000)
737	(1:125,000)
815	(1:500,000)
896	(1:126,720)
965	(1:500,000)
1114	(1:50,000)
1247	none given
1459	(1:125,000)
1460	(1:48,000)

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A

1 P : ABBOTT, C.M., 1970, Colonial copper mines: William and Mary Quarterly, v. 27, no. 2, p. 295-309.

KEYWORDS: economic geology
copper

GEOGRAPHIC AREA: Hartford Basin, Connecticut, Newark Basin, New Jersey

2 P : ABDEL-MONEM, A.A., AND KULP, J.L., 1968, Paleogeography and the source of sediments of the Triassic Basin, New Jersey, by K-Ar dating: Geological Society of America, Bulletin, v. 79, p. 1231-1242.

SUMMARY: K-Ar data are used to trace the source of sediments to the Newark Basin. Sources are shown to be from nearly all possible directions, from the west as well as from the northeast and southwest.

KEYWORDS: sedimentation
geophysics
radiometric age
K/Ar dating

GEOGRAPHIC AREA: Newark Basin, New Jersey

MAPS: Misc: sample locations

DATA: Chem. (type of data): K-Ar data

3 PM: ACKERMANN, H.D., BAIN, G.L., AND ZOHDY, A.A.R., 1976, Deep exploration of an East-Coast Triassic Basin using electrical resistivity: Geology, v. 4, p. 137-140.

SUMMARY: Schlumberger sounding measurements are used to determine the depth of Triassic sediments in the basin and the nature of the Triassic-Piedmont contact. Sediment depth is as great as 2300 meters.

KEYWORDS: geophysics
resistivity

GEOGRAPHIC AREA: Durham-Wadesboro Basin, North Carolina

MAPS: Section: cross sections showing basin depth
Geophys: basement-depth contour map [1:769,231]

4 P : ACKERMANN, H.D., AND GRIM, M.S., 1977, Seismic refraction of the pre-Cretaceous basement surface near the inner edge of the Coastal Plain in Stafford and King George Counties, Virginia: U.S. Geological Survey Open-File Report 77-480, 6 p.

SUMMARY: Seismic refraction data indicate the presence of a buried Triassic basin in King George County beneath the Coastal Plain. The edge of this basin is delineated, and seismic velocities range from 4.5 to 5.0 km/sec.

KEYWORDS: geophysics
seismic profiles
buried basins

GEOGRAPHIC AREA: Virginia

MAPS: Geophys: seismic profiles
Misc: survey locations

5 F : ADAMS, GEORGE F., 1958, The geology of the Triassic lowland of Southeastern New York and Northern New Jersey: New York State Geological Association, 30th Annual Meeting, Field Guidebook, p. 27-40.

SUMMARY: General field guide from Peekskill to the George Washington Bridge following the west side of the Hudson, then to Suffern, N.Y., Stony Point, N.Y., and back to Peekskill.

KEYWORDS: general geology

GEOGRAPHIC AREA: Newark Basin, New York - New Jersey

MAPS: Misc: physiographic diagrams

6 A : ADAMS, GEORGE F., 1980, Fault patterns at the Peapack offset of the Ramapo border fault, New Jersey Triassic: Geological Society of America, Abstracts with Programs, v. 12, p. 21.

SUMMARY: Extension of the Ramapo fault between Bernardsville and Moggy Hollow is discussed suggesting that Brunswick sediments and Watchung basalts existed west of the position of the fault.

KEYWORDS: structure
faults

GEOGRAPHIC AREA: Newark Basin, New Jersey

7 PM: AITKEN, JANET M., 1955, The bedrock geology of the Rockville Quadrangle: Connecticut Geology and Natural History Survey, Quadrangle Report 6, 55 p.

SUMMARY: The Triassic, which occupies the western edge of the quadrangle, lacks outcrop; however, a graywacke conglomerate is described from near Case Ponds in the SW corner of the quadrangle. The brecciated and chloritized zone along the eastern border of the basin is described.

KEYWORDS: bedrock geology

GEOGRAPHIC AREA: Hartford Basin, Connecticut, Tolland Co., Hartford Co., Rockville Quad.

MAPS: Geol: [1:31,680]

DATA: Photos: outcrops

8 P : ALLBEE, B.H., 1894, The famous Connecticut brownstone: Stone, v. 9, p. 1-31.

KEYWORDS: sediments

GEOGRAPHIC AREA: Hartford Basin, Connecticut

9 PM: ALLEN, ELDON P., AND WILSON, WILLIAM F., 1968, Geology and mineral resources of Orange County, North Carolina: North Carolina Division of Mineral Resources, Bulletin 81, 58 p.

SUMMARY: Triassic rocks occur in the SE corner of the county and are sandstone, arkose, siltstone, shale, and conglomerate of the Sanford Formation. Petrified wood fragments occur in the arkose. Contact metamorphic effects of several diabase dikes are described briefly. (The reader is referred to Harrington (1931), Reinemund (1955), and Mann, et al. (1975)).

KEYWORDS: general geology

GEOGRAPHIC AREA: Durham Basin, North Carolina, Orange County

MAPS: Geol: [1:64,000]

DATA: Photos: outcrops

10 A : ALLEN, F.I., 1915, The origin of thaumasite: Virginia Minerals, v. 39, p. 134.

SUMMARY: Thaumasite, as pseudomorphs after anhydrite, is described from the Burger's Quarry, West Patterson, New Jersey.

KEYWORDS: mineralogy
zeolites

GEOGRAPHIC AREA: Newark Basin, New Jersey, Passaic County

11 P : ALLEN, GARY C., 1967, Riebeckite occurrence in southern Virginia: Virginia Minerals, v. 13, no. 1, p. 10.

SUMMARY: Authigenic riebeckite occurs surrounding hornblende in the sediments west of Danville. Its occurrence may indicate the presence of post-depositional mineral solutions.

KEYWORDS: sediments
mineralogy

GEOGRAPHIC AREA: Danville Basin, Virginia, Pittsylvania County

DATA: Photos: photomicrograph

12 T : ALLEN, J.F., JR., 1979, Paleocurrent and facies analysis of the Triassic Stockton Formation in western New Jersey: M.S. Thesis, Rutgers University, 83 p.

KEYWORDS: sedimentation

GEOGRAPHIC AREA: Newark Basin, New Jersey

13 PM: ALLEN, R.M., JR., 1963, Geology and mineral resources of Greene and Madison Counties: Virginia Division of Mineral Resources, Bulletin 78, 102 p.

SUMMARY: The southern area of the basin in Madison County is mapped as consisting of undifferentiated arkosic sandstones, graywackes, and shales. Diabase intrusives and greenstone conglomerate are undifferentiated. A fault marks the western and eastern basin border, the latter faulted against Precambrian Catoctin greenstone. Several faults occur within the basin and offset the western border fault. (The area has been reinterpreted and mapped by Lee, K.Y.)

KEYWORDS: general geology

GEOGRAPHIC AREA: Culpeper Basin, Virginia

MAPS: Geol: [1:62,500]

DATA: Photos: outcrops

14 A : AMERIGIAN, C.A., AND WATKINS, N.D., 1976, Chemical overprinting of Mesozoic detrital remanent magnetism: a study using the East Berlin formation of northern Connecticut: Geological Society of America, Abstracts with Programs, v. 8, p. 752-753.

SUMMARY: A 110 meter section reveals that only red sandstones have discordant directions of remanent magnetism due to chemical overprinting of detrital remanent magnetism. The entire sequence is weakly magnetized (normal polarity).

KEYWORDS: geophysics
paleomagnetism

GEOGRAPHIC AREA: Hartford Basin, Connecticut

15 A : AMERIGIAN, C.A., AND WATKINS, N.D., 1977, Paleoenvironmental control of primary and secondary components of magnetization in the East Berlin formation of Connecticut: American Geophysical Union, Transactions, v. 58, p. 728.

SUMMARY: A "clear relationship is observed between magnetic mineralogy and depositional environment. Some lithologies acquire a secondary component not found in other contemporaneous lithologies. Some of this overprinting may have taken place after tilting. Detailed correlation between magnetism and environment types is not provided.

KEYWORDS: geophysics
paleomagnetism

GEOGRAPHIC AREA: Hartford Basin, Connecticut

16 P : ANDERSON, JUDSON L., 1948, Cretaceous and tertiary subsurface geology: Maryland Department of Geology, Mines, and Water Resources, Bulletin 4, 456 p.

SUMMARY: Two of three drill holes in the Coastal Plain on Maryland's Eastern Shore intersected Triassic rocks. These are: 6 miles east of Salisbury, Mt. Hermon Road, 5363-5498 feet, quartz conglomerate overlying red and green shales and arkosic sandstone; and 11 miles SE of the previous (Hammond well), 5 miles SW of Berlin, 6566-7151 feet, basal conglomerate (quartzite, pegmatite, serpentine clasts) overlain by red-brown sandstone and shale and finally red and green shale.

KEYWORDS: buried basins

GEOGRAPHIC AREA: Maryland

MAPS: Section: well logs

17 M : ANDREASEN, G.E., CHANDLER, E.J., AND OTHERS, 1963, Aeromagnetic map of the High Bridge Quadrangle, Warren and Hunterdon Counties, New Jersey: U.S. Geological Survey, Map GP-349.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Newark Basin, New Jersey

MAPS: Geophys: aeromagnetism [1:31,680]

18 M : ANDREASEN, G.E., HENDERSON, J.R., AND OTHERS, 1963, Aeromagnetic map of the Califon Quadrangle and part of the Gladstone Quadrangle, Hunterdon and Morris Counties, New Jersey: U.S. Geological Survey, Map GP-350.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Newark Basin, New Jersey

MAPS: Geophys: aeromagnetism [1:31,680]

19 M : ANDREASEN, G.E., AND ZANDLE, G.L., 1963, Aeromagnetic map of the Bernardston Quadrangle, Franklin County, Massachusetts, and Windham County, Vermont: U.S. Geological Survey, Map GP-430.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Deerfield Basin, Massachusetts

MAPS: Geophys: aeromagnetism [1:24,000]

20 M : ANDREASEN, G.E., AND ZANDLE, G.L., 1963, Aeromagnetic map of the Colrain Quadrangle, Franklin County, Massachusetts, and Windham County, Vermont: U.S. Geological Survey, Map GP-431.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Deerfield Basin, Massachusetts

MAPS: Geophys: aeromagnetism [1:24,000]

21 M : ANDREASEN, G.E., AND ZANDLE, G.L., 1963, Aeromagnetic map of the Northfield Quadrangle, Franklin County, Massachusetts, Windham County, Vermont, and Cheshire County, New Hampshire: U.S. Geological Survey, Map GP-435.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Deerfield Basin, Massachusetts

MAPS: Geophys: aeromagnetism [1:24,000]

22 P : ANTON, ROBERT E., 1956, Triassic fish of the Connecticut Valley: Compass, v. 33, p. 288-291.

SUMMARY: A brief description of the occurrence of Triassic fish in Connecticut is given. The fossils are found in the Meriden Formation, a black, bituminous shale.

KEYWORDS: paleontology

GEOGRAPHIC AREA: Hartford Basin, Connecticut

DATA: Photos: sketches of fish fossils

23 T : APPLEGATE, S.P., 1956, Additions and review of the paleobiology of the Triassic of Virginia: M.S. Thesis, University of Virginia.

KEYWORDS: paleontology

GEOGRAPHIC AREA: Virginia

24 A : APPLEGATE, SHELTON P., 1956, Distribution of Triassic fish in the Piedmont of Virginia: Virginia Journal of Science, v. 7, p. 322-323.

SUMMARY: Fossil fish species are listed from localities in the Richmond, Farmville, Danville, and Culpeper Basins. Correlation based on fish is not advised until the species are further studied.

KEYWORDS: paleontology

GEOGRAPHIC AREA: Richmond Basin, Farmville Basin, Danville Basin, Culpeper Basin, Virginia

25 P : APPLIN, PAUL L., 1951, Preliminary report on buried pre-Mesozoic rocks in Florida and adjacent states: U.S. Geological Survey Circular 91, 28 p.

SUMMARY: Pre-Mesozoic rocks of Florida are investigated by available core, and the nature of the pre-Mesozoic surface is described. Brief descriptions of the intercepted Triassic rocks (diabase and sediment) are given.

KEYWORDS: buried basins

GEOGRAPHIC AREA: Florida, Georgia, Alabama

MAPS: Section: core log descriptions
Geophys: pre-Mesozoic surface contour map
Misc: well locations

26 P : APPLIN, P.L., AND APPLIN, E.R., 1965, The Comanche Series and associated rocks in the subsurface in Central and South Florida: U.S. Geological Survey Professional Paper 447, 84 p.

SUMMARY: This report discusses the stratigraphy, structure, micropaleontology, and oil potential of the upper Jurassic through Cretaceous Fort Pierce and Comanche Series strata overlying the Precambrian basement in southern and central Florida.

KEYWORDS: buried basins

GEOGRAPHIC AREA: Florida

27 T : APRIL, RICHARD H., 1978, Clay mineralogy and geochemistry of the Triassic- Jurassic sedimentary rocks of the Connecticut Valley: Ph.D. Thesis, University of Massachusetts, 206 p.

KEYWORDS: sedimentation
mineralogy
sediments
petrology
geochemistry

GEOGRAPHIC AREA: Hartford Basin, Connecticut

28 P : APRIL, RICHARD H., 1980, Regularly interstratified chlorite/ vermiculite in contact metamorphosed red beds, Newark Group, Connecticut Valley: Clays and Clay Minerals, v. 28, no. 1, p. 1-11.

SUMMARY: The mineral occurs in a 2.5-m wide contact zone within the East Berlin Fm. and adjacent to the Hampden basalt. Magnesium was supplied by the hydrothermal fluids, by weathering of basalt fragments, and by dissociation of dolomite in the sediment. The precursor mineral was illite or vermiculite.

KEYWORDS: mineralogy
sediments
hornfels

GEOGRAPHIC AREA: Hartford Basin, Massachusetts, Connecticut

MAPS: Misc: sample locations

DATA: Chem. (type of data): major oxide
Plots: x-ray diffraction; contact zone thermal gradient

29 P : APRIL, R.H., 1981, Clay petrology of the Upper Triassic/Lower Jurassic terrestrial strata of the Newark Supergroup, Connecticut Valley, U.S.A.: Sedimentary Geology, v. 29, p. 283-307.

SUMMARY: The clay mineralogy stratigraphy of the Hartford Basin is outlined. Correlation with depositional environment suggests that floodplain red-beds are rich in detrital clays with abundant 2M illite, lacustrine gray-beds consist of 1Md illite + chlorite, and black lacustrine shales contain 1Md illite + trioctahedral smectite. Comparisons are made to other rift basins. Magnesium was apparently concentrated in lacustrine black muds.

KEYWORDS: sediments
petrology

GEOGRAPHIC AREA: Hartford Basin, Connecticut

MAPS: Section: clay mineralogy stratigraphy

DATA: Chem. (type of data): major oxides (whole rock)

30 P : APRIL, RICHARD H., 1981, Trioctahedral smectite and interstratified chlorite/smectite in Jurassic strata of the Connecticut Valley: Clays and Clay Minerals, v. 29, no. 1, p. 31-39.

SUMMARY: This mineralogy occurs in the East Berlin Fm. black shale, lacustrine deposits. Magnesium-rich pore waters favored transformation of smectite to chlorite/smectite; and these deposits are underlain by Mg-rich black shale, a probable source of Mg from trioctahedral, authigenic smectite.

KEYWORDS: mineralogy
sediments
sedimentation
petrology
geochemistry

GEOGRAPHIC AREA: Hartford Basin, Connecticut

DATA: Chem. (type of data): major oxide
Plots: x-ray diffraction

31 T : ARBOGAST, JEFFREY, 1976, Fluvial deposition of Triassic red beds, Durham Basin, North Carolina: M.S. Thesis, Duke University.

KEYWORDS: sedimentation

GEOGRAPHIC AREA: Durham Basin, North Carolina

32 P : ARDEN, D.D., 1974, A geophysical profile in the Suwannee Basin, northwestern Florida: in, Symposium on the Petroleum Geology of the Georgia Coastal Plain, Georgia Geological Survey Bulletin 87, 111-122.

SUMMARY: Seismic profiling is used to delineate the Suwannee Basin in NW Florida. Faulted Triassic rocks are inferred to occur and reach a maximum thickness of 6000 feet. Gravity and magnetic data indicate that basalt or diabase may be present in the lower 2000 feet of the section.

KEYWORDS: buried basins
geophysics
seismic profiles

GEOGRAPHIC AREA: Florida

MAPS: Section: cross sections
Geophys: seismic profiles

33 P : ARMSTRONG, RICHARD LEE, AND BESANCON, JAMES, 1970, A Triassic time scale dilemma: K-Ar dating of Upper Triassic mafic rocks, Eastern U.S.A. and Canada, and post-Upper Triassic plutons, Western Idaho, U.S.A.: Eclogae Geologicae Helvetiae, v. 63, p. 15-28.

SUMMARY: K-Ar dating of diabase and basalt from throughout the Newark system does not correlate with accepted estimates of the Triassic-Jurassic boundary. Most basalts and diabases cluster at 200 m.y., with several dikes clustering at 225 m.y.

KEYWORDS: geophysics
radiometric age
K/Ar dating
diabase
basalt

GEOGRAPHIC AREA: Regional

MAPS: Misc: sample locations in Connecticut

34 P : AULT, W.U., AND KULP, J.L., 1959, Isotopic geochemistry of sulfur: Geochimica et Cosmochimica Acta, v.16, p. 201-235.

SUMMARY: Several sulfur isotope values from the Cornwall deposit are given. Pyrite and chalcopyrite are characterized by delta-S^{34} values of about +9.5.

KEYWORDS: geochemistry
isotopes
economic geology
iron

GEOGRAPHIC AREA: Gettysburg Basin, Pennsylvania, Lebanon County, Lebanon Quad.

DATA: Chem. (type of data): sulfur isotopes on pyrite, chalcopyrite

35 P : AYUSO, ROBERT A., BENCE, A.E., AND TAYLOR, S.R., 1976, Upper Jurassic tholeiitic basalts from DSDP Leg 11: Journal of Geophysical Research, v. 81, no. 23, p. 4305-4325.

SUMMARY: Major oxide and trace element geochemistry (including rare earth elements) are used to develop models of mid-ocean ridge basalt petrogenesis based on samples collected from the Leg N sites (representing mid- to late-Jurassic ridge volcanism) and modern ridge samples. Mantle heterogeneity is suggested. Mid-ocean ridge basalts show no indication of petrologic evolution since the late Mesozoic.

KEYWORDS: basalt
geochemistry
petrology

GEOGRAPHIC AREA: Regional

DATA: Chem. (type of data): pyroxene, olivine, feldspar, trace elements
Photos: photomicrographs

B

36 P : BAER, FRANCIS M., AND MARTIN, WILLIAM H., 1949, Some new finds of fossil ganoids in the Virginia Triassic: Science, v. 110, p. 684-686.

SUMMARY: Several fish fossil localities are described. The fossils occur in dark, carbonaceous shale along a belt 18 miles long and 2 miles wide that occurs at the western Triassic border.

KEYWORDS: paleontology

GEOGRAPHIC AREA: Culpeper Basin, Virginia, Prince William County

MAPS: Misc: sample location map

DATA: Photos: fossil fish

37 A : BAIER, E., RIGOTTI, P.A., AND SCHMIDT, V.A., 1978, Paleointensities from Upper Triassic and Lower Jurassic intrusives from the Northern Appalachians: American Geophysical Union, Transactions, v. 59, p. 271.

SUMMARY: Diabase from Pennsylvania and New Jersey was studied using the ARM and Thellier-Thellier methods. Little variation within units is observed, but variation between units, apparently decreasing northeast of Gettysburg, is found.

KEYWORDS: geophysics
paleomagnetism

GEOGRAPHIC AREA: Gettysburg Basin, Newark Basin, Pennsylvania, New Jersey

38 P : BAIN, G.L., 1973, Feasibility study of east coast Triassic basins for waste storage, data availability: U.S. Geological Survey Open-File Report 73-15, 113 p.

SUMMARY: This report presents an overview of the geology, structure, depositional environment, and tectonic development of the eastern U.S. Triassic-Jurassic basins. A summary of the historical development of ideas on the geology of the Mesozoic basins is given. The second half of the report focuses on the hydrologic character and ground-water quality of the eastern U.S. Triassic-Jurassic basins.

KEYWORDS: general geology
structure
tectonics
hydrology

GEOGRAPHIC AREA: Regional

MAPS: Misc: water-well location [1:500,000]

DATA: Chem. (type of data): well water chemistry (major cations, anions, pH)
Plots: ground-water chemistry, well yield rate vs. depth

39 P : BAIN, GEORGE L., 1966, Geology and ground-water in the Durham area, North Carolina: North Carolina Department of Water Resources, Ground-Water Bulletin Number 7, 147 p.

SUMMARY: General geology of the Durham area, including Triassic rocks, is described, and water quality from a number of Triassic wells is presented. Well data are presented by county. In the Triassic area, sodium and calcium bicarbonate water types are present with iron (0.15 ppm avg.), chloride (75 ppm avg.), and hardness (158 ppm avg.).

KEYWORDS: hydrology

GEOGRAPHIC AREA: Durham Basin, North Carolina

MAPS: Geol: (bar scale only) sketch
Misc: yields per foot of depth; well locations

DATA: Plots: water-Triassic (average yield; avg. yield vs. weathering depth)

40 A : BAIN, GEORGE L., 1977, Wrench-fault tectonic origin of East Coast Triassic basins: Geological Society of America, Abstracts with Programs, v. 9, p. 115.

SUMMARY: Remote sensing images reveal a left-lateral wrench-fault system present in North Carolina. The Durham and Danville Basins are apparently "structural elements" of this system. Such an origin may apply to the other basins as well.

KEYWORDS: structure
tectonics

GEOGRAPHIC AREA: Durham Basin, Danville Basin, North Carolina

41 A : BAIN, GEORGE L., AND BISDORF, ROBERT J., 1977, Structural reinterpretation of the Durham-Wadesboro Triassic Basin, North Carolina: Geological Society of America, Abstracts with Programs, v. 9, p. 116.

SUMMARY: Resistivity and seismic profiles indicate the basin is not a simple monocline dipping east toward the border fault. The basin consists of a series of basement step-downs from the east and represented by gravity faults. The basins are also apparently synclinal, being deepest not at the border, but several miles inside the basin.

KEYWORDS: structure
faults
geophysics
seismic profiles
resistivity

GEOGRAPHIC AREA: Deep River Basin, North Carolina

42 PM: BAIN, GEORGE L., AND BROWN, CHARLES E., 1981, Evaluation of the Durham Triassic Basin of North Carolina and techniques used to characterize its waste-storage potential: U.S. Geological Survey Open-File Report 80-1295, 132 p.

SUMMARY: The structural nature of the basin is discussed from geophysical data. Sedimentary formations within the basin are considered contemporaneous facies equivalents. Coal, oil shale, and uranium occurrences are briefly outlined. Geophysical data from two wells are presented.

KEYWORDS: geophysics
seismic profiles
SLAR
gravity
magnetism
resistivity
structure
economic geology
coal
oil shale
uranium
hydrology

GEOGRAPHIC AREA: Durham Basin, North Carolina

MAPS: Section: resistivity
Geophys: gravity, aeromagnetics, SLAR, borehole
Misc: lineaments

DATA: Chem. (type of data): water

43 FM: BAIN, GEORGE L., AND HARVEY, BRUCE W., 1977, Field guide to the geology of the Durham Triassic Basin: Carolina Geological Society, 40th Annual Meeting Guidebook, 83 p.

SUMMARY: A review of the sedimentation, stratigraphy, and structure is given. Geophysical surveys are presented. The two-day field trip includes 18 stops. Fossil species are emphasized.

KEYWORDS: general geology
structure
paleontology
economic geology
coal

GEOGRAPHIC AREA: Durham Basin, North Carolina

MAPS: Section: local strat. columns, drill core logs
Geophys: aeromagnetic [1:250,000], resistivity, magnetics, gravity, seismic

44 A : BAIN, GEORGE L., AND STEWART, D.M., 1975, Three seismic-refraction traverses in Durham Triassic Basin near Cary, Green Level, and Bonsal, North Carolina: Geological Society of America, Abstracts with Programs, v. 7, p. 467-468.

SUMMARY: Seismic traverses indicate that the eastern Jonesboro fault is nearly vertical, that beds dip more steeply SE toward the west, horsts and grabens with thousands of feet of relief are present within the basin, and velocities are anomalously high. The latter is attributed to past or present regional stress fields.

KEYWORDS: geophysics
seismic profiles
structure

GEOGRAPHIC AREA: Durham Basin, North Carolina

45 F : BAIN, G.W. (ed.), 1957, Guidebook to the geology of the northern part of the Connecticut Valley: New England Intercollegiate Geological Conference Guidebook, 49th Ann. Mtg., Amherst, Massachusetts, 56 p.

KEYWORDS: stratigraphy
sedimentation

GEOGRAPHIC AREA: Hartford Basin, Massachusetts

46 P : BAIN, G.W., AND MEYERHOFF, H.A., 1942, The flow of time in the Connecticut Valley - geological imprints: The Hampshire Bookshop (Northampton, Massachusetts), 129 p.

KEYWORDS: general geology

GEOGRAPHIC AREA: Hartford Basin, Connecticut

47 P : BAIN, GEORGE W., 1932, The northern area of Connecticut Valley Triassic: American Journal of Science, v. 23, p. 57-77.

SUMMARY: The stratigraphy, Triassic and pre-Triassic structure and nature of basin sedimentation are discussed. Mt. Toby is emphasized; lake beds, mud flows, and the nature of the Triassic-crystalline metamorphics contact are discussed.

KEYWORDS: general geology
structure
sedimentation

GEOGRAPHIC AREA: Deerfield Basin, Massachusetts

MAPS: Misc: block diagrams of topography and structure

DATA: Photos: mudflow, Triassic - pre-Triassic contact

48 P : BAIN, GEORGE W., 1941, The Holyoke Range and Connecticut Valley structure: American Journal of Science, v. 239, p. 261-275.

SUMMARY: The structure of the Holyoke basalts and related clastics is considered. One conclusion reached is that the Holyoke flow has moved 5000 feet to the south with respect to the eastern highland which resulted in development of numerous fault blocks within the flow.

KEYWORDS: structure
basalt

GEOGRAPHIC AREA: Deerfield Basin, Massachusetts

MAPS: Geol: Holyoke Range

DATA: Photos: view of the Holyoke Range from northeast

49 P : BAIN, GEORGE W., 1957, Triassic age rift structure in Eastern North America: New York Academy of Sciences, Transactions, v. 19, ser. II, p. 489-502.

SUMMARY: The basins are considered to have had a "considerable part of their depth" established prior to sediment influx. The basins have not extended far beyond their present limits. Evidence is supplied from the Hartford Basin and comparison to Morocco.

KEYWORDS: general geology
structure
faults

GEOGRAPHIC AREA: Regional

50 A : BAIN, GEORGE WILLIAM, 1941, African rift valleys and American Triassic troughs: Geological Society of America, Bulletin, v. 52, p. 1889.

SUMMARY: A description of the structural features of the Moroccan Triassic is given.

KEYWORDS: structure

GEOGRAPHIC AREA: Regional, Morocco

51 A : BAIRD, DONALD, AND PATTERSON, O.F., III, 1968, Archosaur fauna in the Pekin Formation (Upper Triassic) of North Carolina: Elisha Mitchell Scientific Society, Journal, v. 84, no. 4, p. 439.

SUMMARY: Species from the clay pit 1/2 mile NW of Gulf are listed and include: Rutiodon carolinensis, which also occurs in the Cumnock coal (Deep River) and the New Oxford Fm. and the Stockton Fm. (Newark- Gettysburg); Rutiodon manhattanensis; Typethorax; Teratosaurus and Sinosaurus; and Placerias gigas, not previously reported from the Newark Group.

KEYWORDS: paleontology

GEOGRAPHIC AREA: Deep River Basin, North Carolina, Chatham County, Goldston Quad.

52 A : BAIRD, DONALD, AND TAKE, WILLIAM F., 1959, Triassic reptiles from Nova Scotia: Geological Society of America, Bulletin, v. 70, p. 1565-1566.

SUMMARY: Reptile fossil parts, chiefly from arkosic units in the basal Wolfville sandstone, are described. A table is presented correlating Triassic formations of Nova Scotia with the Connecticut Valley and New Jersey.

KEYWORDS: paleontology
general geology

GEOGRAPHIC AREA: Fundy Basin, Canada, Nova Scotia

53 M : BALK, ROBERT, 1956, Bedrock geology of the Massachusetts portion of the Bernardston Quadrangle, Massachusetts-Vermont: U.S. Geological Survey, Geologic Quadrangle Map GQ-90.

KEYWORDS: general geology

GEOGRAPHIC AREA: Deerfield Basin, Massachusetts, Franklin Co.

MAPS: Geol: [1:31,680]

54 M : BALK, ROBERT, 1956, Bedrock geology of the Massachusetts portion of the Northfield Quadrangle, Massachusetts, New Hampshire, and Vermont: U.S. Geological Survey, Geologic Quadrangle Map GQ-92.

KEYWORDS: general geology

GEOGRAPHIC AREA: Deerfield Basin, Massachusetts, Franklin Co.

MAPS: Geol: [1:31,680]

55 M : BALK, ROBERT, 1956, Bedrock geology of the Millers Falls Quadrangle, Massachusetts: U.S. Geological Survey, Geologic Quadrangle Map GQ-93.

KEYWORDS: general geology

GEOGRAPHIC AREA: Deerfield Basin, Massachusetts, Franklin Co.

MAPS: Geol: [1:31,680]

56 PM: BALK, ROBERT, 1957, Geology of Mount Holyoke Quadrangle, Massachusetts: Geological Society of America, Bulletin, v. 68, p. 481-504.

SUMMARY: The general geology is outlined and consists of (from base) the Sugarloaf arkose, the Holyoke diabase, and the Longmeadow sandstone (a fining upward sequence) with an interbedded tuffaceous unit (the Granby Tuff). The petrography of the diabase and sediments is discussed. Glacial and recent deposits cover most of the quadrangle area.

KEYWORDS: general geology
structure
petrology
diabase

GEOGRAPHIC AREA: Hartford Basin, Massachusetts, Hampshire County, Mt. Holyoke Quad.

MAPS: Geol: [1:31,680] (also surficial)

DATA: Chem. (type of data): major oxide (diabase)

57 T : BALLARD, J.A., 1959, The geology of the Merry Oaks section of the Durham Triassic Basin of North Carolina: M.S. Thesis, University of North Carolina, 44 p.

KEYWORDS: general geology

GEOGRAPHIC AREA: Deep River Basin, North Carolina

58 P : BALLARD, R.D., AND UCHUPI, E., 1972, Carboniferous and Triassic rifting: a preliminary outline of the tectonic history of the Gulf of Maine: Geological Society of America, Bulletin, v. 83, p. 2285-2302.

SUMMARY: Geophysical studies indicate that rifting began in the Late Devonian and was reinitiated in the Late Triassic, accompanied by crustal block translation. Rifting ended as a result of igneous intrusion represented by the east coast magnetic anomaly.

KEYWORDS: tectonics
geophysics
structure

GEOGRAPHIC AREA: Maritime

MAPS: Geol: tectonic
Geophys: seismic reflection, magnetic anomaly
Misc: bathymetric

59 P : BALLARD, R.D., AND UCHUPI, E., 1975, Triassic rift structure in Gulf of Maine: American Association of Petroleum Geologists, Bulletin, v. 59, no. 7, p. 1041-1072.

SUMMARY: Three fault systems of Triassic Age are found in the Bay of Fundy to the Gulf of Maine. Tectonic history is discussed using seismic and submersible studies. Triassic rifting occurred along a pre-existing Pennsylvanian Fault zone.

KEYWORDS: tectonics
structure
seismic profiles

GEOGRAPHIC AREA: Maritime Province, Maine, Canada

MAPS: Geol: tectonics of Gulf area
Section: cross section (EW)
Geophys: seismic reflection profiles, magnetics
Misc: sediment isopachs, depth to basement, sample locations

DATA: Photos: Alvin-bottom photos

60 T : BANKS, WAYNE, 1982, Detailed gravity profile and structural interpretation of the Mesozoic basin of Northern Connecticut: M.S. Thesis, University of Connecticut.

KEYWORDS: geophysics
gravity
structure

GEOGRAPHIC AREA: Hartford Basin, Connecituct

61 P : BARKER, D.S., AND LONG, L.E., 1969, Feldspathoidal syenite in a quartz diabase sill, Brookville, New Jersey: Journal of Petrology, v. 10, p. 202-221.

SUMMARY: Sr isotopic data, field, and experimental melting data indicate that a granophyric differentiate of a diabase intrusion reacted with overlying Na-rich argillite to form a nepheline and analcime syenite.

KEYWORDS: mineralogy
petrology
diabase
granophyre

GEOGRAPHIC AREA: Newark Basin, New Jersey, Hunterdon County, Stockton Quad.

MAPS: Misc: syenite locality

DATA: Chem. (type of data): major oxide and norms, isotopes
Plots: mineralogy, argillite melting curve

62 P : BARRELL, JOSEPH, 1915, Central Connecticut in the geologic past: Connecticut Geological and Natural History Survey, Bulletin 23, 44 p.

SUMMARY: A general discussion is given of the topographic-physiographic development of the Triassic basin in Connecticut.

KEYWORDS: general geology

GEOGRAPHIC AREA: Hartford Basin, Connecticut

63 P : BARTELS, O.G., 1951, Rediscovery of so-called coal in fissure veins near West Springfield, Massachusetts: Rocks and Minerals, v. 26, p. 600.

KEYWORDS: economic geology
coal

GEOGRAPHIC AREA: Hartford Basin, Massachusetts

64 M : BASCOM, F., CLARK, W.B., DARTON, N.H., AND OTHERS, 1909, Philadelphia folio: U.S. Geological Survey, Geologic Atlas No. 162.

SUMMARY: Covers area between 39°45' - 40°15' and 75° - 75°30'.

KEYWORDS: general geology
economic geology
coal

GEOGRAPHIC AREA: Newark Basin, Pennsylvania, Montgomery Co., Bucks Co.

MAPS: Geol: [1:62,500]
Section: core data through Stockton Fm. in Norristown; stratigraphic column

65 PM: BASCOM, F., DARTON, N.H., KUMMEL, H.B., AND OTHERS, 1909, Trenton folio: U.S. Geological Survey, Geologic Atlas No. 167, 24 p.

SUMMARY: (Covers area between 40°-40°30' and 75°-74°30'.) Text discusses the structure, general geology, and petrography of the Lockatong, Brunswick, and Stockton Formations, and the diabase, basalt, and syenite. Barite and copper prospects are noted on the geologic map.

KEYWORDS: economic geology
barite
copper

GEOGRAPHIC AREA: Newark Basin, New Jersey, Mercer County, Somerset County, Hunterdon County, Middlesex County

MAPS: Geol: [1:125,000]
Section: strat. column

DATA: Chem. (type of data): (major oxide) diabase, basalt, nepheline syenite

66 PM: BASCOM, F., AND STOSE, G.W., 1938, Geology and mineral resources of the Honeybrook and Phoenixville Quadrangles, Pennsylvania: U.S. Geological Survey Bulletin 891, 145 p.

SUMMARY: This general geologic study covers the southern edge of the Newark Basin in Pennsylvania which includes the Morgantown, Elverson, Pottstown, and Phoenixville 7.5-minute quadrangles. Stockton, Lockatong, and Brunswick Formations are described.

KEYWORDS: general geology, structure, economic geology, zinc, lead, iron, copper

GEOGRAPHIC AREA: Newark Basin, Pennsylvania, Chester County, Berks County

MAPS: Geol: [1:62,500]
Section: geologic cross sections (5)

DATA: Photos: Triassic fault at Linfield

67 P : BASCOM, F., WHERRY, E.T., STOSE, G.W., AND JONAS, A.I., 1931, Geology and mineral resources of the Quakertown-Doylestown District, Pennsylvania and New Jersey: U.S. Geological Survey Bulletin 828, 62 p.

SUMMARY: The general geology of the Milford Square, Quakertown, Bedminster, Lumberville, Perkiomenville, Telford, Doylestown, and Buckingham quadranges is discussed. Sections and general features of the Stockton, Lockatong, and Brunswick Formations are presented.

KEYWORDS: general geology, structure, economic geology, copper

GEOGRAPHIC AREA: Newark Basin, Pennsylvania, New Jersey, Bucks Co., Berks Co.

MAPS: Geol: [1:62,500]

DATA: Photos: Lockatong Fm.

68 T : BASU, D., 1974, Genesis of the Grace Mine magnetite deposit, Morgantown, Berks County, southeastern Pennsylvania: Ph.D. Thesis, Lehigh University, 317 p.

KEYWORDS: economic geology, iron

GEOGRAPHIC AREA: Newark Basin, Pennsylvania, Berks Co., Morgantown Quad.

69 P : BATEMAN, ALAN M., 1923, Primary chalcocite: Bristol Copper Mine, Connecticut: Economic Geology, v. 18, no. 2, p. 122-166.

SUMMARY: The Bristol Copper Mine is described. Ore is chiefly bornite and chalcocite with traces of galena, sphalerite, barite, and pyrite. The paragenesis is characterized by increasing oxidation with time producing lower sulfur sulfides but not native copper. Mineral solutions are thought to have emanated from diabase fluids. The deposit occurs in the Triassic and adjacent to the western border fault.

KEYWORDS: economic geology
copper
barite
silver

GEOGRAPHIC AREA: Hartford Basin, Connecticut, Hartford Co., Bristol Quad.

DATA: Photos: camera lucida drawings of ore sections

70 PM: BAYLEY, W.S., SALISBURY, R.D., AND KUMMEL, H.B., 1914, Raritan folio: U.S. Geological Survey, Geologic Atlas No. 191, 32 p.

SUMMARY: (Covers area between 40°30'-41° and 75°-74°30'.) Text discusses the general geologic relations and composition of the Stockton, Lockatong, and Brunswick Fms., the Watchung basalt flows, and the diabase dikes and sheets. Structure and sedimentation are also outlined.

KEYWORDS: general geology
economic geology
copper

GEOGRAPHIC AREA: Newark Basin, New Jersey, Somerset County, Hunterdon County

MAPS: Geol: [1:125,000]

DATA: Chem. (type of data): major oxide (diabase and basalt)

71 P : BECK, L.C., 1839, Notices of native copper: American Journal of Science, First Series, v. 36, p. 107-114.

SUMMARY: Occurrences of native copper in the Triassic rocks of New Jersey are described.

KEYWORDS: mineralogy
economic geology
copper

GEOGRAPHIC AREA: Newark Basin, New Jersey

72 P : BECK, MYRL E., JR., 1965, Paleomagnetic and geological implications of magnetic properties of the Triassic diabase of southeastern Pennsylvania: Journal of Geophysical Research, v. 70, no. 12, p. 2845-2856.

SUMMARY: A Triassic pole position is calculated. Rotation of diabase units about regional strike caused linear distributions of site-mean directions. The strongest and least stable moments are associated with granophyric diabase.

KEYWORDS: geophysics
paleomagnetism

GEOGRAPHIC AREA: Gettysburg Basin, Newark Basin, Pennsylvania

MAPS: Misc: sample loc.

DATA: Plots: pole positions, site-mean directions

73 P : BECK, MYRL E., JR., 1966, The effect of magmatic differentiation on the magnetic properties of diabase sheets of southeastern Pennsylvania: U.S. Geological Survey Professional Paper 550D, p. D109-D116.

SUMMARY: Remanent and induced magnetic intensity increases with crystal fractionation of diabase sheets, reflecting an enrichment of ferric iron in passing from mafic to felsic differentiates. Concentration of such residual liquids near the tops of gently dipping sheets may result in aeromagnetic profile asymmetry.

KEYWORDS: geophysics
magnetism

GEOGRAPHIC AREA: Newark Basin, Pennsylvania

MAPS: Misc: sample loc.

DATA: Plots: natural vs. induced magnetic intensities

74 P : BECK, MYRL E., JR., 1972, Paleomagnetism of Upper Triassic diabase from southeastern Pennsylvania: further results: Journal of Geophysical Research, v. 77, no. 29, p. 5673-5687.

SUMMARY: Upper Triassic diabase dikes (105 samples) yield a paleomagnetic pole at 62°N, 104.5°E. Dipole wobble characterizes Late Triassic secular variation with no reversals of the field evident. Active drifting during the Late Triassic and Jurassic is evident, but polar wandering is minimal.

KEYWORDS: geophysics
paleomagnetism

GEOGRAPHIC AREA: Gettysburg Basin, Newark Basin, Pennsylvania

MAPS: Misc: sample loc.

DATA: Plots: paleomagnetic pole plots

75 P : BECKER, GEORGE F., 1895, Gold fields of the southern Appalachians: U.S. Geological Survey, 16th Annual Report, Part 3, p. 251-331.

SUMMARY: A paragraph is devoted to a description of the Womble (mine) 3 miles NW of Moncure, North Carolina. Triassic conglomerate consisting of quartz and decomposed granite, schist, and "porphyrite" clasts contains gold. The author obtained free gold by panning the material. The pit is described as being 100 cubic yards.

KEYWORDS: economic geology
gold

GEOGRAPHIC AREA: Deep River Basin, North Carolina, Chatham County

76 P : BEHRENDT, JOHN C., AND OTHERS, 1983, Marine multichannel seismic-reflection evidence for Cenozoic faulting and deep crustal structure near Charleston, South Carolina: in, Gohn, G.S., ed., Studies Related to the Charleston, South Carolina, Earthquake of 1886 - Tectonics and Seismicity, U.S. Geological Survey Professional Paper 1313, p. J1-J29.

SUMMARY: Seismic data are used to define the Triassic Helena Banks Fault offshore of Charleston, a Jurassic basalt layer, and other Triassic faults. The lower termination of these faults is along a decollement zone at a depth of about 10 km. It is proposed that seismic activity in the Charleston area is related to this zone.

KEYWORDS: buried basins
geophysics
seismic profiles

GEOGRAPHIC AREA: South Carolina

MAPS: Geophys: seismic profiles

77 PM: BELL, HENRY, III, BOOKS, K.G., DANIELS, D.L., HUFF, W.E., JR., AND POPENOE, P., 1979, Diabase dikes in the Haile-Brewer area, South Carolina, and their magnetic properties: U.S. Geological Survey Professional Paper 1123C, 18 p.

SUMMARY: Aeromagnetics reveals numerous diabase dikes in the Haile-Brewer area that have paleomagnetic pole positions clustered in two groups of opposing polarity. A Late Triassic, Early Jurassic age is considered for the dikes.

KEYWORDS: geophysics
paleomagnetism
aeromagnetism
magnetism

GEOGRAPHIC AREA: South Carolina

MAPS: Geol: [1:540,541]
Geophys: aeromagnetics magnetic profiles [1:222,222]

DATA: Chem. (type of data): diabase (major and trace)

78 F : BELL, HENRY, III, BUTLER, J.R., HOWELL, D.E., AND WHEELER, W.H., 1974, Geology of the Piedmont and Coastal Plain near Pageland, South Carolina and Wadesboro, North Carolina: Carolina Geological Society, Guidebook, 23 p.

SUMMARY: The general geology of the Wadesboro Basin is discussed. Comparisons are made to the Sanford and Durham Basins. Unlike the latter, the Wadesboro Basin contains no coal or black shale and its western border fault is intensely splintered. The Crowburg Basin is a small outlier of the larger Wadesboro and is the southernmost exposed Triassic Basin.

KEYWORDS: general geology

GEOGRAPHIC AREA: Wadesboro Basin, North Carolina, South Carolina

MAPS: Misc: field trip stops

79 T : BELLO, DON, 1982, Pillow lavas and other volcanic structures of Jurassic age: upper flow unit of the Orange Mountain basalt, Newark Basin: M.S. Thesis, Rutgers University.

KEYWORDS: structure
basalt

GEOGRAPHIC AREA: Newark Basin, New Jersey

80 A : BELLO, DONALD M., 1983, Pillow lavas of the Triassic-Jurassic Newark and Hartford Basins: Geological Society of America, Abstracts with Programs, v. 15, p. 91.

SUMMARY: A 35-meter by 4-km long pillow complex at the base of the upper flow unit of the Orange Mtn. basalt consists of flow lobe pillows overlain by bedded pillows in a tight structural framework with open interstices. Flow lobe pillows occur at the base of the lower Talcott basalt flow unit. Sulfur data (250 ppm Orange, 150 ppm Talcott) with vesicularity suggest the pillows formed at depths of 300 meters (Orange) and 700 m (Talcott).

KEYWORDS: sedimentation
general geology
structure
basalt

GEOGRAPHIC AREA: Newark Basin, Hartford Basin, New Jersey, Connecticut

81 A : BENIMOFF, A.I., AND SCLAR, C.B., 1980, Partial fusion of a xenolith of Lockatong argillite in the Palisades diabase, Graniteville Quarry, Staten Island: Geological Society of America, Abstracts with Programs, v. 12, p. 24.

SUMMARY: The Lockatong xenolith has a coarse-grained pyroxene trondhjemite at its interface with the diabase. Composition of the trondhjemite is: 32 wt. % normative albite, 18 wt. % normative quartz, and 7 wt. % total iron. Calcium, magnesium, iron, and titanium diffused from the diabase magma into the trondhjemite magma, while sodium diffused into the diabase.

KEYWORDS: diabase
metamorphism
granophyre
hornfels
diabase

GEOGRAPHIC AREA: Newark Basin, New York

82 A : BENIMOFF, ALAN I., AND SCLAR, CHARLES B., 1978, Pyroxene trondhjemite derived by partial fusion of a xenolith of Lockatong argillite in the Palisades Sill, Staten Island, New York: Geological Society of America, Abstracts with Programs, v. 10, p. 33.

SUMMARY: The chemical and mineralogic features of an argillic xenolith in diabase are described. The pyroxene trondhjemite occurs as a 10-cm thick band between the xenolith and the diabase.

KEYWORDS: metamorphism
diabase
petrology

GEOGRAPHIC AREA: Newark Basin, New York

83 M : BENNISON, A.P., AND MILTON, C., 1954, Preliminary geologic map of the Fairfax and Seneca Quadrangles, Virginia-Maryland: U.S. Geological Survey Open-File Map (unnumbered).

KEYWORDS: general geology

GEOGRAPHIC AREA: Culpeper Basin, Virginia

MAPS: Geol: [1:62,500]

84 M : BERG, T.M., AND GEYER, A.R., 1976, Elizabethtown Quadrangle, Pennsylvania: in, Berg, T.M., and Dodge, C.M., eds., 1981, Atlas of Preliminary Geologic Quadrangle Maps of Pennsylvania, Pennsylvania Geological Survey, Map 61, p. 192.

KEYWORDS: general geology

GEOGRAPHIC AREA: Gettysburg Basin, Pennsylvania, Lancaster Co., Dauphin Co., Lebanon Co., Elizabethtown Quad.

MAPS: Geol: [1:24,000]

85 M : BERG, T.M., AND GEYER, A.R., 1976, Terre Hill Quadrangle, Pennsylvania: in, Berg, T.M., and Dodge, C.M., eds., 1981, Atlas of Preliminary Geologic Quadrangle Maps of Pennsylvania, Pennsylvania Geological Survey, Map 61, p. 554.

KEYWORDS: general geology

GEOGRAPHIC AREA: Newark Basin, Pennsylvania, Lancaster Co., Berks Co., Terre Hill Quad.

MAPS: Geol: [1:24,000]

86 F : BERNSTEIN, L.R., 1980, Minerals of the Washington, D.C. area: Maryland Geological Survey, Education Series No. 5, 148 p.

SUMMARY: Diabase , zeolite, and copper occurrences in the Culpeper Basin of northern Virginia are described.

KEYWORDS: mineralogy
zeolites
diabase
economic geology
copper

GEOGRAPHIC AREA: Culpeper Basin, Virginia

MAPS: Misc: mineral localities

87 A : BERRY, E. WILLARD, 1938, Triassic coals: Elisha Mitchell Scientific Society, Journal, v. 54, p. 188.

SUMMARY: Coal is found in Moore, Chatham, and Lee Counties, and is characterized by few spores, much "woody tissue," and the presence of glass fragments attributed to contemporaneous volcanic activity.

KEYWORDS: economic geology
coal

GEOGRAPHIC AREA: Deep River Basin, North Carolina

88 P : BERRY, E. WILLARD, 1954, Triassic sedimentation in North Carolina and the Eastern United States: 19th International Geological Congress, Algiers, Section 13, Fascicule 13, p. 93-97.

SUMMARY: A brief review of the sedimentation processes is given and is related to rates of basin subsidence. Arkoses and conglomerates result from faster subsidence. Coal and carbonaceous shale develop during slower subsidence.

KEYWORDS: general geology
sedimentation

GEOGRAPHIC AREA: Regional, Durham Basin, North Carolina

89 A : BERRY, EDWARD W., 1912, The age of the plant-bearing shales of the Richmond coal field: American Journal of Science, Fourth Series, v. 34, p. 224-225.

SUMMARY: The brief communication cites the work of Zeiller and Nathorst, who, in comparing the Richmond coal flora with those of the Keuper aged Lunz and Thale flora of Austria and Saxony, respectively, conclude that the Richmond beds are also Keuper in age. This evidence, also supported by the work of Eastman (1911) in studies of Connecticut fish, contradicts the author's study of a calamite type flora from the Richmond coal, assumed to be Rhaetic.

KEYWORDS: paleontology

GEOGRAPHIC AREA: Richmond Basin, Virginia

90 P : BERTRAND, H., AND COFFRANT, D., 1977, Geochemistry of tholeiites from North-East American margin; correlation with Morocco: Contributions to Mineralogy and Petrology, v. 63, p. 65-74.

SUMMARY: Multivariate statistics are used to review the chemistry and geographic positions of diabase intrusives. Moroccan tholeiites appear to best correlate with Connecticut - New Jersey tholeiites. Magmatic evolution is shown to have proceeded from South to North.

KEYWORDS: geochemistry
diabase
tectonics

GEOGRAPHIC AREA: Regional

DATA: Chem. (type of data): average analyses from U.S. and Morocco
Plots: statistical (principal component and stepwise discriminant)

91 T : BERTRAND, H., AND PRIOTON, J.M., 1975, Les dolerites Moroccaines et l'ouverture de l'Atlantique etude petrologique et geochemique: Ph.D. Thesis, University of Lyon, France, 314 p.

KEYWORDS: geochemistry
petrology
diabase
tectonics

GEOGRAPHIC AREA: Morocco

92 M : BINGHAM, J.W., 1976, Contour map of the bedrock surface, Middletown Quadrangle, Connecticut: U.S. Geological Survey, Map MF-639b.

KEYWORDS: surficial geology

GEOGRAPHIC AREA: Hartford Basin, Connecticut

MAPS: Geol: depth to bedrock [1:24,000]

93 M : BINGHAM, J.W., AND PAINE, F.D., 1976, Contour map of the bedrock surface, Durham Quadrangle, Connecticut: U.S. Geological Survey, Map MF-776a.

KEYWORDS: surficial geology

GEOGRAPHIC AREA: Hartford Basin, Connecticut

MAPS: Geol: depth to bedrock [1:24,000]

94 P : BISDORF, ROBERT J., AND ACKERMAN, HANS D., 1976, Schlumberger soundings in the Durham-Wadesboro Triassic Basin, North Carolina: U.S. Geological Survey Open-File Report 76-251, 72 p.

SUMMARY: As part of a hydrological study of the Durham-Wadesboro Triassic basin, 62 Schlumberger resistivity soundings were made. This report only presents the resistivity data, and no interpretations are given. (See Ackermann and others, 1976, for a geologic interpretation of the data.)

KEYWORDS: geophysics
resistivity
hydrology

GEOGRAPHIC AREA: Durham Basin, North Carolina

DATA: Plots: 62 plots of Schlumberger resistivity versus depth

95 T : BISSELL, M.H., 1921, The Triassic area of the New Cumberland Quadrangle (York County), Pennsylvania: Ph.D. Thesis, Yale Unversity.

KEYWORDS: general geology

GEOGRAPHIC AREA: Gettysburg Basin, Pennsylvania, York County, Wellsville Quad., Dover Quad., Steelton Quad., Lemoyne Quad.

96 P : BLACK, GEORGE F., 1922, The Belleville Copper Mine: American Mineralogist, v. 7, no. 9, p. 154-158.

SUMMARY: The Belleville Copper Mine (also known as Schuyler, Arlington, and Victoria Mine), located in Union Township, Bergen County, N.J., is described. The Belleville Mine was the largest and most important copper mine in the Triassic rocks of New Jersey.

KEYWORDS: economic geology
copper

GEOGRAPHIC AREA: Newark Basin, New Jersey, Bergen County, Orange Quad.

97 T : BLACK, WILLIAM W., 1972, Geochemistry of the Triassic Watchung basalts, New York: M.S. Thesis, Rutgers University.

KEYWORDS: geochemistry
petrology
basalt

GEOGRAPHIC AREA: Newark Basin, New York

98 A : BLACK, WILLIAM W., AND PIBURN, MICHAEL D., 1973, Geochemistry of Watchung lavas from the Newark Triassic Basin: Geological Soaiety of America, Abstracts with Programs, v. 5, no. 5, p. 378.

SUMMARY: The three quartz-normative flows fractionated along a Fenner trend to produce Fe enrichment and Si depletion in younger flows. Diabase dikes follow a similar trend. From lower to upper, the three flows are: high-TiO2, low-TiO2, and high-Fe2O3 dolerites (Wiegand and Ragland, 1970).

KEYWORDS: geochemistry
basalt
diabase

GEOGRAPHIC AREA: Newark Basin, New Jersey

99 M : BLANCHETT, JEAN, TYSON, N.S., AND MCGOWAN, E.F., 1963, Aeromagnetic map of the Germantown and part of the Poolesville Quadrangles, Montgomery and Frederick Counties, Maryland: U.S. Geological Survey, Map GP-394.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Culpeper Basin, Maryland, Montgomery County, Frederick County

MAPS: Geophys: aeromagnetism [1:24,000]

100 M : BLANCHETT, JEAN, TYSON, N.S., AND MCGOWAN, E.F., 1963, Aeromagnetic map of the Seneca and part of the Sterling Quadrangles, Montgomery County, Maryland and Loudoun and Fairfax Counties, Virginia: U.S. Geological Survey, Map GP-396.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Culpeper Basin, Maryland, Montgomery County

MAPS: Geophys: aeromagnetism [1:24,000]

101 P : BLOOMER, ROBERT O., 1937, Occurrence of stilbite in the border conglomerate near Culpeper, Virginia: American Mineralogist, v. 22, p. 309-310.

SUMMARY: An occurrence of stilbite within conglomerate composed of Catoctin schist fragments and calcite is described from near Highway 15. Catoctin fragments are largely altered to epidote.

KEYWORDS: mineralogy
zeolites

GEOGRAPHIC AREA: Culpeper Basin, Virginia

102 A : BOBYARCHICK, ANDY R., 1982, Influence of the formation of Triassic basins on the regional thermal and structural history of crystalline rocks in the Southern Appalachians: Geological Society of America, Abstracts with Programs, v. 14, p. 6.

SUMMARY: Structural and thermal histories of crystalline basement that experienced Triassic faulting are distinct from adjacent basement. Basin basement temperatures drop upon incipient faulting, slowly rise during subsidence, and later, their thermal curves reach those of the originally deeper adjacent crystalline rocks due to sediment load and igneous activity.

KEYWORDS: structure

GEOGRAPHIC AREA: Regional

103 P : BOCK, WILHELM, 1946, New crustaceans from the Lockatong of the Newark Series: Academy of Natural Sciences, Philadelphia, Notulae Naturae, Number 183, 16 p.

SUMMARY: A number of species are described from exposures of the Lockatong along the Reading Railroad tunnel near Gwynedd.

KEYWORDS: paleontology

GEOGRAPHIC AREA: Newark Basin, Pennsylvania

DATA: Photos: fossils

104 P : BOCK, WILHELM, 1952, Triassic reptilian tracks and trends of locomotive evolution: Journal of Paleontology, v. 26, p. 395-433.

SUMMARY: Reptilian foot-prints from the Newark Basin are studied and the Lockatong, Stockton, and Brunswick Formations are correlated with equivalent European formations. It is estimated that the Stockton, Lockatong, and Brunswick Formations represent one million, 2 million, and 3.5 million years of deposition, respectively.

KEYWORDS: paleontology
sedimentation

GEOGRAPHIC AREA: Newark Basin, New Jersey

DATA: Photos: many foot-prints

105 P : BOCK, WILHELM, 1952, Vertex monocline studies of the Triassic of Southeastern Pennsylvania: Pennsylvania Academy of Science, Proceedings, v. 26, p. 93-103.

SUMMARY: Studies of the Triassic sediments in the Doylestown area indicate that subsidence has resulted in prism-shaped, compound monoclines, each turning about a common vertex. Such a system explains the presence of dips at varying angles to one another.

KEYWORDS: structure

GEOGRAPHIC AREA: Newark Basin, Pennsylvania, Bucks County

MAPS: Section: Delaware River cross sections
Misc: study area

106 P : BOCK, WILHELM, 1959, New eastern American Triassic fishes and Triassic correlations: National Academy of Science, Geological Center Research Series, v. 1, 184 p.

SUMMARY: Fossil fish species found within the Newark System are described in detail with sketches and locations provided. Distinct faunal groups characterize the Stockton, Lockatong, and Brunswick Formations and verify their formation status as opposed to that of facies interfingering. Faunal assemblages include Lockatong (Osteopleurus-Gwyneddichtis-Isaura-Candona) and upper Brunswick (Chirotherium-Eubrontes-Semionotus).

KEYWORDS: paleontology

GEOGRAPHIC AREA: Newark Basin, Gettysburg Basin, Pennsylvania

DATA: Photos: fossils

107 P : BOCK, WILHELM, 1959, The Edison fault and the paleontology of some Lockatong beds: Pennsylvania Academy of Science, Proceedings, v. 33, p. 156-161.

SUMMARY: A major fault within the Lockatong formation is described from a quarry at Edison, near Doylestown, Pennsylvania. Several fossil species, including fish, crustacean, and coelacanth are described from the gray beds.

KEYWORDS: structure
faults
paleontology

GEOGRAPHIC AREA: Newark Basin, Pennsylvania, Bucks County, Doylestown

DATA: Photos: fault exposed in quarry, Turseodus Acutus (fish)

108 P : BOCK, WILHELM, 1959, The ground-water picture of the Triassic of southeastern Pennsylvania: Pennsylvania Academy of Science, Proceedings, v. 33, p. 162-184.

SUMMARY: The hydrogeologic character of the Stockton, Lockatong, and Brunswick Formations is discussed. Subjects include water velocities, absorptive qualities, topographic influence, and economic development factors.

KEYWORDS: hydrology

GEOGRAPHIC AREA: Newark Basin, Pennsylvania

109 P : BOCK, WILHELM, 1969, The American Triassic flora and global distribution: North Wales, Pennsylvania, Geological Center, Geological Center Research Series, v. 3 and v. 4, 406 p.

KEYWORDS: paleontology

GEOGRAPHIC AREA: Regional

110 A : BOKUNIEWICZ, H.J., 1980, The seaward extension of the Connecticut Valley: Geological Society of America, Abstracts with Programs, v. 12, no. 2, p. 25.

SUMMARY: Geophysical data are used to delineate the extension of the Hartford Basin southward for 15 km. Under Long Island Sound it is approximately 2 to 3 km wide and 200 meters deep.

KEYWORDS: tectonics
buried basins

GEOGRAPHIC AREA: Hartford Basin, Connecticut

111 P : BONINI, WILLIAM E., 1964, Is there a Fayetteville "buried Triassic basin"?: American Association of Petroleum Geologists, Bulletin, v. 48, p. 102.

SUMMARY: The author refers to the seismic work of Bonini and Wollard (1960) and emphsizes that the Triassic Basin is assumed from limited data and that further well information is required as conclusive evidence.

KEYWORDS: buried basins

GEOGRAPHIC AREA: North Carolina

112 PM: BONINI, WILLIAM E., AND WOOLLARD, GEORGE P., 1960, Subsurface geology of North Carolina - South Carolina Coastal Plain from seismic data: American Association of Petroleum Geologists, Bulletin, v. 44, no. 3, p. 298-315.

SUMMARY: Seismic data indicate that two buried Triassic Basins are present: the Florence Basin, 40 x 13 miles, and a new basin extending from Raeford into Johnson County, North Carolina. Both areas are beneath the Coastal Plain. Well lithologies are also presented.

KEYWORDS: buried basins
geophysics
seismic profiles

GEOGRAPHIC AREA: North Carolina - South Carolina Coastal Plain

MAPS: Geol: [1:3,960,000]
Misc: seismic stations

DATA: Plots: velocity measurements

113 P : BOUCOT, ARTHUR J., 1949, Notes on the Ecton Mine, Montgomery Co., Pennsylvania: Rocks and Minerals, v. 24, p. 492-495.

SUMMARY: The deposit occurs in a NE-trending, NW-dipping fault zone within the Stockton Formation. The fault zone is twenty-feet wide and consists of Triassic gouge as well as adjacent pre-Triassic limestone. Mine workings are outlined. The principal mineralogy is argentiferous galena, sphalerite, and chalcopyrite in a gangue of vuggy quartz, dolomite, and barite. Fluorite and arsenopyrite have been reported. Development of secondary lead, zinc, and copper mineralization is described.

KEYWORDS: economic geology
lead
zinc
silver

GEOGRAPHIC AREA: Gettysburg Basin, Newark Basin, Pennsylvania, Montgomery Co., Collegeville Quad.

MAPS: Misc: mine working sketch

114 P : BOURNE, WILLIAM OLAND, 1841, Notice of a locality of zeolites, etc., at Bergen, Bergen County, New Jersey: American Journal of Science and Arts, v. 40, p. 69-73.

SUMMARY: Descriptions of zeolite veins in the Bergen Hill diabase, exposed during railroad construction, are presented.

KEYWORDS: mineralogy
zeolites

GEOGRAPHIC AREA: Newark Basin, New Jersey, Bergen County

115 T : BOWKER, D.E., 1960, Remnant magnetization of eastern United States Triassic rocks: Ph.D. Thesis, Massachusetts Institute of Technology, 166 p.

KEYWORDS: geophysics
magnetism
paleomagnetism

GEOGRAPHIC AREA: Regional

116 M : BOYNTON, G.R., PITTILLO, D.R., AND ZANDLE, G.L., 1966, Aeromagnetic ap of the Bloomsbury and part of the Easton Quadrangles, New Jersey and Pennsylvania: U.S. Geological Survey, Map GP-551.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Newark Basin, New Jersey

MAPS: Geophys: aeromagnetism [1:24,000]

117 M : BOYNTON, G.R., PITTILLO, D.R., AND ZANDLE, G.L., 1966, Aeromagnetic map of the Frenchtown and part of the Riegelsville Quadrangles, New Jersey and Pennsylvania: U.S. Geological Survey, Map GP-552.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Newark Basin, New Jersey

MAPS: Geophys: aeromagnetism [1:24,000]

118 M : BOYNTON, G.R., PITTILLO, D.R., AND ZANDLE, G.L., 1966, Aeromagnetic map of parts of the Lambertville, Lumberville, and Stockton Quadrangles, New Jersey and Pennsylvania: U.S. Geological Survey, Map GP-553.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Newark Basin, New Jersey

MAPS: Geophys: aeromagnetism [1:24,000]

119 M : BOYNTON, G.R., PITTILLO, D.R., AND ZANDLE, G.L., 1966, Aeromagnetic map of the Pittstown and part of the High Bridge Quadrangles, Hunterdon County, New Jersey: U.S. Geological Survey, Map GP-554.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Newark Basin, New Jersey

MAPS: Geophys: aeromagnetism [1:24,000]

120 M : BOYNTON, G.R., PITTILLO, D.R., AND ZANDLE, G.L., 1966, Natural gamma aeroradioactivity map of the Bloomsbury and part of the Easton Quadrangles, New Jersey and Pennsylvania: U.S. Geological Survey, Map GP-570.

KEYWORDS: geophysics
aeroradioactivity

GEOGRAPHIC AREA: Newark Basin, New Jersey, Pennsylvania

MAPS: Geophys: aeromagnetism [1:24,000]

121 M : BOYNTON, G.R., PITTILLO, D.R., AND ZANDLE, G.L., 1966, Natural gamma aeroradioactivity map of the Frenchtown and part of the Riegelsville Quadrangles, New Jersey and Pennsylvania: U.S. Geological Survey, Map GP-571.

KEYWORDS: geophysics
aeroradioactivity

GEOGRAPHIC AREA: Newark Basin, New Jersey, Pennsylvania

MAPS: Geophys: aeromagnetism [1:24,000]

122 M : BOYNTON, G.R., PITTILLO, D.R., AND ZANDLE, G.L., 1966, Natural gamma aeroradioactivity map of parts of the Lambertville, Lumberville and Stockton Quadrangles, New Jersey and Pennsylvania: U.S. Geological Survey, Map GP-572.

KEYWORDS: geophysics
aeroradioactivity

GEOGRAPHIC AREA: Newark Basin, New Jersey, Pennsylvania

MAPS: Geophys: aeromagnetism [1:24,000]

123 M : BOYNTON, G.R., PITTILLO, D.R., AND ZANDLE, G.L., 1966, Natural gamma aeroradioactivity map of the Pittstown and part of the High Bridge Quadrangles, Hunterdon County, New Jersey: U.S. Geological Survey, Map GP-573.

KEYWORDS: geophysics
aeroradioactivity

GEOGRAPHIC AREA: Newark Basin, New Jersey

MAPS: Geophys: aeromagnetism [1:24,000]

124 M : BOYNTON, G.R., POPENOE, P., AND ZANDLE, G.L., 1965, Aeromagnetic map of part of the Southwick Quadrangle, Hampden County, Massachusetts, and Hartford County, Connecticut: U.S. Geological Survey, Map GP-534.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Hartford Basin, Massachusetts

MAPS: Geophys: aeromagnetism [1:24,000]

125 M : BOYNTON, G.R., POPENOE, P., AND ZANDLE, G.L., 1965, Aeromagnetic map of the Woronoco Quadrangle, Hampden and Hampshire Counties, Massachusetts: U.S. Geological Survey, Map GP-537.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Hartford Basin, Massachusetts

MAPS: Geophys: aeromagnetism [1:24,000]

126 M : BROMERY, R.W., AND OTHERS, 1959, Aeromagnetic map of the Buckingham Quadrangle, Bucks County, Pennsylvania: U.S. Geological Survey, Map GP-215.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Newark Basin, Pennsylvania

MAPS: Geophys: aeromagnetism [1:24,000]

127 M : BROMERY, R.W., AND OTHERS, 1959, Aeromagnetic map of the East Greenville Quadrangle, Berks, Lehigh, and Montgomery Counties, Pennsylvania: U.S. Geological Survey, Map GP-205.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Newark Basin, Pennsylvania

MAPS: Geophys: aeromagnetism [1:24,000]

128 M : BROMERY, R.W., AND OTHERS, 1959, Aeromagnetic map of the Elverson Quadrangle, Berks and Chester Counties, Pennsylvania: U.S. Geological Survey, Map GP-221.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Newark Basin, Pennsylvania

MAPS: Geophys: aeromagnetism [1:24,000]

129 M : BROMERY, R.W., AND OTHERS, 1959, Aeromagnetic map of parts of the Lambertville and Stockton Quadrangles, Bucks County, Pennsylvania, and Hunterdon and Mercer Counties, New Jersey: U.S. Geological Survey, Map GP-216.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Newark Basin, Pennsylvania

MAPS: Geophys: aeromagnetism [1:24,000]

130 M : BROMERY, R.W., AND OTHERS, 1959, Aeromagnetic map of the Malvern Quadrangle, Chester County, Pennsylvania: U.S. Geological Survey, Map GP-202.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Newark Basin, Pennsylvania

MAPS: Geophys: aeromagnetism [1:24,000]

131 M : BROMERY, R.W., AND OTHERS, 1959, Aeromagnetic map of the Milford Square Quadrangle, Bucks, Lehigh, and Montgomery Counties, Pennsylvania: U.S. Geological Survey, Map GP-206.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Newark Basin, Pennsylvania

MAPS: Geophys: aeromagnetism [1:24,000]

132 M : BROMERY, R.W., AND OTHERS, 1959, Aeromagnetic map of the Morgantown Quadrangle, Berks, Lancaster, and Chester Counties, Pennsylvania: U.S. Geological Survey, Map GP-220.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Newark Basin, Pennsylvania

MAPS: Geophys: aeromagnetism [1:24,000]

133 M : BROMERY, R.W., AND OTHERS, 1959, Aeromagnetic map of part of the Norristown Quadrangle, Philadelphia, Chester, Delaware, and Montgomery Counties, Pennsylvania: U.S. Geological Survey, Map GP-201.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Newark Basin, Pennsylvania

MAPS: Geophys: aeromagnetism [1:24,000]

134 M : BROMERY, R.W., AND OTHERS, 1959, Aeromagnetic map of the Perkiomenville Quadrangle, Montgomery and Bucks Counties, Pennsylvania: U.S. Geological Survey, Map GP-208.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Newark Basin, Pennsylvania

MAPS: Geophys: aeromagnetism [1:24,000]

135 M : BROMERY, R.W., AND OTHERS, 1959, Aeromagnetic map of the Phoenixville Quadrangle, Chester and Montgomery Counties, Pennsylvania: U.S. Geological Survey, Map GP-209.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Newark Basin, Pennsylvania

MAPS: Geophys: aeromagnetism [1:24,000]

136 M : BROMERY, R.W., AND OTHERS, 1959, Aeromagnetic map of the Quakertown Quadrangle, Bucks County, Pennsylvania: U.S. Geological Survey, Map GP-214.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Newark Basin, Pennsylvania

MAPS: Geophys: aeromagnetism [1:24,000]

137 M : BROMERY, R.W., AND OTHERS, 1959, Aeromagnetic map of the Sassamansville Quadrangle, Montgomery and Berks Counties, Pennsylvania: U.S. Geological Survey, Map GP-207.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Newark Basin, Pennsylvania

MAPS: Geophys: aeromagnetism [1:24,000]

138 M : BROMERY, R.W., AND OTHERS, 1959, Aeromagnetic map of the Valley Forge Quadrangle, Chester, Montgomery, and Delaware Counties, Pennsylvania: U.S. Geological Survey, Map GP-200.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Newark Basin, Pennsylvania

MAPS: Geophys: aeromagnetism [1:24,000]

139 M : BROMERY, R.W., AND OTHERS, 1960, Aeromagnetic map of part of the Ambler Quadrangle, Montgomery and Bucks Counties, Pennsylvania: U.S. Geological Survey, Map GP-265.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Newark Basin, Pennsylvania

MAPS: Geophys: aeromagnetism [1:24,000]

140 M : BROMERY, R.W., AND OTHERS, 1960, Aeromagnetic map of part of the Bedminster Quadrangle, Bucks County, Pennsylvania: U.S. Geological Survey, Map GP-260.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Newark Basin, Pennsylvania

MAPS: Geophys: aeromagnetism [1:24,000]

141 M : BROMERY, R.W., AND OTHERS, 1960, Aeromagnetic map of the Birdsboro Quadrangle, Berks County, Pennsylvania: U.S. Geological Survey, Map GP-231.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Newark Basin, Pennsylvania

MAPS: Geophys: aeromagnetism [1:24,000]

142 M : BROMERY, R.W., AND OTHERS, 1960, Aeromagnetic map of the Boyertown Quadrangle, Berks and Montgomery Counties, Pennsylvania: U.S. Geological Survey, Map GP-232.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Newark Basin, Pennsylvania

MAPS: Geophys: aeromagnetism [1:24,000]

143 M : BROMERY, R.W., AND OTHERS, 1960, Aeromagnetic map of the Collegeville Quadrangle, Montgomery County, Pennsylvania: U.S. Geological Survey, Map GP-210.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Newark Basin, Pennsylvania

MAPS: Geophys: aeromagnetism [1:24,000]

144 M : BROMERY, R.W., AND OTHERS, 1960, Aeromagnetic map of part of the Doylestown Quadrangle, Bucks and Montgomery Counties, Pennsylvania: U.S. Geological Survey, Map GP-263.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Newark Basin, Pennsylvania

MAPS: Geophys: aeromagnetism [1:24,000]

145 M : BROMERY, R.W., AND OTHERS, 1960, Aeromagnetic map of part of the Hatboro Quadrangle, Bucks, Montgomery, and Philadelphia Counties, Pennsylvania: U.S. Geological Survey, Map GP-237.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Newark Basin, Pennsylvania

MAPS: Geophys: aeromagnetism [1:24,000]

146 M : BROMERY, R.W., AND OTHERS, 1960, Aeromagnetic map of the Langhorne Quadrangle, Bucks County, Pennsylvania: U.S. Geological Survey, Map GP-238.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Newark Basin, Pennsylvania

MAPS: Geophys: aeromagnetism [1:24,000]

147 M : BROMERY, R.W., AND OTHERS, 1960, Aeromagnetic map of the Lansdale Quadrangle, Montgomery County, Pennsylvania: U.S. Geological Survey, Map GP-264.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Newark Basin, Pennsylvania

MAPS: Geophys: aeromagnetism [1:24,000]

148 M : BROMERY, R.W., AND OTHERS, 1960, Aeromagnetic map of part of the Lumberville Quadrangle, Bucks County, Pennsylvania, and Hunterdon County, New Jersey: U.S. Geological Survey, Map GP-261.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Newark Basin, Pennsylvania

MAPS: Geophys: aeromagnetism [1:24,000]

149 M : BROMERY, R.W., AND OTHERS, 1960, Aeromagnetic map of the Pottstown Quadrangle, Berks, Chester, and Montgomery Counties, Pennsylvania: U.S. Geological Survey, Map GP-222.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Newark Basin, Pennsylvania

MAPS: Geophys: aeromagnetism [1:24,000]

150 M : BROMERY, R.W., AND OTHERS, 1960, Aeromagnetic map of the Reading Quadrangle, Berks County, Pennsylvania: U.S. Geological Survey, Map GP-230.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Newark Basin, Pennsylvania

MAPS: Geophys: aeromagnetism [1:24,000]

151 M : BROMERY, R.W., AND OTHERS, 1960, Aeromagnetic map of part of the Riegelsville Quadrangle, Bucks and Northampton Counties, Pennsylvania, and Hunterdon and Warren Counties, New Jersey: U.S. Geological Survey, Map GP-236.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Newark Basin, Pennsylvania

MAPS: Geophys: aeromagnetism [1:24,000]

152 M : BROMERY, R.W., AND OTHERS, 1960, Aeromagnetic map of the Telford Quadrangle, Montgomery and Bucks Counties, Pennsylvania: U.S. Geological Survey, Map GP-262.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Newark Basin, Pennsylvania

MAPS: Geophys: aeromagnetism [1:24,000]

153 M : BROMERY, R.W., AND OTHERS, 1961, Aeromagnetic map of the Abbottstown Quadrangle, Adams and York Counties, Pennsylvania: U.S. Geological Survey, Map GP-281.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Gettysburg Basin, Pennsylvania

MAPS: Geophys: aeromagnetism [1:24,000]

154 M : BROMERY, R.W., AND OTHERS, 1961, Aeromagnetic map of part of the Arendtsville Quadrangle, Adams and Cumberland Counties, Pennsylvania: U.S. Geological Survey, Map GP-278.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Gettysburg Basin, Pennsylvania

MAPS: Geophys: aeromagnetism [1:24,000]

155 M : BROMERY, R.W., AND OTHERS, 1961, Aeromagnetic map of the Biglerville Quadrangle, Adams County, Pennsylvania: U.S. Geological Survey, Map GP-279.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Gettysburg Basin, Pennsylvania

MAPS: Geophys: aeromagnetism [1:24,000]

156 M : BROMERY, R.W., AND OTHERS, 1961, Aeromagnetic map of part of the Dillsburg Quadrangle, Adams, York and Cumberland Counties, Pennsylvania: U.S. Geological Survey, Map GP-277.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Gettysburg Basin, Pennsylvania

MAPS: Geophys: aeromagnetism [1:24,000]

157 M : BROMERY, R.W., AND OTHERS, 1961, Aeromagnetic map of the Ephrata Quadrangle, Lancaster County, Pennsylvania: U.S. Geological Survey, Map GP-241.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Gettysburg Basin, Pennsylvania

MAPS: Geophys: aeromagnetism [1:24,000]

158 M : BROMERY, R.W., AND OTHERS, 1961, Aeromagnetic map of part of the Fairfield Quadrangle and part of the Emmitsburg Quadrangle, Adams County, Pennsylvania, and Frederick County, Maryland: U.S. Geological Survey, Map GP-283.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Gettysburg Basin, Pennsylvania, Maryland

MAPS: Geophys: aeromagnetism [1:24,000]

159 M : BROMERY, R.W., AND OTHERS, 1961, Aeromagnetic map of the Gettysburg Quadrangle, and part of the Taneytown Quadrangle, Adams County, Pennsylvania: U.S. Geological Survey, Map GP-284.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Gettysburg Basin, Pennsylvania

MAPS: Geophys: aeromagnetism [1:24,000]

160 M : BROMERY, R.W., AND OTHERS, 1961, Aeromagnetic map of the Hampton Quadrangle, Adams and York Counties, Pennsylvania: U.S. Geological Survey, Map GP-280.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Gettysburg Basin, Pennsylvania

MAPS: Geophys: aeromagnetism [1:24,000]

161 M : BROMERY, R.W., AND OTHERS, 1961, Aeromagnetic map of the Hanover Quadrangle and part of the Manchester Quadrangle, Adams and York Counties, Pennsylvania: U.S. Geological Survey, Map GP-286.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Gettysburg Basin, Pennsylvania

MAPS: Geophys: aeromagnetism [1:24,000]

162 M : BROMERY, R.W., AND OTHERS, 1961, Aeromagnetic map of part of the Hummelstown Quadrangle, Dauphin County, Pennsylvania: U.S. Geological Survey, Map GP-267.

SUMMARY: (Now the Hershey 7.5 min. quad.)

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Gettysburg Basin, Pennsylvania

MAPS: Geophys: aeromagnetism [1:24,000]

163 M : BROMERY, R.W., AND OTHERS, 1961, Aeromagnetic map of the Lebanon Quadrangle, Lebanon County, Pennsylvania: U.S. Geological Survey, Map GP-254.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Gettysburg Basin, Pennsylvania

MAPS: Geophys: aeromagnetism [1:24,000]

164 M : BROMERY, R.W., AND OTHERS, 1961, Aeromagnetic map of the Lititz Quadrangle, Lancaster and Lebanon Counties, Pennsylvania: U.S. Geological Survey, Map GP-257.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Gettysburg Basin, Pennsylvania

MAPS: Geophys: aeromagnetism [1:24,000]

165 M : BROMERY, R.W., AND OTHERS, 1961, Aeromagnetic map of the Manheim Quadrangle, Lancaster and Lebanon Counties, Pennsylvania: U.S. Geological Survey, Map GP-256.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Gettysburg Basin, Pennsylvania

MAPS: Geophys: aeromagnetism [1:24,000]

166 M : BROMERY, R.W., AND OTHERS, 1961, Aeromagnetic map of the McSherrystown Quadrangle and part of the Littlestown Quadrangle, Adams County, Pennsylvania: U.S. Geological Survey, Map GP-285.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Gettysburg Basin, Pennsylvania

MAPS: Geophys: aeromagnetism [1:24,000]

167 M : BROMERY, R.W., AND OTHERS, 1961, Aeromagnetic map of part of the Mechanicsburg Quadrangle, Cumberland and York Counties, Pennsylvania: U.S. Geological Survey, Map GP-274.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Gettysburg Basin, Pennsylvania

MAPS: Geophys: aeromagnetism [1:24,000]

168 M : BROMERY, R.W., AND OTHERS, 1961, Aeromagnetic map of the Middletown Quadrangle, Dauphin, Lancaster, Lebanon, and York Counties, Pennsylvania: U.S. Geological Survey, Map GP-269.

SUMMARY: 15' quad covers Middletown, Elizabethtown, York Haven, and Columbia West 7.5 minute quads.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Gettysburg Basin, Pennsylvania

MAPS: Geophys: aeromagnetism [1:24,000]

169 M : BROMERY, R.W., AND OTHERS, 1961, Aeromagnetic map of part of the Mount Holly Springs Quadrangle, Adams, Cumberland, and York Counties, Pennsylvania: U.S. Geological Survey, Map GP-276.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Gettysburg Basin, Pennsylvania

MAPS: Geophys: aeromagnetism [1:24,000]

170 M : BROMERY, R.W., AND OTHERS, 1961, Aeromagnetic map of the New Cumberland Quadrangle, Cumberland, Dauphin, and York Counties, Pennsylvania: U.S. Geological Survey, Map GP-275.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Gettysburg Basin, Pennsylvania

MAPS: Geophys: aeromagnetism [1:24,000]

171 M : BROMERY, R.W., AND OTHERS, 1961, Aeromagnetic map of part of the Palmyra Quadrangle, Dauphin and Lebanon Counties, Pennsylvania: U.S. Geological Survey, Map GP-268.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Gettysburg Basin, Pennsylvania

MAPS: Geophys: aeromagnetism [1:24,000]

172 M : BROMERY, R.W., AND OTHERS, 1961, Aeromagnetic map of the Richland Quadrangle, Lancaster and Lebanon Counties, Pennsylvania: U.S. Geological Survey, Map GP-255.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Gettysburg Basin, Pennsylvania

MAPS: Geophys: aeromagnetism [1:24,000]

173 M : BROMERY, R.W., AND OTHERS, 1961, Aeromagnetic map of the Sinking Spring Quadrangle, Berks and Lancaster Counties, Pennsylvania: U.S. Geological Survey, Map GP-240.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Newark Basin, Pennsylvania

MAPS: Geophys: aeromagnetism [1:24,000]

174 M : BROMERY, R.W., AND OTHERS, 1961, Aeromagnetic map of the Terre Hill Quadrangle, Lancaster and Berks Counties, Pennsylvania: U.S. Geologial Survey, Map GP-242.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Newark Basin, Pennsylvania

MAPS: Geophys: aeromagnetism [1:24,000]

175 M : BROMERY, R.W., AND OTHERS, 1961, Aeromagnetic map of the West York Quadrangle, York County, Pennsylvania: U.S. Geological Survey, Map GP-282.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Gettysburg Basin, Pennsylvania

MAPS: Geophys: aeromagnetism [1:24,000]

176 M : BROMERY, R.W., AND OTHERS, 1961, Aeromagnetic map of the Womelsdorf Quadrangle, Berks, Lebanon, and Lancaster Counties, Pennsylvania: U.S. Geological Survey, Map GP-239.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Gettysburg Basin, Pennsylvania

MAPS: Geophys: aeromagnetism [1:24,000]

177 M : BROMERY, R.W., AND OTHERS, 1963, Aeromagnetic map of the Joplin Quadrangle, Prince William and Stafford Counties, Virginia: U.S. Geological Survey, Map GP-390.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Culpeper Basin, Virginia

MAPS: Geophys: aeromagnetism [1:24,000]

178 M : BROMERY, RANDOLPH W., 1967, Simple Bouguer gravity map of Massachusetts: U.S. Geological Survey, Map GP-612.

KEYWORDS: geophysics
gravity

GEOGRAPHIC AREA: Hartford Basin, Deerfield Basin, Massachusetts

MAPS: Geophys: gravity [1:250,000]

179 F : BROPHY, GERALD P., FOOSE, RICHARD M., SHAW, FREDERICK C., AND SZEKELY, THOMAS S., 1967, Triassic geologic features in the Connecticut Valley near Amherst, Massachusetts: in, Robinson, P., ed., Field Trips in the Connecticut Valley, Massachusetts, New England Intercollegiate Geological Conference, 59th Meeting, p. 61-72.

SUMMARY: Field stops in the Mt. Tom-Mt. Holyoke area include the pegmatitic facies of the Holyoke basalt, exposures of the upper Sugarloaf and Longmeadow Formations, the volcanic features of the Mountain Park area, and the Chicopee shale dinosaur track locality.

KEYWORDS: general geology
basalt

GEOGRAPHIC AREA: Hartford Basin, Massachusetts

MAPS: Geol: sketches

180 F : BROUGHTON, PAUL, 1964, Arlington Quarry, Leesburg, Va.: The Mineralogist, v. 32, no. 4, p. 10-11.

SUMMARY: Zeolites are described from the diabase quarry along Goose Creek at Route 7. Prehnite, stilbite, and diabantite occur in vertical veins and seams.

KEYWORDS: mineralogy
zeolites

GEOGRAPHIC AREA: Culpeper Basin, Virginia, Loudoun County, Leesburg Quad.

MAPS: Misc: quarry location

181 P : BROWN, C.B., 1937, Outline of the geology and mineral resources of Goochland County, Virginia: Virginia Geological Survey, Bulletin No. 48, 68 p.

SUMMARY: Red and gray sandstone, shale, and coal seams occur within the northern end of the Richmond Basin in eastern Goochland County. Coal seams, gray sandstone and shale occur along the western and eastern margins and comprise the basal Triassic section. The history of coal mining in the area is outlined, and several seams (7 ft., 12 ft., 4 ft.) of coal at Manakin and elsewhere are briefly described.

KEYWORDS: general geology
economic geology
coal

GEOGRAPHIC AREA: Richmond Basin, Virginia, Goochland Co.

MAPS: Geol: [1:125,000]

182 PM: BROWN, CARL BARRIER, 1932, A new Triassic area in North Carolina: American Journal of Science, v. 23, 5th series, p. 525-528.

SUMMARY: The Triassic outlier in Davie County of the Dan River Basin is discussed. Features include basal conglomerate composed of schist and gneiss fragments, arkosic beds containing lignitized wood fragments, diabase dikes, and numerous faults developed along the west edge (see Thayer, P., 1967).

KEYWORDS: general geology

GEOGRAPHIC AREA: Davie County Basin (Dan River), North Carolina

MAPS: Geol: [1:97,477]

183 M : BROWN, C.E., 1974, Contour map of the bedrock surface, Branford Quadrangle, Connecticut: U.S. Geological Survey, Map MF-560c.

KEYWORDS: general geology

GEOGRAPHIC AREA: Hartford Basin, Connecticut

MAPS: Geol: depth to basement [1:24,000]

184 A : BROWN, L., KANTOR, L.K., AND GUNTER, K.D., 1977, Preliminary report on paleomagnetic studies, Connecticut Rift Valley: American Geophysical Union, Transactions, v. 58, p. 376.

SUMMARY: Samples from the Deerfield diabase, Holyoke basalt, and their associated sediments (Turners Falls s.s., Sugarloaf ark.) indicate that pole positions for sediments do not correspond to overlying and underlying igneous rocks. Correlations of igneous rocks between the basins is possible, but magnetic acquisition for hematite in the red-beds needs to be further understood.

KEYWORDS: geophysics
paleomagnetism

GEOGRAPHIC AREA: Hartford Basin, Deerfield Basin, Massachusetts

185 A : BROWN, LAURIE, AND KELLY, WILLIAM M., 1979, Paleomagnetism, magnetic character and oxide mineralogy of the Lower Jurassic Deerfield diabase, Central Massachusetts: Geological Society of America, Abstracts with Programs, v. 11, p. 5.

SUMMARY: The calculated pole position (53°N, 89.1°E) correlates with the Holyoke basalt (S. Mass.) and the Talcott basalt (Conn.). Above the Curie point, titano-magnetite oxidizes to magnetite and ilmenite and then to hematite plus rutile. At lower temperatures, the alteration results in hematite, maghemite, and sphene. (The Deerfield samples were from 12 sites; I=13.6°, D=11°.)

KEYWORDS: geophysics
paleomagnetism
mineralogy
basalt

GEOGRAPHIC AREA: Deerfield Basin, Massachusetts

186 A : BROWN, L.L., 1979, Magnetic observations of the red beds of the northern Connecticut Valley - DRM or CRM?: American Geophysical Union, Transactions, v. 60, p. 815.

SUMMARY: Magnetic remanence of the Turners Falls sandstone and the Sugarloaf arkose is CRM. Sediments both above and below the Deerfield diabase yield different directions than the diabase itself. Little, if any, detrital hematite is thought to be present. Methods and magnetization values are provided.

KEYWORDS: geophysics
paleomagnetism

GEOGRAPHIC AREA: Hartford Basin, Connecticut

187 T : BROWN, R.H., 1974, The Argana Basin: a Triassic model for early rifting: M.S. Thesis, Columbia University, 54 p.

KEYWORDS: tectonics

GEOGRAPHIC AREA: Morocco

188 A : BROWN, ROY H., 1974, The Argana Basin of Morocco: A basin analysis of a Triassic rift: Geological Society of America, Abstracts with Programs, v. 6, no. 1, p. 7-8.

SUMMARY: The depositional and igneous history of the basin is outlined beginning with basal conglomerates derived from the east and grading upward into sands and muds. Igneous extrusives caused local ponding and development of lacustrine carbonate beds. Later marine transgression developed a cover of carbonates and evaporites.

KEYWORDS: general geology
sedimentation

GEOGRAPHIC AREA: Morocco

189 P : BROWN, ROY H., 1980, Triassic rocks of Argana Valley, Southern Morocco, and their regional structural implications: American Association of Petroleum Geologists, Bulletin, v. 64, p. 988-1003.

SUMMARY: The clastic deposits of the basin system comprise a lower, coarse fluvial; a central, lacustrine - deltaic; and an upper, mud plain - salt flat facies. The tectonic development of the graben system and its integral west-trending fault blocks is outined.

KEYWORDS: sedimentation
general geology
structure
tectonics

GEOGRAPHIC AREA: Morocco

MAPS: Geol: SW Morocco; Argana Valley
Section: Argana Valley stratigraphy
Misc: cross-stratification azimuths

190 PM: BROWN, WILLIAM RANDALL, 1969, Geology of the Dillwyn Quadrangle, Virginia: Virginia Division of Mineral Resources, Report of Investigations 10, 77 p.

SUMMARY: The northern end of the Farmville Basin, bounded on the west by a normal border fault, consists of gneissic and quartzitic conglomerate adjacent to the fault, with clast size decreasing eastward. Conglomeratic arkose and pale-green feldspathic graywacke occur toward the east, the latter containing quartz, epidote, chlorite, and plagioclase. Diabase dikes in the area trend N 20°W.

KEYWORDS: general geology

GEOGRAPHIC AREA: Farmville Basin, Virginia, Cumberland County, Gold Hill Quad.

MAPS: Geol: [1:62,500]

DATA: Photos: conglomerate

191 T : BROWNSON, A.R., 1915, Stratigraphy of the Triassic in eastern North Carolina: M.S. Thesis, University of North Carolina.

KEYWORDS: general geology

GEOGRAPHIC AREA: Deep River Basin, North Carolina

192 P : BRUNET, W.M., 1980, Minerals of the trap rock ridges of the Connecticut Valley, with emphasis on Reed's Gap quarry near Durham: Rocks and Minerals, v. 55, p. 232-235.

SUMMARY: Zeolite minerals found at several Hartford Basin basalt quarries are described. Photos are provided. Locations of quarries are included.

KEYWORDS: basalt
zeolites
mineralogy

GEOGRAPHIC AREA: Hartford Basin, Connecticut

193 P : BRUSH, GRACE S., 1966, The absence of pollen and spores in some Triassic sediments: Journal of Paleontology, v. 40, p. 1241-1243.

SUMMARY: Samples of Lockatong, Brunswick, and Stockton Formations yielded no fossil pollen; the Cumnock Formation of the Richmond Basin yielded pollen. Absence of pollen from 100 samples from U.S. basins and Eastern Canada is attributed to oxidation factors during sedimentation.

KEYWORDS: paleontology

GEOGRAPHIC AREA: Regional

194 P : BRYAN, W.B., FREY, F.A., AND THOMPSON, G., 1977, Oldest Atlantic seafloor: Contributions to Mineralogy and Petrology, v. 64, p. 223-242.

SUMMARY: Deep Sea Drilling Project Leg 11 basalts are shown to be geochemically similar to Mid-Atlantic Ridge basalts. Age of the basalts is estimated at 150 million years. High K and Sr87/Sr86 values may reflect crustal contamination of the magmas. Deep mantle "plumes" may have led to the observed LIL-element enrichment and the incipient rifting.

KEYWORDS: geochemistry
basalt

GEOGRAPHIC AREA: Regional

MAPS: Misc: site locations

DATA: Chem. (type of data): augite, plagioclase, olivine, trace elements, REE's
Photos: olivine spinifex

195 A : BRYAN, W.B., THOMPSON, G., AND FREY, F.A., 1975, Mesozoic basalts associated with early stages of Atlantic rifting: Geological Society of America, Abstracts with Programs, v. 7, p. 33.

SUMMARY: Western Atlantic basalts from DSDP sites 100 and 105 are pre-Oxfordian and resemble many modern Mid-Atlantic Ridge basalts. Compared to these and the more evolved seafloor basalts, the Hartford and Newark basin flows are less calcic and more potassic. Such composition may reflect oceanic basalt fractionation and crustal contamination implying a long residence time in the lower crust.

KEYWORDS: geochemistry
petrology
basalt

GEOGRAPHIC AREA: Regional

196 P : BRYANT, WILLIAM L., 1934, New fishes from the Triassic of Pennsylvania: American Philosophical Society, Proceedings, v. 73, no. 5, p. 319-326.

SUMMARY: Fossil fish and sharks from black shale of the Lockatong Formation are described in detail. Plants and dinosaur tracks also occur at this locality, about one mile south of North Wales along the Philadelphia-Reading Railroad.

KEYWORDS: paleontology

GEOGRAPHIC AREA: Newark Basin, Pennsylvania, Norristown County

DATA: Photos: fish and shark fossils

197 T : BRYSON, H.J., 1924, Stratigraphy of Deep River coals: M.S. Thesis, University of North Carolina.

KEYWORDS: general geology
economic geology
coal

GEOGRAPHIC AREA: Deep River Basin, North Carolina

198 F : BUCHER, WALTER H., AND KERR, PAUL F., 1948, Excursion to the First Watchung basalt at Paterson, New Jersey: Geological Society of America, 61st Annual Meeting, Guidebook, p. 109-119.

SUMMARY: Discussions of the basalt flow include structure (columnar, vesicular zones, pillows) and mineralogy (anhydrite, glauberite, zeolites).

KEYWORDS: structure
basalt
mineralogy
zeolites

GEOGRAPHIC AREA: Newark Basin, New Jersey

MAPS: Misc: sketch of Prospect Park Quarry

199 A : BURGER, H.R., AND ATAMAN, PERI, 1984, Thicknesses of Mesozoic sedimentary rocks, Hartford Basin, Massachusetts, as interpreted from Bonquer gravity: Geological Society of America, Abstracts with Programs, v. 16, p. 7.

SUMMARY: It is suggested that the Paleozoic basement surface dip southward at 15 degrees resulting in a change of basin depth of from 1 km (north) to 7.5 km just south of the Conn.-Mass. line.

KEYWORDS: geophysics
gravity

GEOGRAPHIC AREA: Hartford Basin, Massachusetts

200 A : BURGER, H.R., III, BARLOW, L.K., NEGRINI, R.M., AND UPTON, E.G., 1980, A gravity investigation of the Connecticut Valley, Massachusetts: Geological Society of America, Abstracts with Programs, v. 12, p. 395.

SUMMARY: Preliminary results indicate that the western margin of the Hartford Basin is a fault which dips eastward at 40 degrees, and that the New Haven Formation is at least 4 km thick just 4 km inside the margin.

KEYWORDS: geophysics
gravity

GEOGRAPHIC AREA: Hartford Basin, Massachusetts

201 PM: BURGER, HENRY ROBERT, III, 1967, Stratigraphy and structure of the western part of the New Haven Quadrangle, Connecticut: Connecticut Geological and Natural History Survey, Report of Investigations no. 4, 15 p.

SUMMARY: Emphasis is placed upon pre-Triassic metamorphic rocks on the west side of the basin. The New Haven arkose contact with these rocks is mapped, but the formation is not discussed.

KEYWORDS: general geology

GEOGRAPHIC AREA: Hartford Basin, Connecticut, New Haven

MAPS: Geol: [1:57,600]

202 P : BURK, C.A., AND DRAKE, C.L., eds., 1974, The geology of continental margins: Springer-Verlag, New York, 1009 p.

SUMMARY: This volume contains papers concerning the general geology and mineral resources of continental margins. Discussion of the Early Mesozoic offshore geology of the Atlantic margin is included.

KEYWORDS: buried basins

GEOGRAPHIC AREA: Regional

203 P : BURKE, K.B.S., HAMILTON, J.B., AND GUPTA, V.K., 1973, The Caraquet Dike: its tectonic significance: Canadian Journal of Earth Sciences, v. 10, p. 1760-1768.

SUMMARY: The Caraquet Dike has been mapped on the ground between Wayerton and Caraquet, New Brunswick; and it has been extended an additional 250 miles to the southwest, well into Maine, by aeromagnetics. Origin of the diabase dike is attributed to tensile stress during rifting, and faults offsetting the dike may represent rotation of pole positions.

KEYWORDS: tectonics
geophysics
aeromagnetism
magnetism
general geology

GEOGRAPHIC AREA: New Brunswick, Canada

MAPS: Geophys: magnetic profile locations
Misc: regional setting

204 P : BURKE, KEVIN, 1976, Development of graben associated with the initial ruptures of the Atlantic Ocean: Tectonophysics, v. 36, p. 93-112.

SUMMARY: This is a generally descriptive account of the entire circum-Atlantic rift system. Processes of rifting and timing of basin formation with marine transgression are outlined.

KEYWORDS: tectonics

GEOGRAPHIC AREA: Regional

205 P : BURT, E.R., CARPENTER, P.A., III, MCDANIEL, R.D., AND WILSON, W.F., 1978, Diabase dikes of the eastern Piedmont of North Carolina: North Carolina Geological Survey Information Circular 23, 12 p.

SUMMARY: Geologic mapping and aeromagnetics indicate two major sets: N 10°-30°W-trending and north-trending dikes with a minor NE-trending set. The dikes cut all other structures and reflect deep-seated stresses. Different dike sets may be attributed to age, chemistry, or stress system differences. Magnetic variability of the dikes may be attributed to varying magma chemistry or host-rock lithology.

KEYWORDS: general geology
diabase
structure

GEOGRAPHIC AREA: North Carolina

MAPS: Geol: (bar scale) dikes

206 P : BUTLER, B.S., AND BURBANK, W.S., 1929, The copper deposits of Michigan: U.S. Geological Survey Professional Paper 144, 238 p.

SUMMARY: A short discussion of some native copper occurrences in the Mesozoic basalt flows in the Hartford basin of Connecticut is given.

KEYWORDS: basalt
mineralogy
economic geology
copper

GEOGRAPHIC AREA: Hartford Basin, Connecticut

207 P : BUTLER, J.R., AND DUNN, D.E., 1968, Geology of the Sauratown Mountains anticlinorium and vicinity, North Carolina: Southeastern Geology, Special Publication 1, p. 19-47.

SUMMARY: An exposure is described (stop 3A) of a silicified mylonite zone of probable Mesozoic age (Stony Ridge Fault), cutting obliquely across the Sauratown Mtn. anticlinorium. The authors note that Triassic conglomerates near the fault contain weathered cobbles of mylonite, implying the mylonite zones are older faults locally rejuvenated during the Triassic.

KEYWORDS: faults
tectonics

GEOGRAPHIC AREA: Dan River Basin, North Carolina

208 P : BUTLER, JAMES ROBERT, AND HOWELL, D.E., 1976, Geology of the Taxahow Quadrangle, Lancaster County, South Carolina: South Carolina Division of Geology, Geologic Notes, v. 20, p. 133-149.

SUMMARY: This quadrangle, which is just SW of the southern-most exposed basin, contains over 30 diabase dikes, one of which is 340-m thick. The position of several of the dikes is shown, but no detailed discussion is presented. Mineralogically, the dikes consist of plagioclase, augite, olivine (3-20%), and opaques.

KEYWORDS: general geology
diabase

GEOGRAPHIC AREA: South Carolina

MAPS: Geol: sketches

209 A : BUTLER, S.B., 1944, Fluorescent palisades hyalite: Rocks and Minerals, v. 19, p. 349.

SUMMARY: Hyalite, fluorescent "vivid green," forms crusts associated with carnotite in a fine-grained arkose. The locality is one mile north of the George Washington Bridge.

KEYWORDS: mineralogy
economic geology
uranium

GEOGRAPHIC AREA: Newark Basin, New York, Bergen Co.

210 T : BYRNES, J.B., 1972, The bedrock geology of Dinosaur State Park, Rocky Hill, Connecticut: M.S. Thesis, University of Connecticut, 244 p.

KEYWORDS: general geology

GEOGRAPHIC AREA: Hartford Basin, Connecticut

211 A : BYRNES, J.B., AND HORNE, J.C., 1974, Alluvial fan to marine facies of Connecticut Valley Triassic: American Association of Petroleum Geologists, Annual Meeting, Abstracts, v. 1, p. 15.

KEYWORDS: sedimentation

GEOGRAPHIC AREA: Hartford Basin, Connecticut

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212 T : CAAMANO, EDWARD, 1981, A geochemical investigation of the northern portion of the Palisades diabase intrusion and New City Park dike, Rockland County, New York: M.S. Thesis, Rutgers University, 66 p.

KEYWORDS: geochemistry
petrology
diabase

GEOGRAPHIC AREA: Newark Basin, New York

213 P : CADY, R.C., 1938, Ground-water resources of Northern Virginia: Virginia Geological Survey, Bulletin 50, 200 p.

SUMMARY: The ground-water properties of the Triassic sediments and diabase are investigated. Several well logs are presented that transect the sediments. Water hardness of diabase is shown to be 350 ppm, and that for the sediments is about 200 ppm.

KEYWORDS: hydrology

GEOGRAPHIC AREA: Culpeper Basin, Virginia, Loudoun Co., Prince William Co.

MAPS: Section: well logs

214 A : CALLAHAN, JOHN E., 1976, Are there Witwatersrand types of gold deposits in the Triassic basins of the Southeast?: Geological Society of America, Abstracts with Programs, v. 8, p. 144-145.

SUMMARY: Potential for gold deposits within the Triassic sediments is suggested by the presence of numerous gold deposits in the adjacent Piedmont - the sediment source. Basin sediments are shown to be unmetamorphosed analogues of the Witwatersrand system.

KEYWORDS: economic geology
gold

GEOGRAPHIC AREA: Deep River Basin, North Carolina

215 A : CALLAHAN, JOHN E., 1979, An exploration for Triassic age gold and uranium occurrences in the Northern Wadesboro and Southern Sanford Basins: Geological Society of America, Abstracts with Programs, v. 11, p. 173.

SUMMARY: Stream sediment samples yielded uranium values of (1-1.6 ppm), with thorium present (112-853 ppm) in 5 of 18 samples. One anomalous site near Covenington yielded 8.5 ppm U and 5 ppm Th. Gold values as high as .83 ppm (stream sed.) and 7.2 ppm (panned conc.) were obtained with a pattern of high values near Mangum, N.C. The source of the sediments, may, however, be from rocks younger than the Triassic.

KEYWORDS: economic geology
gold

GEOGRAPHIC AREA: Wadesboro Basin, Sanford Basin, North Carolina

216 P : CALLAHAN, W.H., AND NEWHOUSE, W.H., 1929, A study of the magnetite ore body at Cornwall, Pennsylvania: Economic Geology, v. 24, p. 403-411.

SUMMARY: The magnetite deposit is considered a replacement of shaley limestone by fluids from the adjacent diabase. Ore-body mineral zonation is outlined and includes: tremolite, talc, pyrite, chalcopyrite, and brown magnetite increase with distance from the sharp, ore-diabase contact, while other silicates (green biotite and augite) are more abundant towards the diabase. Apatite is a conspicuous component of the Footwall diabase.

KEYWORDS: economic geology
iron

GEOGRAPHIC AREA: Gettysburg Basin, Pennsyvania, Lebanon Co., Lebanon Quad.

217 P : CAMPBELL, F.H., III, AND COLE, J.M., JR., 1961, A re-evaluation of a diabase dike near Greenville, Augusta County, Virginia: The Compass, v. 38, p. 69-77.

SUMMARY: A diabase dike in the Appalachian Valley Province is remapped by ground magnetics. It is shown to follow pre-existing joint patterns in the intruded sedimentary rocks.

KEYWORDS: general geology
geophysics
magnetism

GEOGRAPHIC AREA: Virginia, Augusta Co.

MAPS: Geol: dike location
Geophys: magnetic profiles

218 PM: CAMPBELL, M.R., AND KIMBALL, K.K., 1922, Sketch map and description of a previously unmapped part of the Triassic coal fields of North Carolina: U.S. Geological Survey Open-File Report 514, 4 p.

SUMMARY: A portion of northern Richmond County is mapped and the eastern Piedmont contact shown. The geology of the area, only several square miles, is discussed.

KEYWORDS: general geology
coal

GEOGRAPHIC AREA: Deep River Basin, North Carolina, Richmond Co.

MAPS: Geol: [1:63,360]

219 PM: CAMPBELL, MARIUS R., AND KIMBALL, KENT W., 1923, The Deep River Coal Field of North Carolina: North Carolina Geological and Economic Survey, Bulletin no. 33, 95 p.

SUMMARY: The geologic formations (Pekin, Cumnock, and Sanford), the structure, and the character of the coal beds are discussed. The Cumnock coal seam and mine are described. The coal is considered of poor quality, but continued exploration is urged.

KEYWORDS: economic geology
coal
structure
general geology

GEOGRAPHIC AREA: Deep River Basin, North Carolina

MAPS: Geol: [1:63,360]
Section: coal bed sections

DATA: Photos: Cumnock coal bed and mine, Jonesboro fault

220 T : CAREY, P.J., 1974, Sedimentology of inferred mudflat and lake deposits, East Berlin Formation, Holyoke, Massachusetts: M.S. Thesis, University of Massachusetts, 95 p.

KEYWORDS: sedimentation

GEOGRAPHIC AREA: Hartford Basin, Massachusetts

221 P : CAREY, S. WARREN, ED., 1958, Dolerite: a symposium: Tasmania University, Department of Geology, 274 p.

SUMMARY: The 20 papers presented in this volume consider dolerite intrusions in general and include topics relating to the differentiation, petrography, structure, and geophysical exploration of diabase, primarily in Tasmania but also in South Africa and the Eastern U.S. basins.

KEYWORDS: diabase

GEOGRAPHIC AREA: Regional

222 PM: CARLSTON, CHARLES W., 1946, Appalachian drainage and the highland border sediments of the Newark series: Geological Society of America, Bulletin, v. 57, p. 997-1032.

SUMMARY: A detailed petrographic and regional study of the border fanglomerates in the Newark Basin show no correlation with present drainage patterns. Streams that deposited the conglomerates were short and steep, and their sediment composition reflects the rock types exposed in the adjacent highlands.

KEYWORDS: sedimentation

GEOGRAPHIC AREA: Newark Basin, New Jersey and Pennsylvania

MAPS: Geol: [1:506,880]

223 P : CARMICHAEL, C.M., AND PALMER, H.C., 1968, Paleomagnetism of the Late Triassic, North Mountain basalt of Nova Scotia: Journal of Geophysical Research, v. 73, no. 8, p. 2811-2822.

SUMMARY: K-Ar calculations indicate a 200±10 m.y. age for the basalt which yields bimodal NRM directions that correlate stratigraphically indicating two periods of extrusions separated by a period of non-extrusion. The pole position of 104°E, 73°N is closer to the present pole position than to that in U.S. Triassic rocks.

KEYWORDS: geophysics
paleomagnetism
radiometric age
K/Ar dating

GEOGRAPHIC AREA: Maritime, Canada

MAPS: Misc: sample locations

DATA: Plots: pole positions

224 P : CAROZZI, ALBERT V., 1964, Complex ooids from Triassic lake deposit, Virginia: American Journal of Science, v. 262, no. 2, p. 231-241.

SUMMARY: Complex and reworked ooids from a lacustrine limestone of the Manassas Formation are described. The location is on St. Rt. 3, 3.5 miles east of Culpeper. This rare occurrence of abundant complex ooids is typical of local reworking within a shallow water environment.

KEYWORDS: sedimentation

GEOGRAPHIC AREA: Culpeper Basin, Virginia, Culpeper Co., Culpeper East Quad.

DATA: Photos: ooids (3 plates)

225 M : CARPENTER, P. ALBERT, III, 1982, Geologic map of Region G, North Carolina: North Carolina Geological Survey Section, Regional Geology Series 2.

KEYWORDS: general geology

GEOGRAPHIC AREA: Dan River Basin, North Carolina, Rockingham County

MAPS: Geol: [1:130,000]

226 P : CARTER, S.R., EVENSEN, N.M., HAMILTON, P.J., AND O'NIONS, R.K., 1979, Basalt magma sources during the opening of the North Atlantic: Nature, v. 281, p. 28-30.

SUMMARY: Tertiary volcanics in Greenland and Scotland display positive delta-Nd and negative delta-Sr values indicating involvement of a depleted mantle and crustal contamination. Isotopic character of the basalts is similar to present-day sub-oceanic mantle.

KEYWORDS: basalt
geochemistry
Nd/Sr isotopes
Rb/Sr isotopes

GEOGRAPHIC AREA: North Atlantic

227 T : CHALCRAFT, RICHARD G., 1972, A petrographic study of Mesozoic dolerites from eastern North America: Ph.D. Thesis, University of North Carolina.

KEYWORDS: diabase
mineralogy
petrology

GEOGRAPHIC AREA: Regional

228 P : CHALCRAFT, RICHARD G., 1976, The petrology of Mesozoic dolerite dikes in South Carolina: Geologic Notes, v. 20, no. 2, p. 52-61.

SUMMARY: Chemical and petrographic analysis of 16 dikes indicates that they are olivine rich (MgO = 10.71%), possibly attributed to deep-level fractionation intersected by the present erosional surface or to a distinctly different magma parent. However, REE data indicate that rapid magma ascension and lack of contamination or differentiation (Ragland, et al., 1971) resulted in the S. Carolina olivine-normative suite.

KEYWORDS: diabase
geochemistry
petrology

GEOGRAPHIC AREA: South Carolina

DATA: Chem. (type of data): major oxide

229 P : CHANDLER, WILLIAM E., JR., 1978, Graben mechanics at the junction of the Hartford and Deerfield Basins of the Connecticut Valley, Massachusetts: University of Massachusetts, Department of Geology and Geography, Contribution No. 33, 151 p.

SUMMARY: A detailed analysis of the Amherst-Belchertown region is presented. Conclusions reached include: two sets of normal faults, a pre-Mesozoic controlled N 30°E set and a Mesozoic N 80°E set; no evidence for strike-slip motion as suggested by Bain (1941); and the Amherst block, a structural high due to the Belchertown complex, separates the two basins.

KEYWORDS: faults
structure

GEOGRAPHIC AREA: Hartford Basin, Deerfield Basin, Massachusetts

MAPS: Geol: plots of structural data
Misc: block diagrams

230 T : CHANG, C.C., 1968, A gravity study of the Triassic Valley in southern Connecticut: M.S. Thesis, Wesleyan University, 108 p.

KEYWORDS: geophysics
gravity

GEOGRAPHIC AREA: Hartford Basin, Connecticut

231 P : CHAPIN, J.H., 1887, The Hanging Hills: Meriden Science Association Proceedings and Transactions, v. 2, p. 23-28.

KEYWORDS: basalt
surficial geology

GEOGRAPHIC AREA: Hartford Basin, Connecticut

232 P : CHAPIN, J.H., 1889, The trap ridges of Meriden again: Meriden Science Association Proceedings and Transactions, v. 3, p. 35-36.

KEYWORDS: basalt
surficial geology

GEOGRAPHIC AREA: Hartford Basin, Connecticut

233 P : CHAPIN, J.H., 1891, Some geological features of Meriden: Meriden Science Association Proceedings and Transactions, v. 4, p. 58-61.

KEYWORDS: general geology
basalt
surficial geology

GEOGRAPHIC AREA: Hartford Basin, Connecticut

234 P : CHAPMAN, RANDOLPH W., 1950, Contact-metamorphic effects of Triassic diabase at Safe Harbor, Pennsylvania: Geological Society of America, Bulletin, v. 61, p. 191-220.

SUMMARY: A detailed study of the pyroxene hornfels facies zones in a schist and dolomite intruded by diabase is presented. The mineralogy and petrography of the reactions zones are discussed. Thermal effects characterize inner zones, and hydrothermal effects characterize outer zones of alteration. Equilibrium reactions are outlined.

KEYWORDS: metamorphism
hornfels
mineralogy

GEOGRAPHIC AREA: Lancaster County, Pennsylvania

MAPS: Misc: outcrop map [1:1200]

DATA: Photos: outcrops, photomicrographs

235 P : CHAPMAN, RANDOLPH W., 1965, Stratigraphy and petrology of the Hampden basalt in Central Connecticut: Connecticut Geological and Natural History Survey, Report of Investigations no. 3, 38 p.

SUMMARY: Eight individual flow units of similar petrography and chemistry comprise the olivine basalt flows. Pipe vesicles and amygdules indicate that flow was northeasterly. The Hampden basalt may be distinguished from the Talcott and Holyoke units on physical character. Contact metamorphic effects are also discussed.

KEYWORDS: basalt
petrology
general geology

GEOGRAPHIC AREA: Hartford Basin, Connecticut, Middlesex and Hartford

DATA: Photos: photomicrographs, outcrops

236 T : CHARLES, WILLIAM C., 1960, The east border of the Durham Triassic Basin of North Carolina: M.S. Thesis, University of North Carolina, 47 p.

KEYWORDS: structure
faults

GEOGRAPHIC AREA: Durham Basin, North Carolina

237 PM: CHOWNS, T.M., AND WILLIAMS, C.T., 1983, Pre-cretaceous rocks beneath the Georgia Coastal Plain - regional implications: in, Gohn, G.S., ed., U.S. Geological Survey Professional Paper 1313, p. L1-L42.

SUMMARY: Studies of the subsurface units indicate a Triassic basin, 3500 meters thick, occupying a complex graben. Diabase dikes, basalt flows, zeolite hornfels, and red beds occur. Well logs, the petrography of the sediments, the chemistry of the basalts and diabase, and radiometric ages are presented.

KEYWORDS: buried basins

GEOGRAPHIC AREA: Georgia

MAPS: Geol: [1:1,968,925]
Section: well logs, cross section (geol) from Warrenton, Ga., to Okeechobee, Fla.

DATA: Chem. (type of data): diabase
Plots: diabase chemistry

238 A : CLEMENT, STEPHEN C., 1969, Petrogenesis of an amygdaloidal diabase dike, Rawlings Quarry, Virginia: Virginia Journal of Science, v. 20, p. 125.

SUMMARY: The petrography of the dike cross section is presented. A labradorite-rich chill zone, characterized by crystal parallelism by flowage, grades into an amygdule-rich, andesine center. Similarly chrysolite in margins grades to titaniferous augite in centers.

KEYWORDS: diabase
petrology
mineralogy

GEOGRAPHIC AREA: Virginia

239 P : CLEMMENSEN, LARS B., 1980, Triassic rift sedimentation and paleogeography of Central East Greenland: Geological Survey of Greenland, Bulletin no. 136, 72 p.

SUMMARY: The sedimentary facies within a N-S trending, fault-bounded rift valley are discussed. Sediment-hosted copper-lead-zinc occurrences are noted. Basal units are conglomeratic fan deposits which grade upward into flood plain, playa, and lacustrine deposits.

KEYWORDS: sedimentation
economic geology
copper
lead
zinc

GEOGRAPHIC AREA: Greenland

MAPS: Section: many strat. columns

DATA: Photos: outcrops (sedimentary structures)

240 P : CLOOS, ERNST, AND PETTIJOHN, F.J., 1973, Southern border of the Triassic Basin, west of York, Pennsylvania: fault or overlap?: Geological Society of America, Bulletin, v. 84, p. 523-536.

SUMMARY: Examination of drill core from just inside the eastern margin of the basin at Thomasville indicates the presence of a fault as opposed to simple overlap. Triassic units were encountered to a depth of 800 feet as opposed to the 100 feet expected from dips and contacts just to the east, if an overlap is supposed.

KEYWORDS: structure
faults

GEOGRAPHIC AREA: Gettysburg Basin, Pennsylvania, York Co., West York Quad.

MAPS: Section: core logs

241 P : COLBERT, EDWIN H., 1965, A phytosaur from North Bergen, New Jersey: American Museum Novitates, no. 2230, 25 p.

SUMMARY: A quarry at Granton, a mile west of the Hudson, has yielded fish, tetrapods, and a phytosaur, outlined in the study. The occurrence is in the Lockatong Formation. Several pages are also devoted to a discussion of other phytosaurs from the Triassic Basins.

KEYWORDS: paleontology

GEOGRAPHIC AREA: Newark Basin, New Jersey

242 P : COLBERT, EDWIN H., AND GREGORY, JOSEPH T., 1957, Correlation of continental Triassic sediments by vertebrate fossils: Geological Society of America, Bulletin, v. 68, p. 1456-1467.

SUMMARY: A review of the faunal composition of the Newark Group as well as the Dockum Group, Chinle Fm., and Chugwater Fm. is presented.

KEYWORDS: paleontology

GEOGRAPHIC AREA: Regional

243 P : COLBERT, EDWIN HARRIS, 1963, Fossils of the Connecticut Valley - the age of dinosaurs begins: Connecticut Geological and Natural History Survey, Bulletin no. 96, 31 p.

SUMMARY: An outline of the paleontology of the Hartford and Deerfield basins is presented and includes the historic discoveries, plant, fish, and reptile fossils. Numerous sketches are included.

KEYWORDS: paleontology

GEOGRAPHIC AREA: Hartford Basin, Deerfield Basin, Connecticut, Massachusetts

244 PM: COLLINS, GLENDON E., 1954, The bedrock geology of the Ellington Quadrangle: Connecticut Geological and Natural History Survey, Quadrangle Report No. 4, 44 p.

SUMMARY: The Triassic Portland Arkose occupies the west half of the quadrangle and consists of red, micaceous, arkose, sandstone and conglomerate, which contains pebbles derived from the crystallines to the east. A steeply dipping normal fault forms the eastern border of the basin, and outcrops are rare. The petrography of a diabase dike within the crystalline rocks is discussed.

KEYWORDS: surficial geology
mineralogy
petrology
diabase

GEOGRAPHIC AREA: Hartford Basin, Connecticut, Tollan Co., Ellington Quad.

MAPS: Geol: [1:31,680]
Misc: depth to bedrock

245 M : COLTON, ROGER B., 1965, Geology of the Broad Brook Quadrangle: U.S. Geological Survey, Geologic Quadrangle Map GQ-434.

KEYWORDS: general geology

GEOGRAPHIC AREA: Hartford Basin, Connecticut, Hartford Co., Tolland Co.

MAPS: Geol: [1:24,000]

246 M : COLTON, ROGER B., 1965, Geology of the Manchester Quadrangle: U.S. Geological Survey, Geologic Quadrangle Map GQ-433.

KEYWORDS: general geology

GEOGRAPHIC AREA: Hartford Basin, Connecticut, Hartford Co., Tolland Co.

MAPS: Geol: [1:24,000]

247 M : COLTON, ROGER B., AND HARTSHORN, JOSEPH H., 1966, Bedrock geology of the West Springfield Quadrangle: U.S. Geological Survey, Geologic Quadrangle Map GQ-537.

KEYWORDS: general geology

GEOGRAPHIC AREA: Hartford Basin, Connecticut, Massachusetts, Hartford Co. (Conn.), Hampden Co. (Mass.)

MAPS: Geol: [1:24,000]

248 F : CONLEY, J.F., AND JOHNSON, S.S., 1975, Road log of the geology from Madison to Cumberland Counties in the Piedmont, Central Virginia: Virginia Minerals, v. 21, no. 4, p. 29-38.

SUMMARY: This road log includes stops in Triassic conglomerate and volcanic agglomerate along State Road 721 and at the intersection of State Roads 720 and 686. Mafic lava flows (basalt) occur in a quarry SE of the intersection of Roads 522 and 647.

KEYWORDS: general geology

GEOGRAPHIC AREA: Culpeper Basin, Virginia, Culpeper County

MAPS: Geol: sketch

249 PM: CONLEY, JAMES F., 1962, Geology and mineral resources of Moore County, North Carolina: North Carolina Division of Mineral Resources, Bulletin 76, 40 p.

SUMMARY: The basal Pekin Formation, the Cumnock Formation, and the Sanford Formation are described and mapped. Depositional environments and structure are outlined. Three ages of faults are present.

KEYWORDS: general geology
structure

GEOGRAPHIC AREA: Sanford Basin, North Carolina, Moore Co.

MAPS: Geol: [1:62,500]
Section: geologic cross sections

250 P : COOK, GEORGE H., 1868, Geology of New Jersey: New Jersey Geological Survey, 900 p.

SUMMARY: The age of the Triassic rocks, discussions of the basalt mountains and sedimentary units, and copper and barite occurrences are presented. A section on historical geology raises questions on the origin of iron in the sediments and the relation of the trap-rocks. (This a is particularly good reference dealing with early views and descriptions of the Triassic rocks and the copper ores.)

KEYWORDS: general geology
basalt
economic geology
copper
barite

GEOGRAPHIC AREA: Newark Basin, New Jersey

251 P : COOK, GEORGE H., 1882, Red sandstone district: New Jersey Geological Survey, Annual Report of the State Geologist, 1882, p. 11-66.

SUMMARY: A review is given of the research developments on the Newark Basin. The rocks are described along with a table of over 100 strike and dip measurements. Regional tilting of beds is attributed to subsidence. Twenty pages are devoted to detailed description of the trap-rock mountains.

KEYWORDS: general geology

GEOGRAPHIC AREA: Newark Basin, New Jersey

252 P : COOK, GEORGE H., 1883, Miscellaneous - copper ores: New Jersey Geological Survey, Annual Report of the State Geologist, 1883, p. 164-166.

SUMMARY: A description is given of the sandstone-hosted copper deposits adjacent to the Watchung basalts. Beds of ore at the Bridgewater mine in Somerville are 2.5-feet thick. Ore occurs above and below the trap-rock, and an obvious exploration procedure is suggested.

KEYWORDS: economic geology
copper

GEOGRAPHIC AREA: Newark Basin, New Jersey

253 P : COOK, GEORGE H., 1884, Triassic rocks - columnar trap-rocks of Orange Mountain: Geological Survey of New Jersey, Annual Report of the State Geologist, 1884, p. 23-28.

SUMMARY: A detailed description of the basaltic columns on Orange Mountain is given, and their origin is attributed to shrinking during cooling.

KEYWORDS: general geology
basalt
structure

GEOGRAPHIC AREA: Newark Basin, New Jersey, Essex Co.

254 P : COOK, M.D., 1971, Exploring the roadcut, Route 66, Connecticut: Rocks and Minerals, v. 46, p. 189.

KEYWORDS: basalt
mineralogy

GEOGRAPHIC AREA: Hartford Basin, Connecticut

255 P : COOK, T.A., 1933, Geology of Connecticut: Hartford, Connecticut, The Bond Press, 112 p.

KEYWORDS: general geology

GEOGRAPHIC AREA: Hartford Basin, Connecticut

256 T : COPELAND, R.E., 1974, The geology of the northern portion of the Wadesboro Triassic Basin: M.S. Thesis, University of Florida.

KEYWORDS: general geology

GEOGRAPHIC AREA: Wadesboro Basin, North Carolina

257 T : CORNET, BRUCE, 1977, The palynostratigraphy and age of the Newark Supergroup: Ph.D. Thesis, Pennsylvania State University, 506 p.

SUMMARY: The classic palynological study to date which clearly establishes a late Triassic - early Jurassic age for Newark Supergroup strata in Eastern North America.

KEYWORDS: paleontology
general geology

GEOGRAPHIC AREA: Regional

258 P : CORNET, BRUCE, AND TRAVERSE, ALFRED, 1975, Palynological contributions to the chronology and stratigraphy of the Hartford basin in Connecticut and Massachusetts: Geoscience and Man, v. 11, p. 1-33.

SUMMARY: Twenty-seven genera and 42 species of palynofloras are described and indicate that the Triassic-Jurassic boundary is within the basin. The Shuttle Meadow formation is shown to be of basal Liassic age, and the Jurassic boundary may lie just below this formation. The Corollina-based floras indicate a warm, seasonally wet and dry climate.

KEYWORDS: paleontology

GEOGRAPHIC AREA: Hartford Basin, Connecticut and Massachusetts

259 P : CORNET, BRUCE, TRAVERSE, ALFRED, AND MCDONALD, N.G., 1973, Fossil spores, pollen, and fishes from Connecticut indicate Early Jurassic age for part of the Newark Group: Science, v. 182, p. 1243-1247.

SUMMARY: Coniferous pollen of the Circulina-Classopollis type and fossil fish semionotids indicate an Upper Triassic age for the Cumnock (N.C.), Vinita (Va.), and New Oxford (Pa.) Formations, and a Rhaeto-Liassic age for the Brunswick (N.J.), Portland (Conn., Mass.), and Shuttle Meadow (Conn.) Formations.

KEYWORDS: paleontology

GEOGRAPHIC AREA: Regional

DATA: Photos: fish, spores, pollen

260 P : CORNWALL, H.R., 1945, The Arlington Copper Mine, North Arlington, New Jersey: U.S. Geological Survey Strategic Minerals Investigations Report [unnumbered, 1943], 6 p.

SUMMARY: Copper mineralization of the Arlington Mine (also Schyler Mi.e) is stratabound in an arkosic sandstone layer in the Brunswick Formation, overlying a thin (few feet thick) diabase sill. Mineralization is best developed in a zone 4 to 8 feet thick. Chalcocite, chrysocolla, and malachite are the dominant ore minerals.

KEYWORDS: economic geology
copper

GEOGRAPHIC AREA: Newark Basin, New Jersey

MAPS: Geol: sketch map of mine site

261 T : CORRIGAN, DONALD, 1973, The paleomagnetism and magnetic mineralogy of the Medford diabase dike (Medford area of Boston, Massachusetts): M.S. Thesis, University of Rhode Island.

KEYWORDS: geophysics
paleomagnetism
mineralogy
diabase

GEOGRAPHIC AREA: Eastern Massachusetts

262 A : COSTAIN, J.K., PRATT, T.L., CORUH, D., GLOVER, L., III, FROELICH, A.J., AND ZIEGLER, D., 1982, Reflection seismic characteristics of some on-shore Triassic basins in the southeastern United States: Geological Society of America, Abstracts with Programs, v. 14, no. 7, p. 467-468.

SUMMARY: Rift-basin seismic analysis is discussed and applied to the Culpeper and Scottsville Basins and a buried S. Carolina basin. Maximum sediment thicknesses of 2500 and 1700 meters are suggested for Culpeper and Scottsville, respectively. Border faults are not distinct in seismic profiling but may be inferred from abrupt truncation and dislocation as seen in the Culpeper Basin.

KEYWORDS: geophysics
seismic profiles

GEOGRAPHIC AREA: Culpeper Basin, Scottsville Basin, Virginia

263 P : COUSMINER, HAROLD L., AND MANSPEIZER, WARREN, 1976, Triassic pollen date Moroccan high atlas and the incipient rifting of Pangea as Middle Carnian: Science, v. 191, p. 943-945.

SUMMARY: Palynomorphs from the Moroccan Upper Triassic are equated with the lower Newark group in the Taylorsville, Richmond, and Deep River Basins, and the lower New Oxford Formation of the Gettysburg Basin. Newark sediments in New Jersey and New England are considered younger, Rhaetic to Liassic.

KEYWORDS: paleontology

GEOGRAPHIC AREA: Regional, Morocco

DATA: Plots: palynomorph time-table species chart

264 P : CRAMER, HOWARD ROSS, 1960, Bibliography and index of Triassic paleontology in Pennsylvania: Pennsylvania Academy of Science, Proceedings, v. 34, p. 96-100.

SUMMARY: A list of known fossils and 64 references is presented. References included discuss specific locations and provide descriptions of the fossils.

KEYWORDS: paleontology

GEOGRAPHIC AREA: Gettysburg Basin, Newark Basin, Pennsylvania

265 M : CUSHMAN, ROBERT V., 1963, Geology of the Hartford North Quadrangle: U.S. Geological Survey, Geologic Quadrangle Map GQ-223.

KEYWORDS: general geology

GEOGRAPHIC AREA: Hartford Basin, Connecticut, Hartford Co.

MAPS: Geol: [1:24,000]

266 T : CUSTER, R.L.P., 1966, Paleocurrents of the Triassic Durham Basin, North Carolina: M.S. Thesis, North Carolina State University, 34 p.

KEYWORDS: sedimentation

GEOGRAPHIC AREA: Durham Basin, North Carolina

267 A : CUSTER, RICHARD L.P., 1966, Paleocurrents of the Triassic Durham Basin, North Carolina: Elisha Mitchell Scientific Society, Journal, v. 22, p. 94.

SUMMARY: Primary sedimentary structures indicate that current flow was to the northeast, though meandering complexity is evident. The depositional environment is considered tropical to humid temperate dominated, in part, by fresh water lakes and swamps.

KEYWORDS: sedimentation

GEOGRAPHIC AREA: Durham Basin, North Carolina

268 A : CUSTER, RICHARD L.P., 1967, Occurrences of limestones in the Durham Triassic Basin: Elisha Mitchell Scientific Society, Journal, v. 83, p. 176.

SUMMARY: Arenaceous and argillaceoous limestone units up to 2-feet thick are found in the east-central area of the basin. Other carbonate-cemented units are found to the southwest, are time-equated with the coal beds of the Sanford Basin, and may reflect different contemporaneous drainage patterns on opposite sides of the Colon-Cross Structure.

KEYWORDS: general geology
sedimentation

GEOGRAPHIC AREA: Durham Basin, North Carolina

D

269 PM: D'AGOSTINO, J.P., AND HANSHAW, P.M., 1970, Malachite- and specularite-bearing Triassic sandstone localities near Chantilly, Virginia: U.S. Geological Survey Professional Paper 700-C, p. C103-C106.

SUMMARY: Malachite, azurite, and barite occur within carbonaceous layers of the red Manassas sandstone near a diabase intrusive. A zone of specularite is also noted in a siliceous zone nearer the diabase.

KEYWORDS: economic geology
copper
silver

GEOGRAPHIC AREA: Culpeper Basin, Virginia, Fairfax Co., Manassas Quad., Herndon Quad.

MAPS: Geol: [1:90,112]

DATA: Chem. (type of data): trace elements

270 P : DALLMEYER, R.D., 1975, The Palisades Sill: a Jurassic intrusion? Evidence from $^{40}Ar/^{39}Ar$ incremental release ages: Geology, v. 3, p. 243-245.

SUMMARY: Ar-Ar dating of both upper and lower chill zones indicates a final crystallization age of about 190 m.y. (Jurassic). Such an age correlates with the tectonic history and the time-stratigraphic units in the Hartford Basin (i.e., Holyoke, Hampden basalts).

KEYWORDS: geophysics
radiometric age
Ar/Ar dating

GEOGRAPHIC AREA: Newark Basin, New Jersey

DATA: Chem. (type of data): Ar/Ar data

271 P : DALRYMPLE, G.B., GROMME, C.S., AND WHITE, R.W., 1975, Potassium-argon age and paleomagnetism of diabase dikes in Liberia: initiation of Central Atlantic rifting: Geological Society of America, Bulletin, v. 86, p. 399-411.

SUMMARY: Northwest-trending diabase dikes cutting Paleozoic sediments yield ages between 173 and 192 m.y. Those cutting the Pre-cambrian contain excess ^{40}Ar and give ages as old as 1200 m.y. Both sets yield a common pole at 68°N and 242°E. A pre-drift refit of the continents indicates an earliest 180 m.y. age for rift inception.

KEYWORDS: geophysics
radiometric age
K/Ar dating
paleomagnetism
tectonics

GEOGRAPHIC AREA: Liberia, Regional

DATA: Plots: pole positions

272 P : DAMES AND MOORE, INC., 1980, Review of potential host rocks for radioactive waste disposal in the southeast United States Triassic Basin subregion: E.I. du Pont de Nemours and Company, Savannah River Laboratory, Aiken, South Carolina, 250 p.

SUMMARY: Review and study of the general geology, structure, seismicity, and hydrology of exposed and buried basins in Maryland, North Carolina, Virginia, and South Carolina indicate the basins are favorable for the containment of radioactive waste by meeting criteria which include: tectonic stability, slow ground-water movement, and long flow paths to the biosphere.

KEYWORDS: general geology
structure
hydrology
buried basins

GEOGRAPHIC AREA: Regional

MAPS: Geol: sketches
Misc: diabase dikes; lineaments (Landsat)

273 A : DANA, E.S., 1874, Trap rocks of the Connecticut Valley: American Journal of Science and Arts, 3rd series, v. 8, p. 390-392.

SUMMARY: The petrographic and mineralogic character of the diabase is described. It is noted that water content (4-5%) increases toward the eastern basin margin, and the rock becomes amygdaloidal. Chemistry of the feldspar and the mineralogy indicate the rock is a "dolerite" and not diorite.

KEYWORDS: mineralogy
diabase

GEOGRAPHIC AREA: Hartford Basin, Connecticut

274 P : DANA, J.D., 1881, Dolerite (trap) of the Triassic-Jurassic area of eastern North America: American Journal of Science, v. 22, p. 230-233.

KEYWORDS: basalt
diabase

GEOGRAPHIC AREA: Regional

275 P : DANA, J.D., 1883, The origin of the Jura-Trias of Eastern North America: American Journal of Science, 3rd series, v. 25, p. 383-386.

SUMMARY: The character of the sedimentary rocks is outlined and attributed to non-lacustrine fluvial conditions. Local large-scale flooding and glaciation account for the occurrence of boulder-sized clasts. An artesian boring at New Haven indicates a sediment thickness of 1900 feet.

KEYWORDS: general geology
sedimentation

GEOGRAPHIC AREA: Regional

276 P : DANA, J.D., 1891, On Percival's map of the Jura-Trias trap-belts of central Connecticut, with observations on the upturning or mountain-making disturbance of the formation: American Journal of Science, v. 42, p. 439-447.

KEYWORDS: basalt
structure

GEOGRAPHIC AREA: Hartford Basin, Connecticut

277 P : DANA, J.D., 1891, On the four rocks of the New Haven Region, East Rock, West Rock, Pine Rock and Mill Rock, in illustration of the features of non-volcanic igneous ejections, with a guide to walks and drives about New Haven: New Haven, Connecticut, Tuttle, Morehouse and Taylor, 120 p.

KEYWORDS: basalt

GEOGRAPHIC AREA: Hartford Basin, Connecticut

278 P : DANA, J.D., 1891, Some of the features of non-volcanic igneous ejections, as illustrated in the four "rocks" of the New Haven region, West Rock, Pine Rock, Mill Rock, and East Rock: American Journal of Science, v. 42, p. 79-110.

KEYWORDS: basalt

GEOGRAPHIC AREA: Hartford Basin, Connecticut

279 P : DANA, J.D., 1892, Additional observations on the Jura-Trias trap of the New Haven region: American Journal of Science, v. 44, p. 165-169.

KEYWORDS: basalt

GEOGRAPHIC AREA: Hartford Basin, Connecticut

280 T : DANIELS, C.C., III, 1974, Metamorphism of sheet silicates in response to temperature and pressure gradients: Ph.D. Thesis (unpublished), University of North Carolina, 131 p.

SUMMARY: The contact aurole of a 56-foot thick dolerite (diabase) dike in the Deep River (Sanford) basin exhibits progressive chemical and mineralogical variations from the unmetamorphosed Triassic sedimentary rocks. The aureole is 40-feet thick, divided into three distinct mineral zones, an outer montmorilonite zone, a middle quartz-feldspar zone, and an inner hematite-saponite zone adjacent to the diabase. Chemical data show complex trends, with Fe, K, Hg, Mn, Al and Rb decreasing towards the dike, Si increasing, and Ca, Na, Cr and Ti constant or varying only slightly. The mineral zones are explained in terms of migrating isotherms and reaction fronts.

KEYWORDS: metamorphism
hornfels
mineralogy
geochemistry

GEOGRAPHIC AREA: Deep River (Sanford) Basin, North Carolina

DATA: Chem. (type of data): major and trace element (XRF, atomic absorption spectophotometry)
Plots: modal analyses, chemistry

281 PM: DANIELS, D.L., ZIETZ, I., AND POPENOE, P., 1983, Distribution of subsurface Lower Mesozoic rocks in the Southeastern United States, as interpreted from regional aeromagnetic and gravity maps: U.S. Geological Survey Professional Paper 1313-K, 24 p.

SUMMARY: The South Georgia rift, extending from the Gulf of Mexico to Charleston, is delineated and described as are the Riddleville (Ga.) and the Dunbarton (S.C.) Basins. Two groups of diabase dikes are present - a N-trending group and a NW-trending group to the southwest part of the area. Diabase sills are also present.

KEYWORDS: buried basins

GEOGRAPHIC AREA: Georgia, South Carolina, North Carolina

MAPS: Geol: regional
Geophys: (11) aeromagnetic maps [1:1,000,000], depth to basement (2)

282 P : DANIELS, DAVID L., 1980, Geophysical-geological analysis of Fairfax County, Virginia: U.S. Geological Survey Open-File Report 80-1165, 64 p.

SUMMARY: Gravity, aeromagnetics, ground magnetics, and magnetic susceptibility are used to delineate the Herndon and Centreville diabase bodies, diabase dikes, the basin's eastern border, and a horst of pre-Triassic schist surrounded by Triassic rocks. A two-dimensional model of the Herndon diabase body is developed. Resistivity soundings indicate a thickness of 3600 feet for Triassic rocks along the western edge of Fairfax County.

KEYWORDS: geophysics
magnetism
gravity
aeromagnetism
resistivity

GEOGRAPHIC AREA: Culpeper Basin, Virginia

MAPS: Geophys: magnetic, gravity, resistivity, aeromagnetic

283 P : DANIELS, DAVID L., AND ZIETZ, ISIDORE, 1978, Geologic interpretation of aeromagnetic maps of the Coastal Plain region of South Carolina and parts of North Carolina and Georgia: U.S. Geological Survey Open-File Report 78-261, 47 p.

SUMMARY: Buried Triassic basins of the Coastal Plain are identified and their locations mapped. A basin at Kinston, N.C., as well as basins in S.C. and Georgia, are described. A large N-trending swarm of diabase extends from the Santee River near Charleston to Buena Vista, Va. Geophysical criteria for basin recognition are discussed. Well logs from the three states are included.

KEYWORDS: buried basins
geophysics

GEOGRAPHIC AREA: South Carolina, Georgia, North Carolina

MAPS: Geol: Kinston Basin, Dunbarton Basin

284 P : DANIELS, PAUL A., JR., AND ONUSCHAK, EMIL, JR., 1974, Geology of the Studley, Yellow Tavern, Richmond, and Seven Pines Quadrangles, Virginia: Virginia Division of Mineral Resources, Report of Investigations 38, 75 p.

SUMMARY: Undifferentiated Triassic sediments are encountered by drilling and underlie the Cretaceous Patuxent Formation. Triassic rocks do not outcrop but are shown on cross sections to occur below 30 to 400 feet below sealevel (500-600 feet in depth). Core logs are provided. The Triassic sand and clay are described as poorly sorted, feldspathic and glauconitic, with rock fragments common.

KEYWORDS: buried basins
general geology

GEOGRAPHIC AREA: Richmond Basin, Virginia, Henrico Co., Hanover Co., Seven Pines Quad.

MAPS: Section: cross sections
Misc: drill hole locations

285 P : DARTON, N.H., 1883, On the disintegrated sandstone at New Durham, N.J.: New York Academy of Science, Transactions, v. 2, p. 117-120.

SUMMARY: Analysis of fresh and altered arkosic sandstone indicates an abundance of Na_2O inferred to represent albite. However, it is uncertain where the albite was derived, as the granitic rocks that supplied the sediments rarely contain albite.

KEYWORDS: geochemistry
sediments

GEOGRAPHIC AREA: Newark Basin, New Jersey

286 A : DARTON, N.H., 1885, On the occurrence of native silver in New Jersey: American Journal of Science, 3rd series, v. 30, p. 80-81.

SUMMARY: Native silver is described from the Schuyler Mine, Hudson County. Another occurrence is noted from the Bridgewater Mine, Somerville, associated with cuprite.

KEYWORDS: economic geology
silver
copper

GEOGRAPHIC AREA: Newark Basin, New Jersey

287 P : DARTON, N.H., 1889, On the great lava flows and intrusive trap sheets of the Newark system in New Jersey: American Journal of Science, 3rd series, v. 38, p. 134-139.

SUMMARY: A brief outline of the diabase and basalt is given in advance of USGS Bulletin 67 by the author. Extrusive, as opposed to intrusive, sheets are delineated by a set of field criteria. An historical review of previous work is given.

KEYWORDS: general geology
diabase
basalt

GEOGRAPHIC AREA: Newark Basin, New Jersey

288 PM: DARTON, N.H., BAYLEY, W.S., SALISBURY, R.D., AND KUMMEL, H.B., 1908, Passaic folio: U.S. Geological Survey, Geologic Atlas No. 157, 27 p.

SUMMARY: (Area covers 74°-74°30', 40°30'-41°.) Text discusses the general geology and structure of the Watchung basalt, the Palisades diabase, and the Triassic sediments (undifferentiated).

KEYWORDS: general geology
economic geology
copper

GEOGRAPHIC AREA: Newark Basin, New Jersey, Bergen County, Passaic County, Essex County, Union County, Hudson County, Morris County

MAPS: Geol: [1:125,000]

DATA: Chem. (type of data): major oxides (Palisades diabase)
Photos: (4) basalt and Newark s.s. outcrops

289 PM: DARTON, NELSON HORATIO, 1890, The relations of the traps of the Newark system: U.S. Geological Survey Bulletin 67, 82 p.

SUMMARY: The structural relations of the Watchung, Vernon, Palisades, Union Hill, Snake Hills, Arlington, and other trap intrusions are described. Copper occurrences are noted (Schuyler Mine). Numerous sketches and a few photographs are included. This is a comprehensive reference on the physical nature of the basalt and diabase of New Jersey.

KEYWORDS: general geology
diabase
basalt
economic geology
copper

GEOGRAPHIC AREA: Newark Basin, New Jersey

MAPS: Geol: [1:538,560]

290 P : DAVIDSON, A., AND WYLLIE, P.J., 1965, Zoned magnetite and platy magnetite in Cornwall type ore deposits: Economic Geology, v. 60, p. 766-771.

SUMMARY: A detailed study of the Mg, Fe, and Al distribution in magnetites from various phases of the deposits is presented. The history of the deposits is shown to be more complex than previously suggested, and continued studies in detailed mineralogic zoning are required. The "blue" and brown magnetites are attributed to less iron in the latter.

KEYWORDS: economic geology
iron
petrology

GEOGRAPHIC AREA: Regional

DATA: Chem. (type of data): microprobe traverses
Photos: photomicrographs

291 P : DAVIDSON, A., AND WYLIE, P.J., 1968, Opaque oxide minerals of some diabase-granophyre associations in Pennsylvania: Economic Geology, v. 63, p. 950-960.

SUMMARY: Petrographic studies and analyses of ilmenite-magnetite-ulvospinel indicate an iron leaching of Ti-magnetite leaving skeletal ilmenite and Ti-poor magnetite. Such an aqueous fluid stage during differentiation may carry iron and escape to an environment where precipitation would produce a Cornwall-type deposit.

KEYWORDS: economic geology
iron
diabase
mineralogy
petrology

GEOGRAPHIC AREA: Gettysburg Basin, Pennsylvania

MAPS: Misc: (general) location of Cornwall-type deposits

DATA: Chem. (type of data): microprobe traverses
Photos: photomicrographs
Plots: differentiation

292 A : DAVIES, H.M., 1971, Vein alteration in Triassic diabase in Northern Virginia: Virginia Journal of Science, v. 322, p. 120.

SUMMARY: A prehnite-calcite-quartz vein is bounded by a zone of fibrous tremolite. Farther away, chlorite and amphibole occur replacing pyroxene (pigeonite) but not augite. A hydrothermal origin for the vein alteration is proposed.

KEYWORDS: petrology
mineralogy
diabase

GEOGRAPHIC AREA: Culpeper Basin, Virginia, Loudoun Co., Leesburg

293 P : DAVIS, W.M., 1883, On the relations of the Triassic traps and sandstones of the eastern United States: Museum of Comparative Zoology Bulletin, v. 7, p. 249-309.

KEYWORDS: basalt
sedimentation

GEOGRAPHIC AREA: Hartford Basin, Connecticut, Hartford Basin, Massachusetts, Newark Basin, New Jersey

294 P : DAVIS, W.M., 1887, Mechanical origin of the Triassic monoclinal in the Connecticut Valley: American Association for the Advancement of Science, Proceedings, v. 35, p. 224-227.

SUMMARY: It is concluded that development of the monoclinal tilting and faulting of the Triassic beds was post-depositional and related to a single E-W-directed compressional episode that created N-S-trending reverse fault blocks. Such structures are considered to have developed contemporaneously with the paralleled structure of the underlying and adjacent pre-Triassic rocks.

KEYWORDS: structure

GEOGRAPHIC AREA: Hartford Basin, Connecticut

295 P : DAVIS, W.M., 1889, Topographic development of the Triassic Formation of the Connecticut Valley: American Journal of Science, 3rd series, v. 37, p. 423-434.

SUMMARY: The stages of structurally controlled topographic development are outlined. Particular attention is given to a comparison with the Great Basin and Range of the Western U.S.

KEYWORDS: general geology

GEOGRAPHIC AREA: Hartford Basin, Connecticut

296 P : DAVIS, W.M., AND LOPER, S.W., 1890, Two belts of fossiliferous black shale in the Triassic Formation of Connecticut: Geological Society of America, Bulletin, v. 2, p.415-430.

SUMMARY: Two offset units of black, fossiliferous shale containing fish and plants were determined to be equivalent beds, thus supporting the faulted monocline theory of Davis. Species are outlined. The structural geology of the area is outlined.

KEYWORDS: structure
paleontology

GEOGRAPHIC AREA: Hartford Basin, Connecticut

MAPS: Misc: geologic sketch map of Meriden area

297 P : DAVIS, WILLIAM M., 1896, The quarries in the lava beds at Meriden, Connecticut: American Journal of Science, v. 1, 4th series, p. 1-13.

SUMMARY: The relationships of two basalt flows are described. The lower flow is vesicular and purplish-red, especially toward its top, while the upper flow is more massive and columnar. Faults within the flows are also described.

KEYWORDS: general geology
basalt
structure

GEOGRAPHIC AREA: Hartford Basin, Connecticut, New Haven, Meriden

298 P : DAVIS, WILLIAM M., 1898, The Triassic Formation of Connecticut: U.S. Geological Survey Annual Report, 18th, pt. 2, p. 1-192.

SUMMARY: This extensive treatise covers the sedimentary and igneous rock units, faulting and other structures, and the post-depositional erosional processes. Numerous photographs and sketches are included. Discussions concerning the conditions of deposition and the origin of the "trough" are also presented.

KEYWORDS: general geology
structure

GEOGRAPHIC AREA: Hartford Basin, Connecticut

MAPS: Geol: (no scale) Connecticut Triassic with cross sections

299 P : DAVIS, WILLIAM M., AND GRISWOLD, L.S., 1894, Eastern boundary of the Connecticut Triassic: Geological Society of America, Bulletin, v. 5, p. 515-530.

SUMMARY: Five eastern border fault segments are recognized chiefly by strata discontinuity and termination, as the actual faults are not extensively visible in the field. Further evidence for border faulting is alteration of the crystalline rock, fault breccias, and the geometry of intrabasin faults. Approximate displacements are also calculated.

KEYWORDS: structure
faults

GEOGRAPHIC AREA: Hartford Basin, Connecticut

300 P : DAVIS, WILLIAM MORRIS, 1882, Brief notice of observations on the Triassic trap rocks of Massachusetts, Connecticut, and New Jersey: American Journal of Science, v. 24, 3rd series, p. 345-359.

SUMMARY: Distinction is made between the extrusive and intrusive igneous rocks as well as the dikes. A compressionary history developing a post-depositional faulted monocline is suggested.

KEYWORDS: diabase
basalt
structure

GEOGRAPHIC AREA: Regional

301 P : DAVIS, WILLIAM MORRIS, 1882, The structural value of the trap ridges of the Connecticut Valley: Boston Society of Natural History, Proceedings, v. 22, p. 116-124.

SUMMARY: The author summarizes previous explanations for the monoclinal tilting of the red beds (i.e., oblique deposition, and anticlinal arching followed by erosion) and shows that these are unlikely possibilities. It is suggested that conformable trap extrusives must play a significant role in deciphering the structural history of the sediments they intrude.

KEYWORDS: structure

GEOGRAPHIC AREA: Regional

302 P : DAVIS, WILLIAM MORRIS, 1886, The structure of the Triassic Formation of the Connecticut Valley: American Journal of Science, v. 32, 3rd series, p. 342-352.

SUMMARY: This discussion is a briefer version of the author's 1888 work and presents the nature of structure within the basalt flows of the Hartford Basin. A compressional history paralleling the Appalachians is suggested.

KEYWORDS: structure

GEOGRAPHIC AREA: Hartford Basin, Connecticut

303 PM: DAVIS, WILLIAM MORRIS, 1888, The structure of the Triassic Formation of the Connecticut Valley: U.S. Geological Survey Annual Report, 7th, p. 455-490.

SUMMARY: A structural review of the Hartford Basin is given. Origin of the faulted monoclinal trough is attributed to forces of compression perpendicular to the valley strike. Faulting followed pre-existing fabric in the crystalline basement.

KEYWORDS: structure
faults

GEOGRAPHIC AREA: Hartford Basin, Connecticut

MAPS: Geol: [1:503,000]

304 P : DAVIS, WILLIAM MORRIS, 1889, The ash bed at Meriden and its structural relations: Meriden Scientific Association, Transactions, Meriden, Connecticut, v. 3, p. 23-30.

SUMMARY: This is a descriptive account of the features of Lamentation Mountain and the history of geologic events constituting its basalt flows. The ash bed, composed of various sized basalt blocks, is associated with the anterior flow and is traced in this same position to Chauncy Peak and Higby Mountain.

KEYWORDS: general geology
basalt

GEOGRAPHIC AREA: Hartford Basin, Connecticut, New Haven, Meriden

305 P : DAVIS, WILLIAM MORRIS, 1889, The faults in the Triassic Formation near Meriden, Connecticut: Museum of Comparative Zoology, Bulletin, Harvard College, v. 16, no. 4, p. 61-87.

SUMMARY: This is a descriptive guide to the structural features associated with Lamentation, Higby, and Short Mountains in the Meriden-New Britain area. Major faults occurring within the trap sheets are difficult to trace into the sediments but reveal a regional narrow-block structure striking oblique to bedding, considered to have developed upon pre-existing pre-Triassic foliation grain.

KEYWORDS: structure

GEOGRAPHIC AREA: Hartford Basin, Connecticut

MAPS: Geol: sketches

306 F : DAVIS, WILLIAM MORRIS, AND WHITTLE, CHARLES LIVY, 1889, The intrusive and extrusive Triassic trap sheets of the Connecticut Valley: Museum of Comparative Zoology, Bulletin, Harvard College, v. 16, no. 6, p. 100-138.

SUMMARY: The distinguishing features of the extrusive and intrusive sheets are outlined and descriptions of all igneous rocks within the Hartford Basin (Conn.) are given. Eastern sheets are extrusive and, with one exception (Hartford), all belong to one of three flows. Western sheets are intrusive.

KEYWORDS: general geology
basalt
diabase

GEOGRAPHIC AREA: Hartford Basin, Connecticut

MAPS: Geol: sketches
Misc: field observation localities; hand sample sketches

307 P : DE BOER, JELLE, 1967, Paleomagnetic-tectonic study of Mesozoic dike swarms in the Appalachians: Journal of Geophysical Research, v. 72, no. 8, p. 2237-2250.

SUMMARY: The diabase dike swarms appear to be Jurassic in age, and their fan shape developed during a period of deep-seated sinistral polarity shear movements.

KEYWORDS: geophysics
paleomagnetism
tectonics
structure

GEOGRAPHIC AREA: Regional

MAPS: Misc: dike distributions and geometry

DATA: Plots: pole positions

308 F : DE BOER, JELLE, 1968, Late Triassic volcanism in the Connecticut Valley and related structure: in, Orville, P.M., ed., Guidebook for Fieldtrips in Connecticut, New England Intercollegiate Geological Conference, Meeting, Trip C-5, 12 p.

SUMMARY: The intrusive and extrusive rocks are discussed. The volcanic events are correlated and distinguished by paleomagnetics as (from oldest): Talcott, Holyokoe, Hampden, and Higganum. Iron and boron appear to increase with time. The extensive dikes present in all the basins are of Higganum age. Field stops are in southern Connecticut.

KEYWORDS: general geology
basalt

GEOGRAPHIC AREA: Hartford Basin, Connecticut, New Haven, Middlesex, Mount Carmel-Durham-Meriden

309 P : DE BOER, JELLE, 1968, Paleomagnetic differentiation and correlation of the Late Triassic volcanic rocks in the Central Appalachians (with special reference to the Connecticut Valley): Geological Society of America, Bulletin, v. 79, p. 609-626.

SUMMARY: Four volcanic events are paleomagnetically differentiated - from oldest: Talcott, Holyoke, Hampden, and Higganum. Rapid pole movement during this period results in inclination of 12° for Talcott to 35° for Higganum. Gettysburg Basin and Nova Scotia intrusives correlate with the Holyoke and Hampden respectively indicating a northeasterly rift migration with time. The accelerated Triassic polar shift is discussed.

KEYWORDS: geophysics
paleomagnetism
basalt

GEOGRAPHIC AREA: Regional

MAPS: Geol: Conn. and Mass. (sketch)

DATA: Plots: pole positions

310 A : DE BOER, JELLE, 1968, Paleomagnetic-tectonic study of the Mesozoic dikes in the Appalachians: Geological Society of America, Special Paper 101, p. 249.

SUMMARY: The Appalachian diabase dike swarms are attributed to a Jurassic to Cretaceous "White Mountains tectonic phase" resulting in a fan-shaped arrangement rotating northeastward from south to north. The dikes are surface expressions of deep-seated stress releases associated with sinistral shear.

KEYWORDS: tectonics
structure
diabase

GEOGRAPHIC AREA: Regional

311 A : DE BOER, JELLE, 1971, The Triassic magnetic field: Pennsylvania Academy of Science, v. 45, p. 201.

SUMMARY: A review of paleomagnetic results is given including a late Triassic rapid pole migration of 25 cm/yr, a northeasterly trend of igneous activity with time, a post-depostional magnetic acquisition for the red beds, and a thermal and structural embryonic stage of rifting as early as the Carboniferous.

KEYWORDS: geophysics
paleomagnetism
tectonics

GEOGRAPHIC AREA: Regional

312 A : DE BOER, JELLE, 1983, Magnetic and paleomagnetic evidence bearing on hotspot models for Mesozoic magmatism: Geological Society of America, Abstracts with Programs, v. 15, p. 91.

SUMMARY: A Magsat magnetic low that parallels the rift basins is best developed in northern Georgia in the region of the postulated RRR triple junction, but south of the proposed Carolina hotspot. Two hotspot traces, characterized by "residual" lows, are from southern Georgia to Bermuda and SE from the Adirondacks to the Mesozoic White Mtns. In both regions, magmatism occurred earliest at the hot spot centers and progressed NE.

KEYWORDS: geophysics
paleomagnetism
tectonics

GEOGRAPHIC AREA: Regional

313 A : DE BOER, JELLE, 1983, Structural control of Mesozoic magmatism in the Appalachians: Geological Society of America, Abstracts with Programs, v. 15, no. 6, p. 554.

SUMMARY: Stresses which governed magmatic pathways alternated between NW and SW. Volcanism is associated with SW stresses. Dike-sillswarms which fed flows occurred along longitudinal faults, while narrow dikes and linear provinces (White Mountains) occurred along cross (transform) faults. A strong strike-slip component to dip-slip movement is suggested for the rift basins.

KEYWORDS: diabase
tectonics

GEOGRAPHIC AREA: Regional

314 P : DE BOER, JELLE, AND SNIDER, FREDERIC G., 1979, Magnetic and chemical variations of Mesozoic diabase dikes from Eastern North America: evidence for a hotspot in the Carolinas?: Geological Society of America, Bulletin, v. 90, p. 185-198.

SUMMARY: A Carolina "hot spot" is suggested by higher aeromagnetic anomalies, higher total iron, lower TiO_2, by older dikes (than to the NE and SW) in the Carolinas, and by an early olivine-normative stage. Evolution of the hot spot and a magmatic history from the Early Triassic to Late Jurassic are outlined.

KEYWORDS: geophysics
aeromagnetism
paleomagnetism

GEOGRAPHIC AREA: Regional

DATA: Chem. (type of data): TiO_2, Fe_2O_3, telechemistry
Plots: pole positions, TRM geographic trends

315 A : DENINGER, R.W., DALLMEYER, R.D., AND NEATHERY, T.L., 1975, Chemical variations and K-Ar ages of diabase dikes in East-Central Alabama: Geological Society of America, Abstracts with Programs, v. 7, p. 482.

SUMMARY: Two diabase types (Auburn, Salem) are found in Alabama and correspond to the low TiO_2-qtz. norm and olivine norm groups (respectively) of Weigand and Ragland (1970). The Auburn dikes are also younger (164 m.y.) than the Salem group (189 m.y.).

KEYWORDS: geochemistry
diabase
geophysics
radiometric age
K/Ar dating

GEOGRAPHIC AREA: Alabama

316 F : DENNIS, J.V., 1968, The limestone conglomerate formations of Maryland and Northern Virginia: Atlantic Naturalist, v. 23, p. 14-18.

SUMMARY: A brief discription is given of the nature of the limestone conglomerate (along the western border fault) and its associated vegetation.

KEYWORDS: general geology

GEOGRAPHIC AREA: Culpeper Basin, Virginia and Maryland

317 P : DENNISON, JOHN M., AND WHEELER, WALTER H., 1975, Stratigraphy of Precambrian through Cretaceous strata of probable fluvial origin in Southeastern United States and their potential as uranium host rocks: Southeastern Geology, Special Publication No. 5, 211 p.

SUMMARY: A review of the general geology and depositional environments of the Newark Group indicates that it has "high potential" for uranium mineralization. Criteria for uranium mineralization are outlined and include the presence of fluvial, arkosic sandstones, carbonaceous and pyritic material, granitic source rocks, and structural controls.

KEYWORDS: economic geology
uranium

GEOGRAPHIC AREA: Regional

318 A : DICKENSON, M.P., AND HERMES, O.D., 1979, REE distributions in premetamorphic and post-metamorphic diabase dikes from Southeast New England: Geological Society of America, Abstracts with Programs, v. 11, p. 10.

SUMMARY: Both Mesozoic and pre-Mesozoic (meta-) diabase dikes from R.I. and SE Mass. exhibit similar REE distributions with light REE enrichment and positive Eu anomalies suggesting similar petrogenetic histories. The dikes are alkali olivine basalts in composition but display REE patterns unlike other Eastern U.S. dolerites; this may be attributed to different basement terranes.

KEYWORDS: geochemistry
diabase

GEOGRAPHIC AREA: New England (outside of basin area)

319 P : DIETRICH, R.U., 1955, Additions to Virginia mineral localities: Virginia Polytechnical Institute Bulletin, Engineering Experiment Station, Series 105, 30 p.

SUMMARY: One significant Triassic occurrence is noted: native silver and greenockite with prehnite in a diabase quarry near U.S. Rt. 29 and 211 west of Centreville.

KEYWORDS: economic geology
silver

GEOGRAPHIC AREA: Culpeper Basin, Virginia, Fairfax County

320 P : DIGMAN, RALPH, 1950, An exposure of the Triassic eastern border fault in Connecticut: American Journal of Science, v. 248, p. 37-45.

SUMMARY: An exposure of the eastern border fault is revealed one-half mile north of Quonnipaug. Triassic basalt is in normal fault contact with Bolton schist, and a 3-foot gouge zone is present. The fault strikes N 5°E and dips 55°NW. A photo is provided.

KEYWORDS: structure
faults

GEOGRAPHIC AREA: Hartford Basin, Connecticut, New Haven

321 P : DILLON, W.P., KLITGORD, K.D., AND PAULL, C.K., 1983, Mesozoic development and structure of the continental margin off South Carolina: U.S. Geological Survey Professional Paper 1313-N, 16 p.

SUMMARY: The nature of the subsurface, off-shore coastal basement is described as consisting of Triassic and Lower Jurassic sediments with a basaltic flow cover erupted about 175 m.y. during a spreading center reorganization. Seismic profiles and depth to Jurassic rocks are presented.

KEYWORDS: buried basins
geophysics
faults

GEOGRAPHIC AREA: South Carolina (Coast)

322 P : DILLON, WILLIAM P., AND OTHERS, 1979, Structure and development of the southeast Georgia embayment and northern Blake Plateau: preliminary analysis: in, Watkins, J.S., and others, eds., Geological and Geophysical Investigations of Continental Margins, American Association of Petroleum Geologists, Memoir 29, p. 27-41.

SUMMARY: Seismic reflection profiles indicate that Triassic and Jurassic sediments and volcanics occur within grabens below the Cretaceous and Cenozoic shelf sediments. The volcanic episode may have been triggered by a "spreading center jump" 175 m.y. ago.

KEYWORDS: buried basins
geophysics
seismic profiles

GEOGRAPHIC AREA: S.E. Continental Margin

MAPS: Geophys: seismic profiles

323 P : D'INVILLIERS, E.V., 1883, The geology of the South Mountain belt of Berks County: Pennsylvania Geological Survey (2nd), Report DDD, 441 p.

SUMMARY: Descriptions of the general geology of the Triassic area are given and include structural information and the occurrence of diabase and conglomerate. Several Cornwall-type magnetite deposits, including the Wheatfield and Fritz Island Mines, are described briefly and considered sedimentary in origin.

KEYWORDS: general geology
economic geology
iron

GEOGRAPHIC AREA: Gettysburg Basin, Newark Basin, Pennsylvania, Berks County, Morgantown, Reading, Boyertown, Sinking Spring, Birdsboro, Mechanicsburg, and Lemoyne Quads.

DATA: Chem. (type of data): diabase (major), ore (major)
Photos: outcrop

324 P : D'INVILLIERS, E.V., 1887, Report on the iron ore mines and limestone quarries of the Cumberland-Lebanon Valley: Pennsylvania Geological Survey, Annual Report for 1886, pt. IV, p. 1411-1518.

SUMMARY: Cornwall-type iron ore deposits are included in this description of the ore workings and ore chemistry from the Dillsburg, Cornwall and Hummelstown deposits in Pennsylvania.

KEYWORDS: economic geology
iron

GEOGRAPHIC AREA: Gettysburg Basin, Newark Basin, Pennsylvania

325 T : DITTMAR, EDWARD I., 1979, Environmental interpretation of paleocurrents in the Triassic Durham Basin: M.S. Thesis, University of North Carolina.

KEYWORDS: sedimentation

GEOGRAPHIC AREA: Durham Basin, North Carolina

326 T : DOMBROSKI, DANIEL R., JR., 1980, A geological and geophysical investigation of concealed contacts near an abandoned barite mine, Hopewell, New Jersey: M.S. Thesis, Rutgers University, N.J., 33 p.

KEYWORDS: economic geology
barite
general geology
diabase
geophysics

GEOGRAPHIC AREA: Newark Basin, New Jersey, Mercer County

327 T : DONALDSON, A.C., 1949, Sedimentation in the Holyoke Range: Thesis (type unknown), Amherst College.

KEYWORDS: sedimentation

GEOGRAPHIC AREA: Hartford Basin, Massachusetts

328 T : DOOLEY, R.E., 1977, K-Ar relationships in dolerite dikes of Georgia: M.S. Thesis, Georgia Institute of Technology, 185 p.

KEYWORDS: geophysics
radiometric age
K/Ar dating

GEOGRAPHIC AREA: Georgia (not in Triassic basin)

329 P : DOOLEY, ROBERT E., AND SMITH, WILLIAM A., 1982, Age and magnetism of diabase dikes and tilting of the Piedmont: Tectonophysics, v. 90, p. 283-307.

SUMMARY: A paleopole position of 86.1°E and 66.4°N is acquired from 50 dikes in Georgia, South Carolina, and North Carolina. A 10° westerly tilt of the Appalachians due to a domal effect accounts for the deviation from the accepted 190 m.y. pole of E. Irving (1982).

KEYWORDS: geophysics
paleomagnetism

GEOGRAPHIC AREA: North Carolina and South Carolina

DATA: Plots: pole paths and positions

330 A : DOOLEY, ROBERT E., AND WAMPLER, J.M., 1977, K-Ar relationships in dolerite dikes of Georgia: Geological Society of America, Abstracts with Programs, v. 9, p. 134.

SUMMARY: K-Ar studies indicate three age groups of dikes that do not apparently correspond with composition: 186-190 m.y., 200-210 m.y., and 220-228 m.y. An excess radiogenic argon problem in some samples is suggested.

KEYWORDS: geophysics
radiometric age
K/Ar dating
diabase

GEOGRAPHIC AREA: Georgia

331 P : DOOLEY, ROBERT E., AND WAMPLER, J.M., 1983, Potassium-argon relations in diabase dikes of Georgia - the influence of excess ^{40}Ar on the geochronology of Early Mesozoic igneous and tectonic events: U.S. Geological Survey Professional Paper 1313-M, 24 p.

SUMMARY: Excess ^{40}Ar in Georgia dikes results in discordant and variable ages (190-1628 m.y.) with greater excess (1.6 nmol/g) in the north. Such an excess is attributed to a thicker crust through which the magma ascended and is inherent to the magma.

KEYWORDS: geophysics
radiometric age
K/Ar dating
diabase

GEOGRAPHIC AREA: Georgia

MAPS: Misc: distribution of diabase dikes (Georgia) [1:2,564,102]

DATA: Plots: K-Ar and Ar vs. heat duration

332 A : DORSEY, GEORGE EDWIN, 1919, Stratigraphy and structure of the Newark system in Maryland and its relation to the Newark system of Eastern North America: Geological Society of America, Bulletin, v. 30, p. 155-157.

SUMMARY: Three areas of Triassic rocks are outlined. Mudcracks, tracks, wood, and cross-bedding point to continental conditions during sedimentation. The rock units are considered as time-equivalent facies changes. The structure is a faulted monocline to the west developed in two stages - an early western margin normal faulting and a later parallel-to-strike faulting within the basin through which dikes intruded.

KEYWORDS: general geology

GEOGRAPHIC AREA: Gettysburg Basin, Culpeper Basin, Maryland

333 P : DOSTAL, J., AND DUPUY, C., 1984, Geochemistry of the North Mountain basalts (Nova Scotia, Canada): Chemical Geology, v. 45, p. 245-261.

SUMMARY: Most of the North Mountain basalts are similar to the Mesozoic high-Ti quartz-normative tholeiites of Weigand and Ragland (1970). Fractional crystallization is dominated by pyroxene and plagioclase separation. It is suggested that these continental tholeiites were derived from an upper mantle source similar to that for oceanic tholeiites, but were affected by crustal contamination.

KEYWORDS: basalt
geochemistry

GEOGRAPHIC AREA: Maritime Province, Nova Scotia, Canada

DATA: Chem. (type of data): 8 basalt analyses, major and trace elements

334 T : DOWDALL, W.L., 1979, Stratigraphy, depositional environments, and petrology of the New Haven arkose, Newark Supergroup, southern and central Connecticut: M.S. Thesis, University of Massachusetts, 184 p.

KEYWORDS: sedimentation

GEOGRAPHIC AREA: Hartford Basin, Connecticut

335 M : DRAKE, A.A., JR., MCLAUGHLIN, D.B., AND DAVIS, R.E., 1961, Geology of the Frenchtown Quadrangle, New Jersey-Pennsylvania: U.S. Geological Survey, Geologic Quadrangle Map GQ-133.

KEYWORDS: general geology

GEOGRAPHIC AREA: Newark Basin, Pennsylvania, New Jersey, Hunterdon Co. (N.J.), Bucks Co. (Pa.), Frenchtown Quad.

MAPS: Geol: [1:24,000]

336 M : DRAKE, A.A., JR., MCLAUGHLIN, D.B., AND DAVIS, R.E., 1967, Geologic map of the Riegelsville Quadrangle, Pennsylvania-New Jersey: U.S. Geological Survey, Geologic Quadrangle Map GQ-593.

KEYWORDS: general geology

GEOGRAPHIC AREA: Newark Basin, Pennsylvania, New Jersey, Bucks Co. (Pa.), Hunterdon Co. (N.J.), Riegelsville Quad.

MAPS: Geol: [1:24,000]

337 M : DRAKE, AVERY A., JR., AND FROELICH, A.J., 1977, Preliminary bedrock map of Fairfax County, Virginia: U.S. Geological Survey Open-File Report 77-523.

KEYWORDS: general geology
bedrock geology

GEOGRAPHIC AREA: Culpeper Basin, Virginia

MAPS: Geol: [1:48,000]

338 M : DRAKE, AVERY A., JR., AND OTHERS, 1979, Preliminary geologic map of Fairfax County, Virginia (sheet 1) and map showing selected geologic data (sheet 2): U.S. Geological Survey Open-File Report 79-398.

KEYWORDS: general geology

GEOGRAPHIC AREA: Culpeper Basin, Virginia

MAPS: Geol: [1:48,000]

339 P : DRAKE, HARRY Y., 1943, The quarry at Upper Montclair, New Jersey: Rocks and Minerals, v. 18, p. 332-333.

SUMMARY: The zeolite minerals from this quarry in the First Watchung Mountain are described briefly.

KEYWORDS: mineralogy
zeolites

GEOGRAPHIC AREA: Newark Basin, New Jersey, Essex Co.

340 A : DREZ, PAUL E., 1977, Deuteric alteration in Mesozoic didabase dikes from Central North Carolina: Geological Society of America, Abstracts with Programs, v. 9, p. 134.

SUMMARY: An olivine-normative diabase dike 30 km SW of Raleigh was studied. Vesicles of carbonate and sulfide indicate a magmatic vapor phase. Sr isotopic ratios are (.704-.705). Al, Mg, Ca, Si, Mn, Ba, Li were mobile, while Na, Fe, Ti, Zr, and Y were immobile during deuteric alteration. Mineral reactions are noted.

KEYWORDS: mineralogy
petrology
diabase

GEOGRAPHIC AREA: North Carolina

341 P : DRIBUS, JOHN R., 1978, Preliminary study of the uranium potential of the Dan River Triassic Basin system, North Caroilna and Virginia: U.S. Department of Energy, Grand Junction Operations, GJBX-131(78), 26 p.

SUMMARY: Scintillometer and chemical studies indicate that uranium mineralization may occur along the unconformable basin contact with the pre-Triassic, along the contact between the bleached hornfels zones and the unaltered sediments, and within stratigraphic traps created by intertonguing of black shales and red sandstones.

KEYWORDS: economic geology
uranium

GEOGRAPHIC AREA: Dan River-Danville Basin, Davie County Basin, North Carolina, Virginia

MAPS: Geol: sketches
Geophys: scintillometer surveys
Misc: sample locations; diabase dikes

DATA: Chem. (type of data): sedimentary rock (K, U, Th, Mo, Se, Pb, Ba, Co, Cr, V)
Plots: sedimentary rock mineralogy

342 P : DUBOIS, P.M., AND OTHERS, 1957, The geomagnetic field in Upper Triassic times in the United States: Nature, v. 180, p. 1186-1187.

SUMMARY: Paleomagnetic data from red beds in Utah, the Holyoke lava and its associated red-beds in Massachusetts, and the Brunswick Formation of New Jersey indicate that paleomagnetic pole positions on the North American continent are approximately equivalent and differ from similar age rocks in England. The arguments support the continental drift theory.

KEYWORDS: geophysics
paleomagnetism

GEOGRAPHIC AREA: Regional

DATA: Plots: pole positions

343 A : DUHLING, W.H., JR., 1955, A report on the mineralogy of the Triassic Durham basin in northern Wake County, North Carolina: Elisha Mitchell Scientific Society, Journal, v. 71, no. 2, p. 176-177.

SUMMARY: A stream sediment survey (?) reveals the presence of 24 minerals, of which ilmenite, epidote, and kyanite are ubiquitous in the 2.965 to 4.0 specific gravity range. Other minerals include: hematite, pyrite, tremolite-actinolite, hypersthene-enstatite, zircon, sillimanite, garnet, and diopside - in decreasing order of abundance.

KEYWORDS: mineralogy

GEOGRAPHIC AREA: Durham Basin, North Carolina, Wake County

344 T : DUNLEAVY, J.M., 1975, A geophysical investigation of the contact along the northern margin of the Newark Triassic Basin, Hosensack, Pennsylvania to Gladstone, New Jersey: M.S. Thesis, Lehigh University, 68 p.

KEYWORDS: structure
geophysics

GEOGRAPHIC AREA: Newark Basin, Pennsylvania, New Jersey

345 P : DUPUY, C., AND DOSTAL, J., 1984, Trace element geochemistry of some continental tholeiites: Earth and Planetary Science Letters, v. 67, p. 61-69.

SUMMARY: Such tholeiites (including those of Nova Scotia and Morocco: Mesozoic) differ from mid-ocean ridge tholeiites by higher K, Rb, Ba, Th, and lighter rare earth elements with negative Nb anomalies. Such differences are attributed to interaction with continental crust.

KEYWORDS: geochemistry
petrology

GEOGRAPHIC AREA: Regional

DATA: Plots: variations: P2O5, TiO2, La vs. Mg; REE vs. chondrite

346 F : DYSON, JAMES L., AND OTHERS, 1953, Guidebook: Field Conference of Pennsylvania Geologists, Nineteenth Annual Meeting, Department of Geology and Geography, LaFayette College, Easton, Pa., p. 54-65.

SUMMARY: Field trip stops along the Delaware River in northern Bucks County, Pa., and Hunterdon County, N.J., include the northern border fault, the Brunswick shale, hornfelsed Brunswick shale at Ringing Rocks, the Lockatong Formation, and fanglomerate. A road log and outcrop descriptions are included.

KEYWORDS: general geology

GEOGRAPHIC AREA: Newark Basin, Pennsylvania, New Jersey, Bucks County (Pa.), Hunterdon County (N.J.)

E

347 P : EARL, KENNETH M., 1950, Investigation of New Galena lead deposit, Bucks County, Pennsylvania: U.S. Bureau of Mines, Report of Investigations 4703, 7 p.

SUMMARY: The old prospects are several miles NW of Doylestown at Neshaminy Creek. Quartz, ankerite, calcite, galena, sphalerite, pyrite, chalcopyrite, and bornite occur within brecciated seams in black and gray shale in proximity to diabase. Ore dips to the southeast. Two drill core descriptions are presented, but no ore was intersected. Mining history is outlined.

KEYWORDS: economic geology
lead
zinc
copper

GEOGRAPHIC AREA: Newark Basin, Pennsylvania, Bucks Co., Doylestown Quad.

MAPS: Misc: sketch (pits and drill holes)

348 P : EARL, KENNETH M., 1950, Investigation of Perkiomen Creek copper deposits, Montgomery County, Pennsylvania: U.S. Bureau of Mines, Report of Investigations 4666, 13 p.

SUMMARY: A vein zone 2- to 19-feet thick occurs within red shale (Stockton Fm.) 5 miles east of Phoenixville and consists of chalcopyrite, galena, sphalerite, quartz, and barite. The vein strikes N 40°E and dips 75°SE. Four drill cores (logged) intersected the vein. Shale immediately adjacent to the vein is "bleached" and fragments of country rock within the vein are common. Mining history and workings are described.

KEYWORDS: economic geology
copper
lead
zinc
barite

GEOGRAPHIC AREA: Newark Basin, Pennsylvania, Montgomery County, Collegeville Quad.

MAPS: Section: mine cross section
Misc: drill hole locations; sketch of mine location

349 P : EASTMAN, CHARLES ROCHESTER, 1911, Triassic fishes of Connecticut: Connecticut Geological and Natural History Survey, Bulletin 18, 78 p.

SUMMARY: A review of Triassic fish fauna from the area is presented with numerous sketches and photos. Species are described in detail and a brief discussion of previous work and correlation is presented.

KEYWORDS: paleontology
stratigraphy

GEOGRAPHIC AREA: Hartford Basin, Connecticut

350 P : EATON, AMOS, 1818, Account of the strata perforated by, and of the minerals found in, the Great Adit to the Southampton Lead Mine: American Journal of Science, First Series, v. 1, p. 136-139.

SUMMARY: This is a descriptive account of the rocks constituting the adit to the mine. Granite, serpentine, slate, and coal occur, and ore minerals include galena, fluorite, chalcopyrite, and barite within veins in these rocks. Observations were made to the 800-foot level.

KEYWORDS: economic geology
lead
zinc
barite
copper

GEOGRAPHIC AREA: Hartford Basin, Massachusetts, Hampshire Co.

351 P : EATON, GORDON P., AND ROSENFELD, JOHN L., 1960, Gravimetric and structural investigations in Central Connecticut: International Geological Congress, 21st Session, Norden, Part II, p. 168-178.

SUMMARY: The formation of the Triassic trough coincided with pre-Mesozoic structural foliation and zones of weakness in the gneiss domes flanking the east and west sides. Later deformation forming joints that transect all provinces indicate that this event was of regional extent with the area responding as a unit.

KEYWORDS: structure
geophysics
gravity

GEOGRAPHIC AREA: Hartford Basin, Connecticut

MAPS: Geol: Central Connecticut
Section: Triassic strat. column.
Geophys: gravity profiles

352 P : EDMUNDSON, R.S., 1938, Barite deposits of Virginia: Virginia Division of Mineral Resources, Bulletin 53, 85 p.

SUMMARY: Five small barite deposits within the Triassic of Fauquier County are described. Four occur in the Bull Run shale as barite-rich brecciated fractures associated with quartz and calcite. One occurs along a weathered diabase dike. A magmatic, deep-seated origin for the fluids is proposed; and other barite deposits not within Triassic rocks may have formed as a result of Triassic magmatism. Silicification of adjacent Bull Run shale is present.

KEYWORDS: economic geology
barite

GEOGRAPHIC AREA: Culpeper Basin, Virginia, Fauquier County

MAPS: Misc: (bar scale only) mine locations

DATA: Photos: photomicrographs

353 P : EDWARDS, JONATHAN, JR., 1970, Deep wells of Maryland: Maryland Geological Survey, Basic Data Report No. 5, 161 p.

SUMMARY: Abbreviated well logs and well locations are presented in table form. Those that intersected Triassic rocks at depth or at the surface include: Union Bridge (0-950 feet); Frederick (0-? feet/ Frederick limestone); Brandywine, Prince Georges Co. (1491-? feet); Piscataway (1490-? feet); Upper Marlboro (2) (1617-1665 feet and 1720-1750 feet); Ninepin (6570-7130 feet).

KEYWORDS: general geology
buried basins

GEOGRAPHIC AREA: Gettysburg Basin, Maryland, Maryland

354 M : EGGLETON, R.E., 1975, Preliminary geologic map of the Herndon Quad.: U.S. Geological Survey Open-File Report 75-386.

KEYWORDS: general geology

GEOGRAPHIC AREA: Culpeper Basin, Virginia, Fairfax Co., Loudoun Co.

MAPS: Geol: [1:24,000]

355 T : EHRENFELD, F., 1898, A study of the igneous rocks at York Haven and Stony Brook, Pennsylvania, and their accompanying formations: Thesis (type unknown), University of Pennsylvania, 24 p.

KEYWORDS: diabase
mineralogy
petrology

GEOGRAPHIC AREA: Gettysburg Basin, Pennsylvania

356 A : ELLEFSEN, KARL J., AND RYDEL, PAUL L., 1983, Flow direction of the Hampden basalt in the Hartford Basin: Geological Society of America, Abstracts with Programs, v. 15, p. 122.

SUMMARY: Study of pipe vesicles indicates flow direction of the Hampden basalt was from the SW and possibly emanated from the Newark Basin's Third Watchung basalt, which is chemically similar. Imbrication and orientation of plagioclase phenocrysts confirms this northeastward flow direction.

KEYWORDS: basalt

GEOGRAPHIC AREA: Hartford Basin, Connecticut, Massachusetts

357 T : ELLEN, S.D., 1964, A gravity survey of the northern Connecticut Valley Triassic Basin: Senior Thesis, Amherst College, 68 p.

KEYWORDS: geophysics
gravity

GEOGRAPHIC AREA: Hartford Basin, Massachusetts

358 F : ELLISON, R.L., AND OTHERS, 1971, Triassic basin - Culpeper: Field Trip Atlas, Virginia Field Conference, University of Virginia, Charlottesville, Virginia, 2 p.

KEYWORDS: general geology

GEOGRAPHIC AREA: Culpeper Basin, Virginia

359 P : ELLS, R.W., 1904, Bulletin on the ores of copper in the provinces of Nova Scotia, New Brunswick and Quebec, Canada: Canadian Geological Survey, Mineral Resources, 58 p.

SUMMARY: Small, but abundant, masses of native copper, ranging from tiny grains to bodies several pounds in weight, are found in amygdaloidal Mesozoic basalt in the Bay of Fundy area, Nova Scotia. The copper occurs with quartz, calcite, and zeolites in veins which cut basalt flows.

KEYWORDS: basalt
mineralogy
economic geology
copper

GEOGRAPHIC AREA: Maritime Province, Nova Scotia

360 T : EL TAHIR, O.I., 1980, Geophysical investigation of diabase dikes in the Durham Triassic Basin and their hydrological significance: M.S. Thesis, North Carolina State University.

KEYWORDS: geophysics
hydrology

GEOGRAPHIC AREA: Durham Basin, North Carolina

361 P : EMERSON, B.K., 1882, The Deerfield dyke and its minerals: American Journal of Science, Third Series, v. 24, p. 195-202, 270-278, 349-360.

SUMMARY: The detailed mineralogy of the dike, which is best observed at Turner's Falls at the mouth of Fall River, is outlined with the following minerals discussed: diabantite, albite, prehnite, calcite, epidote, chalcopyrite, sphalerite, datolite, fluorite, natrolite, and other zeolites. The series of articles concludes with an overall paragenesis.

KEYWORDS: diabase
mineralogy
petrology

GEOGRAPHIC AREA: Hartford Basin, Massachusetts

362 P : EMERSON, B.K., 1891, On the Triassic of Massachusetts: Geological Society of America, Bulletin, v. 2, p. 451-456.

SUMMARY: The rocks of the Triassic are distinguished into 6 formations: the Sugarloaf arkose, Mount Toby conglomerate, Longmeadow sandstone, Chicopee shale, Granby tuff, and Holyoke and Deerfield basalt sheets. Deposition of all sediments is considered synchronous and related to a central mudflat bordered by fast currents depositing coarser material.

KEYWORDS: general geology
stratigraphy
sedimentation

GEOGRAPHIC AREA: Hartford Basin, Massachusetts

MAPS: Geol: general (Massachusetts Triassic area)

363 P : EMERSON, B.K., 1892, Proofs that the Holyoke and Deerfield trap sheets are contemporaneous flows and not later intrusions: American Journal of Science, v. 43, p. 146-148.

KEYWORDS: basalt

GEOGRAPHIC AREA: Hartford Basin, Massachusetts

364 P : EMERSON, B.K., 1897, Diabase pitchstone and mud enclosures of the Triassic trap of New England: Geological Society of America, Bulletin, v. 8, p. 59-86.

SUMMARY: Field descriptions are given of the diabase tuffs and the mud-incorporated flow sheets. Mud is incorporated on the surface of the advancing lava sheet and also carried to its underside. Little contact metamorphic effects are present. In other cases, water-rich muds react more violently with the molten rock resulting in cracked, spherulitic glass units and mud volcanoes.

KEYWORDS: general geology
basalt
mineralogy
petrology

GEOGRAPHIC AREA: Hartford Basin, Massachusetts

DATA: Photos: photomicrographs; outcrops

365 PM: EMERSON, B.K., 1898, Holyoke folio: U.S. Geological Survey, Geologic Atlas No. 50, 13 p.

SUMMARY: (Covers area between 73°-72°30' and 42°-42°30'.) Text includes descriptions of the Talcott, Holyoke, and Hampden basalts, the Mount Toby conglomerate, the Sugarloaf arkose, Longmeadow sandstone, Chicopee shale, and Granby tuff.

KEYWORDS: economic geology
lead
zinc
barite
general geology

GEOGRAPHIC AREA: Hartford Basin, Massachusetts, Hampden County, Hampshire County, Franklin County

MAPS: Geol: (4) [1:125,000]

366 P : EMERSON, B.K., 1902, Holyokeite, a purely feldspathic diabase from the Triassic of Massachusetts: Journal of Geology, v. 10, p. 508-512.

SUMMARY: A white diabase differentiate (holyokeite) is described as occurring within sandstone beds just above the trap sheet. It is composed of 70% albite, 16% calcite, 9% orthoclase, and 1% ilmenite in addition to minor pyrite and chalcopyrite. The holyokeite is intermediate between diabase and E.O. Hovey's keratophyre dike.

KEYWORDS: diabase
petrology
mineralogy

GEOGRAPHIC AREA: Hartford Basin, Massachusetts, Hampden Co.

DATA: Chem. (no. of data): (3)
Chem. (type of data): major oxides

367 P : EMERSON, B.K., 1904, Note on a calcite-prehnite cement rock in the tuff of the Holyoke Range: American Journal of Science, v. 17, p. 277-278.

KEYWORDS: basalt
zeolites

GEOGRAPHIC AREA: Hartford Basin, Massachusetts

368 P : EMERSON, B.K., 1905, Plumose diabase and palagonite from the Holyoke trap sheet: Geological Society of America, Bulletin, v. 16, p. 91-130.

SUMMARY: A lengthy description of the nature of the Holyoke sheet is given including inclusions, explosion breccia, schlieren types, glasses, porphyry, spherulites, and holyokeite differentiate. Magmatic processes are outlined.

KEYWORDS: diabase
petrology

GEOGRAPHIC AREA: Hartford Basin, Massachusetts

MAPS: Geol: Holyoke area, Massachusetts

DATA: Chem. (no. of data): (13)
Chem. (type of data): major oxides
Photos: photomicrographs and hand samples

369 P : EMERSON, B.K., 1916, Description of large cylinders of scoriaceous diabase in the normal Holyoke diabase: American Journal of Science, v. 41, p. 321-322.

KEYWORDS: diabase
basalt

GEOGRAPHIC AREA: Hartford Basin, Massachusetts

370 P : EMERSON, B.K., 1917, Geology of Massachusetts and Rhode Island: U.S. Geological Survey Bulletin 597, 289 p.

SUMMARY: The following is included in the report: descriptions of the Sugarloaf arkose, the Mt. Toby conglomerate, Longmeadow sandstone, Granby tuff, Chicopee shale, the fossil flora and fauna, and the petrography and form of the diabase and basalt flows. Coarse basin facies are attributed to glacial deposition.

KEYWORDS: general geology
stratigraphy
economic geology
copper
lead
zinc
paleontology
mineralogy
diabase
basalt
petrology

GEOGRAPHIC AREA: Hartford Basin, Deerfield Basin, Massachusetts

MAPS: Geol: [1:250,000]

371 P : EMERSON, BENJAMIN KENDALL, 1898, Geology of Old Hampshire County, Massachusetts: U.S. Geological Survey Monograph 29, 790 p.

SUMMARY: Two hundred pages are devoted to discussions of the Triassic sedimentary and igneous rocks, the latter includes petrographic photos and descriptions of the various types. Artesian well logs are presented. The paleontology and structure are also discussed.

KEYWORDS: general geology
stratigraphy
paleontology
basalt

GEOGRAPHIC AREA: Hartford Basin, Deerfield Basin, Massachusetts, Hampshire Co.

MAPS: Geol: [1:190,080]

372 P : ENGELEN, G.B., 1963, Indications for large-scale graben formation along the continental margin of the Eastern United States: Geologie en Mijnbouw, v. 42, no. 3, p. 65-75.

SUMMARY: Geophysical and topographic data indicate a graben system along the Atlantic margin from Puerto Rico to Newfoundland. Rifting progressed southward. Such graben formation surrounding the Atlantic indicates a tensional environment in support of a mid-Atlantic rift. Graben development is attributed to a complex late Mesozoic subsidence.

KEYWORDS: tectonics

GEOGRAPHIC AREA: Regional

MAPS: Section: graben profiles

373 A : ERICKSON, G.P., AND KULP, J.L., 1960, Potassium-argon measurements on the Palisades diabase and associated basalts: Journal of Geophysical Research, v. 65, no. 8, p. 2487-2488.

SUMMARY: Compared with biotite, the fine (chilled) and coarse facies (Palisades and Watchung basalts) retain 90% of their radiogenic argon - the coarser facies somewhat less. The retention is attributed to the amount and alteration of K-feldspar, absent in the fine facies and abundant in the coarse facies. Biotite gives a 190 m.y. crystallization age for the Palisades diabase.

KEYWORDS: geophysics
radiometric age
K/Ar dating

GEOGRAPHIC AREA: Newark Basin, New Jersey

374 P : ERICKSON, G.P., AND KULP, J.L., 1961, Potassium-argon measurements on the Palisades Sill, New Jersey: Geological Society of America, Bulletin, v. 72, p. 649-652.

SUMMARY: K-Ar dating is conducted on seven different units within the sill (illustrated). Much attention is given to the technical procedure and retentivity. Biotite indicates a 190$\pm$5 m.y. age, and wholerock values may be as accurate.

KEYWORDS: geophysics
radiometric age
K/Ar dating

GEOGRAPHIC AREA: Newark Basin, New Jersey

375 PM: ERN, ERNEST H., 1968, Geology of the Buckingham Quadrangle, Virginia: Virginia Division of Mineral Resources, Report of Investigations 15, 42 p.

SUMMARY: The southwest area of the basin is discussed. It is bounded on the west and on most of the east by normal faults. Three facies of sedimentary rocks, an eastern arkosic sandstone, shale, and siltstone unit, a central fanglomerate unit, and a western green-gray shale unit are present. Diabase dikes are also present.

KEYWORDS: general geology

GEOGRAPHIC AREA: Scottsville Basin, Virginia, Buckingham Co., Nelson Co., Howardsville Quad., Glenmore Quad.

MAPS: Geol: [1:62,500]

376 P : ESPENSHADE, G.H., 1954, Geology and mineral deposits of the James River-Roanoke River manganese district, Virginia: U.S. Geological Survey Bulletin 1008, 115 p.

SUMMARY: An occurrence of minor copper mineralization associated with quartz-calcite veins cutting Triassic shale is described (Dolan property, p. 79, 145).

KEYWORDS: economic geology
copper

GEOGRAPHIC AREA: Virginia, Nelson County

377 P : EUGSTER, HANS P., AND CHOU, I-MING, 1979, A model for the deposition of Cornwall-type magnetite deposits: Economic Geology, v. 74, p. 763-774.

SUMMARY: Ore emplacement occurred at about 500°C. A convecting system of aqueous chloride solutions becomes more acidic by the conversion of muscovite to K-spar in the country rock. HCl dissolves iron minerals in the diabase to yield $FeCl_2$, which then precipitates magnetite upon contact with the limestone. A detailed chemical discussion is provided.

KEYWORDS: economic geology
iron

GEOGRAPHIC AREA: Regional

378 P : EVANS, I., KENDALL, C.G. ST.C., AND WARME, J.E., 1974, Jurassic sedimentation in the high Atlas Mountains of Morocco during early rifting of Africa and North America: Geology, v. 2, p. 295-296.

SUMMARY: Studies in the Ziz Valley indicate a carbonate-dominated sedimentation during the Early Jurassic and an infilling of the rift trough by the Middle Jurassic. Syntectonic deformation is evidenced by Early Jurassic turbidites and slump blocks. Deformation of the trough occurred after the Jurassic.

KEYWORDS: general geology
sedimentation

GEOGRAPHIC AREA: Morocco

F

379 A : FAILL, ROGER T., 1971, A tectonic model for the Triassic Basin in Pennsylvania: Pennsylvania Academy of Science, Proceedings, v. 45, p. 198-199.

SUMMARY: Fault evidence along the southeastern and northwestern basin borders is lacking. Only isolated, small-scale (< 3000 feet) displacements occur. Aeromagnetics and gravity surveys show no faulting, and intrusions are concentrated away from basin edges. A series of rotational and extensional events is favored.

KEYWORDS: structure
faults

GEOGRAPHIC AREA: Newark Basin, Gettysburg Basin, Pennsylvania

380 P : FAILL, ROGER T., 1973, Tectonic development of the Triassic Newark-Gettysburg Basin in Pennsylvania: Geological Society of America, Bulletin, v. 84, p. 725-740.

SUMMARY: The origin of the basin is attributed to simple synformal downwarp and not fault-bounded graben development. Evidence is provided by structural data (including): lack of syndepositional faulting and comparison of gravity data to known grabens. In addition, the homogeneity of intrusive composition is cited as evidence. Igneous intrusion occurred late and tilting-faulting followed deposition.

KEYWORDS: structure
tectonics
sedimentation

GEOGRAPHIC AREA: Newark Basin, Gettysburg Basin, Pennsylvania

MAPS: Geol: basin
Misc: paleofacies, structure (domain map)

381 P : FANALE, F.P., AND KULP, J.L., 1962, The helium method and the age of the Cornwall, Pennsylvania, magnetite ore: Economic Geology, v. 57, p. 745-756.

SUMMARY: A discussion of the dating technique is presented and involves an important leaching process for secondary radioactive grain coatings. The remaining lattice helium is then a function of the inherent retentivity of the crystal lattice. Cornwall magnetite yields ages of about 194 m.y. with pyrite 170 m.y. The magnetite values are consistent with known K-Ar dates.

KEYWORDS: geophysics
radiometric age
helium dating
economic geology
iron

GEOGRAPHIC AREA: Newark Basin, Pennsylvania, Lebanon Co., Lebanon Quad.

382 A : FANALE, F.P., AND KULP, J.L., 1964, Uranium, thorium-helium dating of magnetite: Geological Society of America, Special Paper 76, p. 57.

SUMMARY: Isotope-dilution measurements on magnetite from Cornwall indicate a 200 m.y. age. Accuracy in the method depends upon sample leaching, which yields higher ages than unleached samples.

KEYWORDS: geophysics
radiometric age
economic geology
iron

GEOGRAPHIC AREA: Newark Basin, Pennsylvania, Lebanon Co., Lebanon Quad.

383 P : FARQUHAR, O.C., 1967, Tectonic and nontectonic structures in Triassic sedimentary rocks at Holyoke, Massachusetts: in, Farquhar, O.C. (ed.), Economic geology in Massachusetts: Amherst, Massachusetts, Graduate School, University of Massachusetts, p. 317-336.

KEYWORDS: sedimentation

GEOGRAPHIC AREA: Hartford Basin, Massachusetts

384 P : FAUST, GEORGE T., 1975, A review and interpretation of the geologic setting of the Watchung basalt flows, New Jersey: U.S. Geological Survey Professional Paper 864-A, 42 p.

SUMMARY: The time-stratigraphic position and relationship of the basalt flows to their associated sediments are outlined. Late arching of the basin produced tectonic joints in the basalt flows. Feeder dikes are hidden by cover. The areal extent of the flows, their chemistry, and the regional tectonic framework are discussed.

KEYWORDS: general geology
structure
tectonics
basalt

GEOGRAPHIC AREA: Newark Basin, New Jersey

MAPS: Section: stratigraphic columns, cross section

DATA: Chem. (no. of data): (9)
Chem. (type of data): basalt major oxide and norms

385 P : FAUST, GEORGE T., 1978, Joint systems in the Watchung basalt flows, New Jersey: U.S. Geological Survey Professional Paper 864-B, 46 p.

SUMMARY: The cooling, tectonic, and weathering joint phenomena are discussed. Each flow is composed of (from top) a vesicular, columnar, blocky, curvilinear, and basal vesicular zone related to cooling. Tectonic joints are superimposed and followed by later glacial sheeting and weathering joint development. Numerous field photos are provided.

KEYWORDS: basalt
structure

GEOGRAPHIC AREA: Newark Basin, New Jersey

DATA: Photos: (50)

386 P : FAUST, GEORGE T., 1978, Time relation of the Watchung basalt flows to the faulting in the Newark graben: Journal of Research, U.S. Geological Survey v. 6, no. 3, p. 391-394.

SUMMARY: Each of the three basalt flows is underlain by a fanglomerate which is in turn overlain by only a thin shale layer, and this is true for Conn. as well. This indicates that extrusion occurred after faulting episodes and the border faults did not provide ingress. The nonsimultaneity of faulting and extrusion is suggested.

KEYWORDS: structure
basalt
tectonics
faults

GEOGRAPHIC AREA: Newark Basin, New Jersey

MAPS: Geol: sketch of Watchung Mtns.

387 P : FAUST, GEORGE T., AND MURATA, K.J., 1953, Stevensite, redefined as a member of the montmorillonite group: American Mineralogist, v. 38, p. 973-987.

SUMMARY: This hydrous magnesium silicate occurs as pseudomorphs after pectolite in basalt at Hoboken, N.J. Its chemistry and physical properties are outlined. (Further descriptions of this occurrence may be found in: Glenn, M.L., 1916, American Mineralogist, v. 1, p. 44-46.)

KEYWORDS: mineralogy
diabase
zeolites

GEOGRAPHIC AREA: Newark Basin, New Jersey

DATA: Chem. (type of data): major oxide

388 PM: FAUTH, J.L., 1978, Geology and mineral resources of the Iron Springs area, Adams and Franklin Counties, Pennsylvania: Pennsylvania Geological Survey, Atlas 129C, 72 p.

SUMMARY: The western edge of the basin, which occupies the eastern edge of the quadrangle, is in fault contact with the lower Paleozoic and Precambrian Blue Ridge rocks, and consists of shale and sandstone of the Gettysburg Fm., diabase, and, unlike observations by Stose and Bascom (1929), does not apparently contain Cambro-Ordovician limestone east of the border fault.

KEYWORDS: general geology
structure

GEOGRAPHIC AREA: Gettysburg Basin, Pennsylvania, Adams County, Iron Springs Quad.

MAPS: Geol: [1:24,000]

389 M : FAUTH, JOHN L., 1977, Geologic map of the Catoctin Furnace and Blue Ridge Summit Quadrangles, Maryland: Maryland Geological Survey.

KEYWORDS: general geology

GEOGRAPHIC AREA: Gettysburg Basin, Maryland, Frederick County

MAPS: Geol: [1:24,000]

390 P : FENNER, CLARENCE N., 1908, Features indicative of physiographic conditions prevailing at the time of the trap extrusions in New Jersey: Journal of Geology, v. 16, p. 299-327.

SUMMARY: Study of the basalt-sedimentary rock relationships indicate depositional conditions of a semi-desert area with an eolian component. A central lake, here named Lake Paterson, was present during basalt extrusion as evidenced by an area of secondary minerals and glassy flows.

KEYWORDS: general geology
sedimentation
basalt

GEOGRAPHIC AREA: Newark Basin, New Jersey

391 P : FENNER, CLARENCE N., 1910, The Watchung basalt and the paragenesis of its zeolites and other secondary minerals: New York Academy of Sciences, Annals, v. 20, p. 93-187.

SUMMARY: This extensive treatise, concerning the occurrence of zeolites and other minerals found in the Watchungs, concludes that such mineral-rich areas formed above pre-existing lakes. Three stages are present: (1) albite, garnet, amphibole, sulfides, datolite, prehnite, pectolite; (2) analcite, zeolites, chlorite; (3) calcite, gypsum.

KEYWORDS: basalt
mineralogy
petrology
zeolites

GEOGRAPHIC AREA: Newark Basin, New Jersey

DATA: Photos: photomicrographs

392 P : FENNER, CLARENCE N., 1914, Babingtonite from Passaic County, New Jersey: Washington Academy of Science, Journal, v. 4, p. 552-558.

SUMMARY: Babingtonite is found in the zeolite cavities in the Watchung basalt at the Francisco Quarry at Great Notch. Most often it is dissolved by early alteration leaving casts. The chemical and physical properties are outlined.

KEYWORDS: basalt
mineralogy
zeolites

GEOGRAPHIC AREA: Newark Basin, New Jersey, Passaic Co.

393 P : FISHER, G.W., 1964, The Triassic rocks of Montgomery County: in, The Geology of Howard and Montgomery Counties, Maryland Geological Survey, p. 10-17.

SUMMARY: A sequence of Triassic sediments is described and consists of (from base) quartzite and phyllite conglomerate (200 ft.); arkosic sandstone, siltstone, and shale (900 to 2000 ft.); and red shales (5000 ft. in southern area) and sandstones and conglomerates (4000 ft. in northern area). The Boyds diabase sill occurs in the NE corner of the area along the unconformable basin margin and contains hypersthene phenocrysts in a ground mass of augite, plagioclase, and hypersthene. Olivine is most abundant along the sill margin. Diabase dikes are described.

KEYWORDS: general geology

GEOGRAPHIC AREA: Culpeper Basin, Maryland

MAPS: Geol: sketch

DATA: Chem. (type of data): diabase major oxide

394 P : FLANIGAN, V.J., 1978, Geophysical investigations in Fairfax County, Virginia: U.S. Geological Survey Open-File Report 78-150, 14 p.

SUMMARY: VLF electromagnetic surveys conducted in the Herndon Quadrangle delineate the basin's eastern border and a diabase dike.

KEYWORDS: geophysics
magnetism

GEOGRAPHIC AREA: Culpeper Basin, Virginia

MAPS: Geophys: profiles
Misc: line locations

395 T : FLEISHER, P. JAY, 1963, Structural control of the igneous intrusions of the Durham Triassic Basins, North Carolina: M.S. Thesis, University of North Carolina.

KEYWORDS: structure

GEOGRAPHIC AREA: Durham Basin, North Carolina

396 PM: FLINT, RICHARD FOSTER, 1964, The surficial geology of the Branford Quadrangle: Connecticut Geological and Natural History Survey, Quadrangle Report no. 14, 46 p.

SUMMARY: The area consists mostly of glacial sediments and recent surficial deposits, and a small number of Triassic exposures occur.

KEYWORDS: general geology

GEOGRAPHIC AREA: Hartford Basin, Connecticut, New Haven

MAPS: Geol: surficial [1:24,000]
Misc: surficial geology, outcrop location [1:24,000]

397 P : FLOYD, EDWIN O., 1965, Geology and ground-water resources of the Monroe area, North Carolina: North Carolina Department of Water Resources, Division of Ground Water, Ground Water Bulletin 5, 109 p.

SUMMARY: The rock units of the Triassic are briefly described and include a western fanglomerate. Ground water data from 26 wells are presented. Water tends to be hard with high amounts of iron and chloride.

KEYWORDS: hydrology

GEOGRAPHIC AREA: Wadesboro Basin, North Carolina, Anson Co., Union Co.

MAPS: Misc: geologic sketch maps of the two counties showing Triassic

398 P : FLUHR, THOMAS W., 1941, The geology of the Lincoln Tunnel: Rocks and Minerals, v. 16, no. 6, p. 115-119, 155-160, 195-198.

SUMMARY: This series of articles outlines the geology of the tunnel including the presence of faults, diabase, and Triassic sediments. Their relationship to construction is emphasized.

KEYWORDS: diabase
faults
sediments

GEOGRAPHIC AREA: Newark Basin, New York, New Jersey

MAPS: Geol: sketches

399 P : FOLGER, D.W., HATHAWAY, J.C., CHRISTOPHER, R.A., VALENTINE, P.C., AND POAG, C.W., 1978, Stratigraphic test well, Nantucket Island, Massachusetts: U.S. Geological Survey Circular 773, 28 p.

SUMMARY: A 514-m borehole intersected basalt at about 450 meters. Chemical and petrographic data are presented. Geophysical data and the core indicate that an early Mesozoic graben may exist between Nantucket and Martha's Vineyard.

KEYWORDS: buried basins
geophysics
basalt
geochemistry

GEOGRAPHIC AREA: Massachusetts (offshore)

MAPS: Geophys: gravity [1:1,574,803]

400 A : FOLGER, D.W., HATHAWAY, J.C., AND POAG, C.W., 1976, Mesozoic stratigraphic test, Nantucket Island, Massachusetts: American Association of Petroleum Geologists, v. 60, p. 672.

SUMMARY: The objectives of the test well are outlined without specific conclusions with regard to the Mesozoic. (The reader is referred to Folger and others, 1978.)

KEYWORDS: buried basins

GEOGRAPHIC AREA: Massachusetts (offshore)

401 P : FONTAINE, W.M., 1883, Contributions to the knowledge of the older Mesozoic flora of Virginia: U.S. Geological Survey, Monograph 6, 144 p.

SUMMARY: The plant species from the lower, carbonaceous units of the Virginia and North Carolina Basins are described in detail, and 54 plates of drawings are included. All the basin areas are considered the same age. Unlike the Virginia Triassic, N. Carolina is richer in conifers, contains plants within upper, coarser units, and contains only rare fossils within the coal strata. The plant species are considered no older than Rhaetic in age.

KEYWORDS: paleontology

GEOGRAPHIC AREA: Regional

402 P : FOOSE, R.M., RYTUBA, J.J., AND SHERIDAN, M.F., 1968, Volcanic plugs in the Connecticut Valley Triassic near Mt. Tom, Massachusetts: Geological Society of America, Bulletin, v. 79, p. 1655-1662.

SUMMARY: Five lava flows originated from this exposed plug and deformed the surrounding sediments. Direction of flow, primarily NE, was determined by plagioclase orientation. Petrographic and chemical data are presented. Local field relations of the flows, breccias, xenoliths, and intruded sediments are outlined.

KEYWORDS: general geology
basalt
petrology
geochemistry

GEOGRAPHIC AREA: Hartford Basin, Massachusetts

403 P : FORD, F.L., 1903, The trap rock of the Connecticut Valley: Stone, v. 26, p. 130-133.

KEYWORDS: basalt

GEOGRAPHIC AREA: Hartford Basin, Connecticut

404 P : FOSTER, G.V., 1943, Occurrences of prehnite at King Philip's cave: Rocks and Minerals, v. 18, p. 298-299.

KEYWORDS: basalt
zeolites
mineralogy

GEOGRAPHIC AREA: Hartford Basin, Connecticut

405 A : FOYE, W.G., 1924, Anterior range of Connecticut: Geological Society of America, Bulletin, v. 35, p. 87.

KEYWORDS: basalt
surficial geology

GEOGRAPHIC AREA: Hartford Basin, Connecticut

406 P : FOYE, W.G., 1936, A spatter cone in the main trap sheet, Farmington, Connecticut: American Journal of Science, v. 31, p. 296-300.

SUMMARY: An apparent basalt vent is described from the Farmington Quarry and is composed of vesicular basalt cemented by calcite and datolite.

KEYWORDS: basalt

GEOGRAPHIC AREA: Hartford Basin, Connecticut

DATA: Photo: spatter cone exposed in quarry; thin sections

407 P : FOYE, WILBUR G., 1922, Origin of the Triassic trough of Connecticut: Journal of Geology, v. 30, p. 690-699.

SUMMARY: An eastern border normal faulting theory is proposed as opposed to a bowl-shaped unfaulted geosyncline. Evidence is in part provided by coarse conglomerate, lack of bed repetition about a central symmetry, and volcanic centers near the eastern boundary.

KEYWORDS: structure
faults

GEOGRAPHIC AREA: Hartford Basin, Connecticut

408 A : FOYE, WILBUR G., 1922, Structure of the Connecticut Basin during the Newark Epoch: Geological Society of America, Bulletin, v. 33, p. 87-89.

SUMMARY: A faulted monocline is proposed rather than a downwarped peneplain. (A discussion follows the abstract and contains remarks in favor of faulting by J.B. Woodworth, C.E. Gordon, W.J. Miller, C.R. Longwell, and others.)

KEYWORDS: structure

GEOGRAPHIC AREA: Hartford Basin, Connecticut

409 P : FOYE, WILBUR G., 1924, Abnormal dips near the eastern boundary fault of the Connecticut Triassic: Science, v. 59, p. 240.

SUMMARY: A marked increase in steepening of dips is noted at the eastern fault and is attributed to a late stage of compression directed from the west. Dips increase to 50°E at the fault from 10°E one-half mile to the west.

KEYWORDS: structure
tectonics

GEOGRAPHIC AREA: Hartford Basin, Connecticut

410 P : FOYE, WILBUR G., 1924, Pillow structure in the Triassic basalts of Connecticut: Geological Society of America, Bulletin, v. 35, p. 329-346.

SUMMARY: Pillow basalts occur in the Anterior Range at Talcott, Lamentation, and East Peak Mountains. Their character is described, but their origin does not appear to correlate with other pillow studies. The Connecticut area is considered to have lacked significant bodies of water and the pillows did not form on the leading edge of the basalt flow.

KEYWORDS: general geology
basalt
structure

GEOGRAPHIC AREA: Hartford Basin, Connecticut

411 P : FOYE, WILBUR G., 1930, A basaltic vent of Triassic Age at Durham, Connecticut: American Journal of Science, 5th Series, v. 19, p. 151-157.

SUMMARY: An agglomeratic basalt exposure associated with local faulting is considered evidence for a volcanic vent at the eastern border of the basin. Stoping and secondary mineralization are also evident. Sketches and photographs are presented.

KEYWORDS: general geology
basalt

GEOGRAPHIC AREA: Hartford Basin, Connecticut, Middlesex Co., Durham Quadrangle

412 T : FRANZ, A.J., 1978, Sedimentology of the Sugarloaf Arkose, Late Triassic-Early Jurassic of the Connecticut Valley: M.S. Thesis, University of Massachusetts, 174 p.

KEYWORDS: sedimentation

GEOGRAPHIC AREA: Hartford Basin

413 P : FRASER, D.M., BUTLER, R.D., AND HURLBUT, C.S., JR., 1938, Prehnite from Coopersburg, Pennsylvania: American Mineralogist, v. 23, p. 583-587.

SUMMARY: The optical and crystallographic properties of prehnite are described from a vein within diabase. The diabase adjacent to the vein is altered to uralite, quartz, and epidote.

KEYWORDS: mineralogy
zeolites
diabase

GEOGRAPHIC AREA: Newark Basin, Pennsylvania, Berks Co.

414 P : FRAZER, P., 1877, Regarding some Mesozoic ores: American Philosophical Society, Proceedings, v. 16, p. 651-655.

SUMMARY: A model is developed advocating erosion of pre-Triassic iron and copper deposits from the South Mountain region and deposition within the Triassic basin area. Consideration of the direction of sediment transport accounts for the observed geographic distribution of Triassic deposits. Triassic copper and iron deposits are therefore considered synsedimentary and not related to diabase intrusives.

KEYWORDS: economic geology
copper
iron

GEOGRAPHIC AREA: Gettysburg Basin, Pennsylvania

415 P : FRAZER, P., JR., 1880, The geology of Lancaster County: Pennsylvania Geological Survey (2nd), Report of Progress in 1877, Reports CCC, 350 p.

SUMMARY: General geologic descriptions, some chemical data; also detailed descriptions of worked mines, quarries and prospects in the county, with tables of chemical analyses of the "trap" and other ore-bearing rocks. A brief description is given of the Triassic rocks present in the northern part of the county. Included are major oxide analyses of diabase, magnetite "ore," and adjacent limestone from the Dillsburg (York County) mines and vicinity.

KEYWORDS: general geology
economic geology
iron

GEOGRAPHIC AREA: Gettysburg Basin, Pennsylvania, Lancaster Co., York Co.

DATA: Chem. (type of data): diabase (major); ores (major); limestone (major);
orthofelsite (major)

416 PM: FRAZER, PERSIFOR, 1886, General notes - sketch on the geology of York County, Pennsylvania: American Philosophical Society, Proceedings, v. 23, p. 391-410.

SUMMARY: The general geology of York County is outlined and the Mesozoic redbeds are described. An eastern conglomerate is recognized, as is coal near Liverpool; paleontological notes are also presented.

KEYWORDS: general geology
economic geology
coal

GEOGRAPHIC AREA: Gettysburg Basin, Pennsylvania, York Co.

MAPS: Geol: [1:25,344]

417 P : FRAZER, PERSIFOR, JR., 1877, Report of progress in the counties of York, Adams, Cumberland and Franklin: Pennsylvania Geological Survey (2nd), Report CC, 200 p.

SUMMARY: Detailed descriptions are given of the Dillsburg mines and include structure, ore analyses, drill hole logs, and mine plans. A discussion following the descriptive text advocates a sedimentary origin for the deposits.

KEYWORDS: economic geology
iron

GEOGRAPHIC AREA: Gettysburg Basin, Pennsylvania

MAPS: Section: geologic cross sections
Misc: mine locations with topography

DATA: Chem. (type of data): ore (major oxide)

418 P : FRAZER, PERSIFOR, JR., 1879, The Mesozoic sandstone of the Atlantic slope: American Naturalist, v. 13, p. 284-292.

KEYWORDS: sediments
sedimentation

GEOGRAPHIC AREA: Regional

419 F : FRIEDMAN, G.M., SANDERS, J.E., AND MARTINI, I.P., 1982, Sedimentary facies: products of sedimentary environments in a cross section of the classic Appalachian Mountains and adjoining Applachian basin in New York and Ontario: 11th International Congress on Sedimentology, McMaster University, Hamilton, Ont., Field Excursion Guidebook, Excursion 17a, 266 p.

KEYWORDS: sedimentation

GEOGRAPHIC AREA: Regional

420 P : FRIEDMAN, GERALD M., 1954, Note on the relative abundance of some trace elements near the lower and upper contacts of the Palisades Sill: American Journal of Science, v. 252, no. 8, p. 502-503.

SUMMARY: A brief study of trace elements was made and indicates that Cr, Co, Cu, Mn, Ti, and V decrease upwards, and Ni shows little differentiation. Volatiles appear to be enriched at the top.

KEYWORDS: geochemistry
diabase

GEOGRAPHIC AREA: Newark Basin, New Jersey

DATA: Chem. (type of data): trace elements

421 P : FRITTS, C.E., 1962, The barite mines of Cheshire: The Cheshire Historical Society, Cheshire, Connecticut.

SUMMARY: The history, mine workings, and production of five barite deposits are outlined. Deposits occur as veins and fault breccia fillings closely associated with diabase and within interbedded siltstone, arkose, and conglomerate. No appreciable copper, zinc, or lead sulfides occur.

KEYWORDS: economic geology
barite

GEOGRAPHIC AREA: Hartford Basin, Connecticut

MAPS: Geol: sketch
Misc: locations of mines, mine plans

DATA: Photos: mineral specimens

422 M : FRITTS, CRAWFORD E., 1963, Bedrock geology of the Mount Carmel Quadrangle: U.S. Geological Survey, Geologic Quadrangle Map GQ-199.

KEYWORDS: general geology

GEOGRAPHIC AREA: Hartford Basin, Connecticut, New Haven Co.

MAPS: Geol: [1:24,000]

423 M : FRITTS, CRAWFORD E., 1963, Bedrock geology of the Southington Quadrangle: U.S. Geological Survey, Geologic Quadrangle Map GQ-200.

KEYWORDS: general geology

GEOGRAPHIC AREA: Hartford Basin, Connecticut, Hartford Co., New Haven Co.

MAPS: Geol: [1:24,000]

424 P : FRITTS, CRAWFORD E., 1963, Late Newark fault versus pre-Newark peneplain in Connecticut: American Journal of Science, v. 261, p. 268-281.

SUMMARY: Evidence for a pre-Newark peneplain is lacking in the southwestern Hartford Basin. New exposures of faults and unconformities and a general reinvestigation of the area provide such evidence.

KEYWORDS: structure
faults

GEOGRAPHIC AREA: Hartford Basin, Connecticut, New Haven Co., Mount Carmel Quad.

MAPS: Misc: geol. sketches of field area

DATA: Photos: Mixville fault, Roaring Brook unconformity

425 M : FROELICH, A., 1975, Map showing mineral resources of Montgomery County, Maryland: U.S. Geological Survey Miscellaneous Investigations, Map I-920-E.

KEYWORDS: economic geology
copper

GEOGRAPHIC AREA: Culpeper Basin, Maryland

MAPS: Geol: [1:62,500]

426 M : FROELICH, A.J., 1975, Bedrock map of Montgomery County, Maryland: U.S. Geological Survey Miscellaneous Investigations Map I-920-D.

KEYWORDS: general geology

GEOGRAPHIC AREA: Culpeper Basin, Maryland

MAPS: Geol: [1:62,500]

427 M : FROELICH, A.J., 1976, Map showing mineral resources of Fairfax County, Virginia - availability and planning for future needs: U.S. Geological Survey, Open-File Report 76-660.

KEYWORDS: economic geology
barite
copper

GEOGRAPHIC AREA: Culpeper Basin, Virginia

MAPS: Geol: [1:48,000]

428 M : FROELICH, A.J., 1978, Map showing planar and linear features of Fairfax County, Virginia: U.S. Geological Survey Open-File Report 78-443.

KEYWORDS: structure

GEOGRAPHIC AREA: Culpeper Basin, Virginia

MAPS: Geol: structure [1:48,000]

429 M : FROELICH, A.J., 1984, Maps showing geologic and hydrologic factors affecting land-use planning in the Culpeper basin, Virginia and Maryland: U.S. Geological Survey Miscellaneous Investigations Report I-1313-J.

KEYWORDS: hydrology

GEOGRAPHIC AREA: Culpeper Basin, Virginia, Maryland

MAPS: Misc: land-use planning [1:125,000]

430 M : FROELICH, A.J., AND LANGER, W.H., 1981, Geologic provinces, landforms, drainage basins and flooding in Fairfax County, Virginia: U.S. Geological Survey, Miscellaneous Investigation Map MI-1421.

KEYWORDS: hydrology
structure

GEOGRAPHIC AREA: Culpeper Basin, Virginia

MAPS: Misc: [1:48,000]

431 P : FROELICH, A.J., AND OLSEN, P.E., 1984, Newark Supergroup, a revision of the Newark Group in eastern North America: U.S. Geological Survey Bulletin 1537A, 7 p.

SUMMARY: A review of the regional setting of the Early Mesozoic basins is given; and the use of the term "Newark Supergroup" to incorporate all exposed basins of eastern North America is stressed.

KEYWORDS: general geology

GEOGRAPHIC AREA: Regional

432 M : FROELICH, A.J., AND ZENONE, C., 1983, Geologic terrane, drainage basins, overburden, and low flow of streams in Fairfax County and vicinity, Virginia: U.S. Geological Survey Miscellaneous Investigations Map I-1534.

KEYWORDS: hydrology

GEOGRAPHIC AREA: Culpeper Basin, Virginia

MAPS: Misc: [1:48,000]

433 M : FROELICH, A.J., AND ZENONE, C., 1983, The relation of water quality to geology and land-use changes in Fairfax County and vicinity, Virginia: U.S. Geological Survey Miscellaneous Investigations Map I-1561.

KEYWORDS: hydrology

GEOGRAPHIC AREA: Culpeper Basin, Virginia

MAPS: Misc: [1:48,000]

434 M : FROELICH, ALBERT J., AND LEAVY, B.D., 1981, Map showing mineral resources of the Culpeper Basin, Northern Virginia and Maryland: U.S. Geological Survey Miscellaneous Investigations Map I-1313B.

KEYWORDS: economic geology
copper
barite

GEOGRAPHIC AREA: Culpeper Basin, Virginia

MAPS: Geol: lithology [1:125,000]

435 F : FROELICH, ALBERT J., LEAVY, B.D., AND LINDHOLM, R.C., 1982, Geologic traverse across the Culpeper Basin (Triassic-Jurassic) of northern Virginia: in, Lyttle, P.T., ed., Central Appalachian Geology, Geological Society of America, Field Trip Guidebook, p. 55-81.

SUMMARY: Eight field stops in the northern area of the basin include eastern margin faults, hornfels, carbonate clast conglomerate, border conglomerate, basalt, and lacustrine sequences. Detailed discussions are provided.

KEYWORDS: general geology

GEOGRAPHIC AREA: Culpeper Basin, Virginia

MAPS: Geol: sketches
Section: outcrop sections

436 P : FULLER, M.L., 1905, Triassic rocks of the Connecticut Valley as a source of water supply: U.S. Geological Survey Water Supply Paper, no. 110, p. 95-112.

KEYWORDS: hydrology

GEOGRAPHIC AREA: Hartford Basin, Connecticut

437 A : FULLER, RICHARD E., 1950, Palisades joint cracks: Geological Society of America, Bulletin, v. 61, p. 1523.

SUMMARY: An exposure on 125 St. in New York exposes the basal chill zone, and olivine-rich and olivine-poor phases. Vertical joints represent escape of volatiles without alteration of olivine.

KEYWORDS: general geology
diabase

GEOGRAPHIC AREA: Newark Basin, New York

438 PM: FURCRON, A.S., 1939, Geology and mineral resources of the Warrenton Quadrangle, Virginia: Virginia Geological Survey, Bulletin 54, 94 p.

SUMMARY: The Triassic area, bordered on the west by the Catoctin Fault, contains a lower Bull Run shale and an upper fanglomerate, which contains Catoctin metabasalt fragments. Several barite deposits are mentioned.

KEYWORDS: general geology
stratigraphy
economic geology
barite

GEOGRAPHIC AREA: Culpeper Basin, Virginia, Culpeper Co., Fauquier Co., Warrenton Quad.

MAPS: Geol: [1:62,500]

G

439 F : GANIS, G.R., AND HOPKINS, D., 1984, Stratigraphy, structural style, and economic geology of the York-Hanover Valley: Harrisburg Area Geological Society, 3rd Annual Field Trip, 51 p.

SUMMARY: Caves within the Cambrian Ledger dolomite just south of the Triassic border near Thomasville contain red shale of presumed Triassic age with angular dolomite blocks. A 70-foot wide zone of coarse dolomite breccia cemented with red shale also occurs in this quarry (J.E. Baker Company). Another field trip stop in the area displays the New Oxford (Triassic) overlap onto Precambrian greenstone at the south basin margin.

KEYWORDS: general geology
sedimentation

GEOGRAPHIC AREA: Gettysburg Basin, Pennsylvania, York County

MAPS: Geol: sketches

440 PM: GATES, ROBERT M., 1954, The bedrock geology of the Woodbury Quadrangle: Connecticut Geological and Natural History Survey, Quadrangle Report 3, 23 p.

SUMMARY: This area includes the northern part of the basin and consists of poorly exposed sandstone and conglomerate and the middle basalt flow of the Meriden Formation. An eastern border fault is represented on the map. No detailed discussions of the sediments or basalt are given, and the reader is referred to W.H. Hobbs (1901).

KEYWORDS: general geology

GEOGRAPHIC AREA: Pomperaug Basin, Connecticut

MAPS: Geol: [1:31,680]

441 T : GEDDE, R.W., 1965, Geophysical investigation of a magnetite deposit, Chester County, Pennsylvania: M.S. Thesis, Pennsylvania State University, 59 p.

KEYWORDS: geophysics
economic geology
iron

GEOGRAPHIC AREA: Newark Basin, Pennsylvania, Chester Co.

442 A : GEDDES, WILBURT H., AND THAYER, PAUL A., 1971, Gravity investigation of the Dan River Triassic Basin of North Carolina: Geological Society of America, Abstracts with Programs, v. 3, p. 312-313.

SUMMARY: Data collected from 450 gravity stations indicates a 2-milligal anomaly associated with the basin with small anomalies correlated to buried diabase. The sedimentary units are estimated to be 5000 feet thick.

KEYWORDS: geophysics
gravity
structure

GEOGRAPHIC AREA: Dan River Basin, North Carolina

443 A : GEIGER, F.J., PUFFER, J.H., AND LECHLER, P.J., 1980, Geochemical and petrographic evidence of the former extent of the Watchung basalts of New Jersey and of the eruption of the Palisades magma onto the floor of the Newark Basin: Geological Society of America, Abstracts with Programs, v. 12, p. 37.

SUMMARY: Trace elements and petrography indicate the Sand Brook and Germantown basalts are erosional remnants of the First and Second Watchung flows. The Ladentown diabase is correlated with the second Palisades magma.

KEYWORDS: basalt
geochemistry
stratigraphy

GEOGRAPHIC AREA: Newark Basin, New Jersey, New York, Hunterdon Co., Rockland Co.

444 T : GERHARD, R.C., 1952, Petrologic study of rocks of the Newark Group, eastern Pennsylvania: M.S. Thesis, University of Chicago.

KEYWORDS: sedimentation

GEOGRAPHIC AREA: Newark Basin, Pennsylvania

445 PM: GEYER, A.R., 1970, Geology, mineral resources, and environmental geology of the Palmyra Quadrangle, Lebanon and Dauphin Counties: Pennsylvania Geological Survey Atlas 157d, 45 p.

SUMMARY: This northern edge of the basin is fault bounded and internally folded, consists of coarse sandstone, shale, and conglomerate of the Hammer Creek Fm., and contains irregular bodies of diabase, some of which enter the pre-Triassic rocks to the north. The geologic relations of the faults and folds and descriptions of the diabase are included. A small magnetite (Cornwall-type) deposit occurs along the north margin of the basin in the Mill Hill slate, but is not described in detail.

KEYWORDS: general geology
structure
economic geology
iron

GEOGRAPHIC AREA: Gettysburg Basin, Pennsylvania, Lebanon County, Dauphin County, Palmyra Quad.

MAPS: Geol: [1:24,000]
Section: columnar

446 M : GEYER, A.R., AND BERG, T.M., 1976, Ephrata Quadrangle, Pennsylvania: in, Berg, T.M., and Dodge, C.M., eds., 1981, Atlas of Preliminary Geologic Quadrangle Maps of Pennsylvania, Pennsylvania Geological Survey, Map 61, p. 204.

KEYWORDS: general geology

GEOGRAPHIC AREA: Newark Basin, Gettysburg Basin, Pennsylvania, Lancaster Co., Ephrata Quad.

MAPS: Geol: [1:24,000]

447 P : GEYER, A.R., BUCKWALTER, T.V., MCLAUGHLIN, D.B., AND GRAY, C., 1963, Geology and mineral resources of the Womelsdorf Quadrangle: Pennsylvania Geological Survey, Atlas 177c, 96 p.

SUMMARY: This northern area of the basin, bounded on the N by a normal fault, is composed of the Gettysburg Fm. Here, the Gettysburg consists of a lower conglomeratic facies, a central sandstone-shale facies, and an upper conglomeratic facies, the latter of which contains Martinsburg Fm. shale fragments. The lower conglomerate lenses thin eastward away from the Hammer Creek alluvial fan. Provenance, structure, and diabase intrusions are further discussed.

KEYWORDS: general geology
sedimentation

GEOGRAPHIC AREA: Newark Basin, Gettysburg Basin, Pennsylvania, Lancaster Co., Lebanon Co., Womelsdorf Quad.

MAPS: Geol: [1:24,000]

448 F : GEYER, ALAN R., AND GRAY, CARLYLE, 1957, Triassic Basin and Great Valley from Lancaster-Lebanon interchange on the Pennsylvania Turnpike to Harrisburg: in, Dorf, E., ed., Guidebook for Field Trips, Atlantic City Meeting, 1957, Geological Society of America, p. 233-254.

SUMMARY: A description of the Cornwall deposit is given.

KEYWORDS: economic geology
iron

GEOGRAPHIC AREA: Newark Basin, Gettysburg Basin, Pennsylvania, Lebanon Co.

MAPS: Misc: geologic sketch map of Cornwall mine area

449 M : GEYER, ALAN R., GRAY, CARLYLE, MCLAUGHLIN, DEAN B., AND MOSELEY, JOHN R., 1958, Geology of the Lebanon Quadrangle: Pennsylvania Geological Survey, Fourth Series, Geologic Atlas, 167 c.

KEYWORDS: general geology
economic geology
iron

GEOGRAPHIC AREA: Gettysburg Basin, Pennsylvania, Lebanon Co., Lebanon Quad.

MAPS: Geol: [1:24,000]
Section: cross sections

450 F : GEYER, ALAN R., SMITH, R.C., II, AND BARNES, J.H., 1976, Mineral collecting in Pennsylvania: Pennsylvania Geological Survey, General Geology Report 33, 260 p.

SUMMARY: This revised version presents the history, geologic setting, and minerals of a number of Triassic occurrences including zeolites in diabase, Cornwall-type deposits, and copper, lead-zinc occurrences.

KEYWORDS: economic geology
copper
lead
zinc
iron
mineralogy
zeolites

GEOGRAPHIC AREA: Gettysburg Basin, Newark Basin, Pennsylvania

MAPS: Misc: local topographic maps showing mineral localities

451 T : GHAFFER-ADLY, R., 1961, A detailed gravity survey in the Triassic basin, north Chester Co., Pennsylvania: M.S. Thesis, The Pennsylvania State University.

KEYWORDS: geophysics
gravity

GEOGRAPHIC AREA: Newark Basin, Pennsylvania, Chester County

452 A : GIERLOWSKI-KORDESCH, E., 1983, Playa deposition in a closed basin system: East Berlin Formation: Geological Society of America, Abstracts with Programs, v. 15, p. 122.

SUMMARY: Facies of the formation (primary textures and interpretation), indicate a sandflat-mudflat-lake model. Facies include: fossiliferous oil shale (perennial lake); mudcracked, planar mudstones with sand lenses (dry, playa mudflat); concretion zones in mudstone (diagenetic disruption zone); and cross-laminated mudstone (sandflat).

KEYWORDS: sedimentation

GEOGRAPHIC AREA: Hartford Basin, Connecticut

453 P : GILBERT, G.K., 1894, The name "Newark" in North American stratigraphy: Journal of Geology, v. 2, p. 55-61.

SUMMARY: A set of criteria is discussed that justifies stratigraphic nomenclature and the use of the term "Newark." A short response by B.S. Lyman in disagreement follows.

KEYWORDS: general geology
stratigraphy

GEOGRAPHIC AREA: Regional

454 T : GILCHRIST, J.M., 1979, Sedimentology of the Lower to Middle Jurassic Portland Arkose of central Connecticut: M.S. Thesis, University of Massachusetts, 166 p.

KEYWORDS: sedimentation

GEOGRAPHIC AREA: Hartford Basin, Connecticut

455 P : GILLSON, J.L., 1926, Pigeonite from the Triassic traps of the Connecticut Valley: American Mineralogist, v. 11, p. 317-319.

KEYWORDS: basalt
diabase
mineralogy

GEOGRAPHIC AREA: Hartford Basin, Connecticut

456 M : GINSBERG, M.H., 1976, Map showing depth to bedrock, Guilford Quadrangle, Connecticut: U.S. Geological Survey, Map MF-583c.

KEYWORDS: surficial geology

GEOGRAPHIC AREA: Hartford Basin, Connecticut

MAPS: Geol: depth to bedrock [1:24,000]

457 M : GINSBERG, M.H., 1976, Map showing depth to bedrock, New Haven and Woodmont Quadrangles, Connecticut: U.S. Geological Survey, Map MF-557a.

KEYWORDS: surficial geology

GEOGRAPHIC AREA: Hartford Basin, Connecticut

MAPS: Geol: depth to bedrock [1:24,000]

458 P : GIROUARD, J.G., 1967, The Appalachian Triassic basin uranium belt theory: Rocks and Minerals, v. 42, p. 373.

KEYWORDS: economic geology
uranium

GEOGRAPHIC AREA: Regional

459 P : GIVEN, M.M., 1977, Mesozoic and early Cenozoic geology of offshore Nova Scotia: Canadian Petroleum Geology Bulletin, v. 25, no. 1, p. 63-91.

KEYWORDS: buried basins
stratigraphy

GEOGRAPHIC AREA: Maritime Province, Nova Scotia, Canada

460 T : GLAESER, J. DOUGLAS, 1958, Petrology of the basal Stockton (Triassic) lithofacies of eastern Montgomery County, Pennsylvania: M.S. Thesis, Miami University, Ohio, 73 p.

KEYWORDS: sedimentation

GEOGRAPHIC AREA: Newark Basin, Pennsylvania, Montgomery Co.

461 P : GLAESER, J. DOUGLAS, 1963, Lithostratigraphic nomenclature of the Triassic Newark-Gettysburg Basin: Pennsylvania Academy of Science, Proceedings, v. 37, p. 179-188.

SUMMARY: The Hammer Creek Fm. is defined and proposed as lying between the Gettysburg and Brunswick Fms. The type section is presented. New Oxford and Stockton sections are presented and represent the basal units. Gettysburg, Lockatong, and Brunswick sections are presented. Brunswick-Lockatong intertongueing represents a lithosomal relationship.

KEYWORDS: general geology
stratigraphy

GEOGRAPHIC AREA: Newark Basin, Gettysburg Basin, Pennsylvania

MAPS: Geol: regional
Misc: geologic sketch maps (detail of Brunswick-Lockatong relations, detail of narrow area near Schuylkill River)

462 T : GLAESER, J. DOUGLAS, 1964, Provenance, dispersal, and depositional environment of Triassic sediments im the Newark-Gettysburg Basin: Ph.D. Thesis, Northwestern University, 234 p.

KEYWORDS: sedimentation

GEOGRAPHIC AREA: Newark Basin, Gettysburg Basin, Pennsylvania

463 A : GLAESER, J. DOUGLAS, 1965, Sediment dispersal interpreted from composition and texture distributions in the Triassic Newark-Gettysburg Basin: Geological Society of America, Special Paper 82, p. 73.

SUMMARY: The present outcrop shape of the basin closely approximates that during sedimentation. Evidence includes the felspar-rich, poorly sorted, angular fragments of the lower Stockton and New Oxford Fms. which required short transport distance. Character of the limestone conglomerates of the Brunswick and Gettysburg Fms. imply the same.

KEYWORDS: sedimentation

GEOGRAPHIC AREA: Newark-Gettysburg Basin, Pennsylvania

464 P : GLAESER, J. DOUGLAS, 1966, Provenance, dispersal, and depositional environments of Triassic sediments in the Newark-Gettysburg Basin: Pennsylvania Geological Survey, 4th, General Geology Report 43 (Bulletin G43), 168 p.

SUMMARY: Stockton and New Oxford Fms. represent arkosic sediments derived from granitics south of the basin and dispersed normal to the basin. Hammer Creek Fm. sediments represent dispersal through a narrow zone from the north and lateral dispersal within the basin to develop Heidlersberg and Lockatong sediments. Medial sediments contain detrital hematite. Petrography and sedimentation environments are further discussed.

KEYWORDS: sedimentation

GEOGRAPHIC AREA: Newark Basin, Gettysburg Basin, Pennsylvania

MAPS: Misc: sample locations, rock color variation

DATA: Plots: petrography, sediment composition, texture, thin section data

465 A : GLAESER, J. DOUGLAS, 1971, A possible sedimentologic analogue of the Triassic Newark-Gettysburg Basin - the Northwest Gulf of California: Geological Society of America, Abstracts with Programs, v. 3, p. 32-33.

SUMMARY: (See J.D. Glaeser, 1971.) Aridity is supported by Lockatong chemical cycles, glauberite, anhydrite and caliche. The analogue is supported by the basin's arkosic sediments; lateral, parallel to basin axis dispersal (Hammer Creek Fm.); and the fact that the Hammer Creek clastic barrier permitted the soda-rich Lockatong lake deposits. Red beds are not considered climatic indicators.

KEYWORDS: sedimentation

GEOGRAPHIC AREA: Newark Basin, Gettysburg Basin, Pennsylvania

466 A : GLAESER, J. DOUGLAS, 1971, Sedimentologic evidence of a warm arid climate in the Triassic Newark-Gettysburg Basin: Pennsylvania Academy of Science, Proceedings, v. 45, p. 197-198.

SUMMARY: The basin's depositional history is found to be analogous with present warm-arid sedimentation in the Gulf of California. Evidence includes: marginal, alluvial, arkosic, caliche-rich Stockton and New Oxford Fms.; Hammer Creek Fm. deltaic-like dispersal; and limestone conglomerates.

KEYWORDS: sedimentation

GEOGRAPHIC AREA: Newark Basin, Gettysburg Basin, Pennsylvania (Regional)

467 A : GLAESER, J. DOUGLAS, 1979, Environments for sedimentary uranium in Triassic- Jurassic Basins, Eastern North America: American Association of Petroleum Geologists, Bulletin, v. 63, no. 5, p. 827.

SUMMARY: It is suggested that uranium potential exists within the basins' interfingering oxidizing feldspar-rich weathering products (alluvial fans) and reducing medial dark shales and coals. Pre-Triassic granitic rocks were the source of the sediments.

KEYWORDS: economic geology
uranium
sedimentation

GEOGRAPHIC AREA: Regional

468 P : GLENN, M.L., 1917, Pectolite pseudomorphs after quartz from West Paterson, N.J.: American Mineralogist, v. 2, p. 43-45.

SUMMARY: The chemistry and optical properties of the pectolite replacements are described. The specimens are from the McKiernan and Bergin's Quarries.

KEYWORDS: mineralogy
zeolites
basalt

GEOGRAPHIC AREA: Newark Basin, New Jersey, Passaic County

469 A : GLOVER, LYNN, III, POLAND, F.B., TUCKER, R.D., AND BOURLAND, W.C., 1980, Diachronous Paleozoic mylonites and structural heredity of Triassic-Jurassic basins in Virginia: Geological Society of America, Abstracts with Programs, v. 12, p. 178.

SUMMARY: It is shown that, with possible exception of the Culpeper Basin, the eastern (Richmond), central (Farmville), and western (Danville and Scottsville) basins localized along pre-existing thrust fault zones of Paleozoic age. Age data on these greenschist facies ductile zones suggest that the western zone is of Taconic age, the central zone is Acadian, and the eastern zone is Alleghanian. Such heredity precludes a simple Triassic stress field origin for basin localization.

KEYWORDS: structure

GEOGRAPHIC AREA: Virginia

470 P : GOHN, G.S., GOTTFRIED, D., LANPHERE, M.A., AND HIGGINS, B.B., 1978, Regional implications of Triassic or Jurassic age for basalt and sedimentary red beds in the South Carolina Coastal Plain: Science, v. 202, p. 887-890.

SUMMARY: K-Ar dating on basalt intersected beneath the Coastal Plain near Charleston yields early Mesozoic ages suggesting the presence of a buried basin. Red-beds underlie the basalt and are also interpreted as early Mesozoic. (The reader is referred to Gohn and others, 1983, for a more complete discussion.)

KEYWORDS: buried basins
geophysics
radiometric age
K/Ar dating

GEOGRAPHIC AREA: Charleston, South Carolina

DATA: Chem. (type of data): K-Ar data

471 A : GOHN, G.S., AND OTHERS, 1978, Preliminary report on the geology of two deep test holes, Clubhouse Crossroads No. 2 and No. 3, near Charleston, South Carolina: Geological Society of America, Abstracts with Programs, v. 10, p. 169-170.

SUMMARY: Upper Triassic-Lower Jurassic basalt was encountered between 775 m and 1032 m below Coastal Plain and above red-beds. K-Ar ages are 162-204 m.y., older than core no. 1 basalt but similar in composition (quartz-normative). K and Rb are variable, two magmas are present, and a serpentinized olivine zone occurs at 925 m. Red-beds are unfossiliferous with abundant conglomerate.

KEYWORDS: buried basins
geophysics
radiometric age
K/Ar dating
geochemistry
basalt

GEOGRAPHIC AREA: SW Dorchester Co., South Carolina

472 P : GOHN, GREGORY S., HOUSER, BRENDA B., AND SCHEIDER, RAY R., 1983, Geology of the Lower Mesozoic(?) sedimentary rocks in Clubhouse Crossroads Test Hole No. 3, near Charleston, South Carolina: U.S. Geological Survey Professional Paper 1313D, 17 p.

SUMMARY: 121 meters of red-beds underlie 256 meters of subaerial basalt beneath 775 meters of Coastal Plain cover. The lower 82 meters of sediments are coarser grained and conglomeratic. Sandstones are arkosic. Heavy minerals and lithic fragments indicate a granitic source. Petrography, mineralogy, sedimentary structures, and tectonics are discussed.

KEYWORDS: buried basins
sedimentation

GEOGRAPHIC AREA: Charleston, South Carolina

MAPS: Section: core logs
Misc: core location

DATA: Photos: core sediments
Plots: petrography, mineralogy

473 P : GOLDICH, SAMUEL S., AND OSLUND, EILEEN H., 1956, Composition of Westerly granite G-1 and Centerville diabase W-1: Geological Society of America, Bulletin, v. 67, p. 811-815.

SUMMARY: Chemical analyses of the diabase are presented, and the analytical methods are discussed. (The analysis is part of U.S. Geological Survey Bulletin 980, which deals with analytical precision and accuracy.)

KEYWORDS: diabase
geochemistry

GEOGRAPHIC AREA: Culpeper Basin, Virginia

DATA: Chem. (type of data): major oxide, trace

474 P : GOLDSTEIN, A.G., AND WISE, D.U., 1982, W.H. Hobbs revisted: fracture and lineament studies in southwestern New England: Northeastern Geology, v. 4, p. 73-80.

KEYWORDS: tectonics
faults

GEOGRAPHIC AREA: Hartford Basin, Connecticut

475 P : GOLDSTEIN, ARTHUR G., 1975, Brittle fracture history of the Montague Basin, North-Central Massachusetts: Department of Geology and Geography, University of Massachusetts, Contribution No. 25, 99 p.

SUMMARY: Orientations and relative motions of 3300 faults and joints were studied in two areas - Turners Falls and Cheapside. Both areas contain numerous conjugate strike-slip faults developed before bedding was tilted. Normal faults are present. Jointing is normal to bedding and developed prior to tilting.

KEYWORDS: structure

GEOGRAPHIC AREA: Deerfield Basin, Massachusetts

MAPS: Misc: geologic sketch map

DATA: Plots: structural data, stereonets, etc.

476 A : GOLDSTON, E.F., AND STUCKEY, J.L., 1930, The Jonesboro fault scarp west of Cary, N.C.: Elisha Mitchell Scientific Society, Journal, v. 46, p. 67-68.

SUMMARY: A brief description is given of a 50-foot wide shear zone exposed in a railroad cut two miles west of Cary that marks the contact between Triassic rocks to the west and schists to the east. The Jonesboro fault at this exposure strikes N 65°E. Triassic rocks adjacent to the fault are coarse conglomerates that dip 5 to 10 degrees NW.

KEYWORDS: structure
faults

GEOGRAPHIC AREA: Deep River Basin, North Carolina, Wake Co., Cary Quad.

477 A : GOODWIN, B.K., 1971, The structure of the northern half of the Richmond Basin: Virginia Journal of Science, v. 22, no. 3, p. 120.

SUMMARY: North of 37°30', Triassic rocks on the eastern margin are in unconformable contact with granites that are locally offset by normal faults. The western margin, characterized by a 1000-foot wide zone of coarse boulder conglomerate, is in normal-fault contact with granites and metavolcanics. The synclinal structure of basin sediments is attributed to post-depositional uplift of a fault-bounded Petersburg granite block along the west margin.

KEYWORDS: structure

GEOGRAPHIC AREA: Richmond Basin, Virginia

478 A : GOODWIN, B.K., AND JOHNSON, G.H., 1967, Geologic structures and stratigraphy of a portion of the Triassic Basin at Deep Run, Henrico County, Virginia: Virginia Journal of Science, v. 18, p. 185.

SUMMARY: Exposures along Interstate 95 between Deep Run and Cox Road reveal a small Triassic basin that is fault-bounded with the Petersburg granite along the west side. Normal faults and folding occur within coal beds, red micaceous arkose, and silty shale. The basin is just southeast of Short Pump and a mile east of the Richmond Basin.

KEYWORDS: general geology

GEOGRAPHIC AREA: Richmond Basin, Virginia

479 PM: GOODWIN, BRUCE K., 1970, Geology of the Hylas and Midlothian Quadrangles, Virginia: Virginia Division of Mineral Resources, Report of Investigations 23, 51 p.

SUMMARY: The lithologic units and structural development of the Northern Richmond Basin are summarized. Basal coal seams occur within arkosic sandstone and shale, and conglomerates occur along the western and eastern borders. The western border is fault-bounded with a paleozoic horst present.

KEYWORDS: general geology
economic geology
coal
structure

GEOGRAPHIC AREA: Richmond Basin, Virginia, Goochl Co., Chesterfield Co., and Powhatan Co.

MAPS: Geol: [1:24,000]
Section: stratigraphic (2)

DATA: Photos: Tertiary-Triassic contact

480 A : GOODWIN, BRUCE K., 1980, A reconnaissance study of the geology of the southern half of the Richmond Basin, Virginia: Virginia Journal of Science, v. 31, p. 126.

SUMMARY: Four mappable units (south of 37°30') occur: (1) coarse conglomerate (along the western faulted margin), (2) coal measures (unconformable upon the basement along the eastern margin), (3) gray lacustrine sandstone and shale, and (4) red fluvial sandstone (1500-feet thick). Beds dip westward, although local flexures to an easterly dip are present - especially along the border faults.

KEYWORDS: structure

GEOGRAPHIC AREA: Richmond Basin, Virginia

481 M : GOODWIN, BRUCE K., 1980, Geology of the Bon Air Quadrangle, Virginia: Virginia Division of Mineral Resources, Publication 18.

KEYWORDS: general geology

GEOGRAPHIC AREA: Richmond Basin, Virginia, Henrico Co., Chesterfield Co., Bon Air Quad.

MAPS: Geol: [1:24,000]

482 A : GOODWIN, BRUCE K., 1981, Some stratigraphic details of the Otterdale sandstone in the Richmond Basin: Virginia Journal of Science, v. 32, no. 3, p. 127.

SUMMARY: This formation occurs along the western margin of the basin and is arkosic and conglomeratic. Cross-stratification occurs, and conglomerates occupy channel bases within finer sandstone. Northeastward, the Otterdale interfingers with the Vinita beds and becomes finer.

KEYWORDS: general geology
sedimentation

GEOGRAPHIC AREA: Richmond Basin, Virginia

483 P : GORDON, SAMUEL G., 1916, A review of the genesis of the zeolite deposits of First Watchung Mountain, N.J.: American Mineralogist, v. 1, p. 73-80.

SUMMARY: This brief work reviews the literature on the deposits and outlines the minerals present. The author favors the view that the zeolites formed by the presence of lake water with a magmatic water component and not by circulating ground water.

KEYWORDS: mineralogy
zeolites
basalt

GEOGRAPHIC AREA: Newark Basin, New Jersey

484 P : GORDON, SAMUEL G., 1959, The mineralogy of Pennsylvania: Philadelphia Academy of Natural Sciences, Special Publication No. 1, 255 p.

SUMMARY: Mineral locations with references are presented for counties containing Triassic rocks. Cornwall-type magnetite occurrences as well as minor copper, lead, zinc, and barite deposits are mentioned. No maps are provided.

KEYWORDS: bibliography
economic geology
iron
copper
barite
lead
zinc

GEOGRAPHIC AREA: Newark and Gettysburg Basins, Pennsylvania

485 A : GORE, P.J.W., AND LINDHOLM, R.C., 1983, Paleoecology of Triassic and Jurassic lacustrine deposits in the Culpeper Basin of northern Virginia: Geological Society of America, Abstracts with Programs, v. 15, p. 122.

SUMMARY: Lacustrine sequences deposited in perennial lakes contain black shale (maximum water depth) within gray lutites (shallower water) and are of two types: (1) conchostracans and ostracodes in gray and black units with fish restricted to black units; (2) sparsely fossiliferous with the former two fossil groups as well as notostracans present in some near-shore transitional gray to red lutites at the top of the given sequence.

KEYWORDS: paleontology
sedimentation

GEOGRAPHIC AREA: Culpeper Basin, Virginia

486 T : GORE, PAMELA J.W., 1983, Sedimentology and invertebrate paleontology of Triassic and Jurassic lacustrine deposits, Culpeper Basin, northern Virginia: Ph.D. Thesis, George Washington University, 356 p.

KEYWORDS: sedimentation
paleontology

GEOGRAPHIC AREA: Culpeper Basin, Virginia

487 P : GOTTFRIED, D., ANNELL, C.S., AND BYERLY, G.R., 1983, Geochemistry and tectonic significance of subsurface basalts from Charleston, South Carolina: Clubhouse Crossroads Test Holes No. 2 and No. 3: U.S. Geological Survey Professional Paper 1313A, 19 p.

SUMMARY: Two basalt chemical types are present: a high-Ti, quartz-normative tholeiite, and an olivine-normative tholeiite. The latter is intercalated within the former. Quartz-norm. basalt below the olivine norm. basalt contains more Cu and Ni with a higher Ni/Co ratio attributed to early separation of a sulfidic melt. Olivine tholeiites are therefore not the earliest stage of volcanism in the Early Mesozoic Province.

KEYWORDS: basalt
geochemistry
petrology
mineralogy
petrology

GEOGRAPHIC AREA: South Carolina

MAPS: Section: core logs

DATA: Chem. (type of data): major, minor, trace, REE
Plots: Hf-Th-Ta (basalt)

488 A : GOTTFRIED, D., DOOLEY, R.E., AND HIGGINS, M.W., 1983, Geochemistry of lower Mesozoic diabase dikes of the Georgia Piedmont: implications for mantle heterogeneity: Geological Society of America, Abstracts with Programs, v. 15, p. 583.

SUMMARY: Olivine tholeiites dominate this suite of NW-trending dikes, although other tholeiitic magma types are present (see Weigand and Ragland, 1970). Low- and high-Ti quartz-normative types may have been derived from two recognized olivine-normative types. Olivine-normative dikes show light REE depletion, previously unrecognized in the Eastern Mesozoic province. Olivine- and quartz-normative types may be contemporaneous (190-195 m.y.) suggesting variations in extent and process of melting of a heterogeneous mantle source.

KEYWORDS: geochemistry
diabase
petrology

GEOGRAPHIC AREA: Georgia

489 P : GOTTFRIED, D., MOORE, R., AND CAEMMERER, A., 1962, Thorium and uranium in some alkalic igneous rocks from Virginia and Texas: U.S. Geological Survey Professional Paper 450B, p. B70-B72.

SUMMARY: Dikes of assumed Triassic age studied by Watson and Cline (1913) are analyzed for uranium and thorium and show increasing uranium and thorium in the more siliceous dikes. Rock types are nepheline syenite, teschenite, and picrite.

KEYWORDS: diabase
geochemistry

GEOGRAPHIC AREA: Virginia, Augusta Co.

DATA: Chem. (type of data): diabase (Th, U)
Plots: Th and U vs. $SiO_2 + CaO/Na_2O + K_2O$

490 A : GOTTFRIED, DAVID, 1983, Cu, Ni, and Co fractionation patterns in Mesozoic tholeiitic magmas of Eastern North America: evidence for sulfide fractionation: Geological Society of America, Abstracts with Programs, v. 15, p. 92.

SUMMARY: During fractional crystallization, Ni and to a lesser extent Co are depleted (decreasing Ni/Co ratio), and Cu is enriched in the residual liquid. Unlike the Palisades (N.J.) and Dillsburg (Pa.) intrusions which follow this pattern, intrusions in North and South Carolina show depletion of Cu as well as a decreasing Ni/Co ratio consistent with separation of an immiscible sulfide melt. Such fractionation can serve as a guide for magmatic Ni-Cu sulfide deposits.

KEYWORDS: petrology
diabase
geochemistry
economic geology
copper

GEOGRAPHIC AREA: Regional

491 P : GOTTFRIED, DAVID, ANNELL, C.S., AND SCHWARZ, L.J., 1977, Geochemistry of subsurface basalt from the deep core hole (Clubhouse Crossroads Corehole 1) near Charleston, South Carolina - magma type and tectonic implications: U.S. Geological Survey Professional Paper 1028, p. 91-113.

SUMMARY: Forty-two meters of basalt, much of which has undergone oxidation, hydration, and hydrothermal alteration, are shown chemically to resemble the high-Ti quartz-normative tholeiite type (Weigand and Ragland, 1970). Discussions include: rare earth element patterns, trace elements, and comparison to other tholeiitic provinces. The basalts are shown to be temporarily and spatially associated with the Early Mesozoic rifting regime.

KEYWORDS: geochemistry
basalt

GEOGRAPHIC AREA: South Carolina

DATA: Chem. (type of data): basalt (major, trace)
Plots: Ti vs. Zr; Zr-Ti-Sr; Zr-Ti-Y; REE abundance

492 P : GOTTFRIED, DAVID, AND GREENLAND, L. PAUL, 1972, Variation of iridium and gold in oceanic and continental basalts: 24th International Geological Conference, Proceedings, Section 10, p. 135-144.

SUMMARY: Included in this discussion of the distribution and variation of iridium and gold are analyses of North Carolina dikes (localities given in Ragland and others, 1980): Au (4.8 ppb), Ir (0.38). The dikes more closely resemble primitive mantle material than do Hawaiian lavas and East Pacific Rise alkalic basalts.

KEYWORDS: diabase
geochemistry

GEOGRAPHIC AREA: North Carolina

DATA: Plots: Ir vs. K20

493 P : GOTTFRIED, DAVID, GREENLAND, L. PAUL, AND CAMPBELL, E.Y., 1968, Variation of Nb-Ta, Zr-Hf, Th-U, and K-Cs in two diabase granophyre suites: Geochimica et Cosmochimica Acta, v. 32, p. 925-947.

SUMMARY: The trace element variations within diabase differentiates were studied. Dillsburg, Pa. diabase was investigated. With differentiation, Nb, Ta, Zr, Hf, Th, U, Cs increase. The Zr/Hf ratio decreases, the Th/U ratio remains constant. Other considerations indicate that crustal contamination does not account for the differences between oceanic and continental tholeiites.

KEYWORDS: diabase
geochemistry

GEOGRAPHIC AREA: Gettysburg Basin, Pennsylvania, York Co.

DATA: Chem. (type of data): trace elements (see summary)
Plots: trace elements vs. mafic index

494 P : GRANBERRY, J.H., 1906, History of the Schuyler Mine: Engineering and Mining Journal, v. 82, p. 1116-1119.

SUMMARY: The mine operations began in the early eighteenth century and continued to the late nineteenth. Ore contains from 6 to 70 percent copper and up to 7 ounces per one hundred pounds silver. Chalcocite and copper carbonates occur in shale and sandstone adjacent to diabase. Ore is localized along fractures. A six- to nine-inch seam of shale containing six-percent copper occurs just below brecciated basalt (photo of quarry face shows this relationship).

KEYWORDS: economic geology
copper

GEOGRAPHIC AREA: Newark Basin, New Jersey, Bergen Co.

495 P : GRANBERRY, J.H., 1907, The Schuyler Mine: Journal of the Franklin Institute, v. 164, p. 13-28.

SUMMARY: A detailed review is given of the history of mine development, the expenditures and production, mine plans and workings, and operation. Ore minerals are chalcopyrite and copper carbonates within fractured red and gray sandstone and shale adjacent to diabase.

KEYWORDS: economic geology
copper

GEOGRAPHIC AREA: Newark Basin, New Jersey, Bergen County, Orange Quad.

MAPS: Misc: mine plans

496 T : GRANNELL, DANA B., 1961, Geologic section across the Durham Triassic Basin, North Carolina: M.S. Thesis, North Carolina State University.

KEYWORDS: structure

GEOGRAPHIC AREA: Durham Basin, North Carolina

497 P : GRATACAP, L.P., 1886, Fish remains and tracks in the Triassic rocks at Weehawken, New Jersey: American Naturalist, v. 20, no. 3, p. 243-246.

SUMMARY: A bed of shale eight feet thick contains fossil fish, plant, and nut remains along its base, is in contact with the Palisades Sill above, and grades downward into a feldspathic sandstone that contains footprints. Sketches are provided.

KEYWORDS: paleontology

GEOGRAPHIC AREA: Newark Basin, New Jersey, Hudson County

498 FM: GRAY, CARLYLE, AND LAPHAM, DAVIS M., 1961, Guide to the geology of Cornwall, Pennsylvania: Pennsylvania Geological Survey, Bulletin G35, 18 p.

SUMMARY: This is a brief review of the field geology of the Cambro-Ordovician and Triassic host rocks, the diabase, and the structure and mineralogy of the ore zone. A brief historic introduction is included.

KEYWORDS: economic geology
iron

GEOGRAPHIC AREA: Newark Basin, Gettysburg Basin, Gettysburg Basin, Pennsylvania, Lebanon Co.

MAPS: Geol: Cornwall area [1:63,360]
Section: cross section (ore relations)

499 F : GRAY, CARLYLE, AND SOCOLOW, ARTHUR A., 1959, Mineral deposits of Eastern Pennsylvania: Geological Society of America, Guidebook for Field Trips, Pittsburgh Meeting, 1959, Field Trip 4, p. 143-166.

SUMMARY: The history, local stratigraphy, structure, and ore petrography of the Cornwall deposit are outlined briefly. (The reader is also referred to Gray and Lapham, 1961.)

KEYWORDS: economic geology
iron

GEOGRAPHIC AREA: Newark Basin, Gettysburg Basin, Pennsylvania, Lebanon Co.

MAPS: Section: cross sections (ore relations)

500 M : GRAY, CARLYLE, GEYER, A.R., AND MCLAUGHLIN, D.B., 1958, Geology of the Richland Quadrangle: Pennsylvania Geological Survey, Fourth Series, Geologic Atlas 167 D.

KEYWORDS: structure
general geology

GEOGRAPHIC AREA: Newark Basin, Gettysburg Basin, Pennsylvania, Lebanon County, Lancaster County, Richland Quad.

MAPS: Geol: [1:24,000]

501 A : GRAY, N.H., STEINEN, R.P., AND ANDERSON, J.B., 1978, Banded chalcedony in the Mesozoic basalts of Connecticut: Geological Society of America, Abstracts with Programs, v. 10, no. 2, p. 45.

SUMMARY: Chalcedony-lines cavities in the Talcott and Hampden basalts near Farmington, Conn. are described. Precipitation of the various quartz morphologies is attributed to silica-saturated geothermal waters that experienced episodic "geyser-like" flash boiling.

KEYWORDS: basalt
mineralogy

GEOGRAPHIC AREA: Hartford Basin, Connecticut

502 F : GRAY, NORMAN H., 1982, Copper occurrences in the Hartford Basin of northern Connecticut: in, Joesten, R., and Quarrier, S.S., eds., Guidebook for Fieldtrips in Connecticut and South Central Massachusetts, New England Intercollegiate Geological Conference, 74th Annual Meeting, p. 195-211.

SUMMARY: Copper mineralization is discussed for the Newgate Prison Mine, Higley Copper Mine (East Granby), and veins in New Britain. The Newgate deposit consists of a bornite, chalcopyrite, and chalcocite impregnated arkosic gray sandstone. Mineralization follows an unconformity just above the Talcott basalt flow and may be attributed to late Talcott hydrothermal activity. The Higley Mine consists of copper sulfide- and carbonate- filled fractures within the amygdaloidal section of the upper Talcott flow. Carbonate-quartz-barite veins along faults at New Britain are attributed to diagenetic fluid remobilization.

KEYWORDS: economic geology
copper
uranium

GEOGRAPHIC AREA: Hartford Basin, Connecticut

MAPS: Geol: sketches
Section: mine plans

503 F : GRAY, NORMAN H., 1982, Mesozoic volcanism in north-central Connecticut: in, Joesten, R., and Quarrier, S.S., eds., Guidebook for Field- trips in Connecticut and South Central Massachusetts, New England Intercollegiate Geological Conference, 74th Annual Meeting, p. 173- 190.

SUMMARY: Descriptions of the Talcott, Holyoke, and Hampden basalts are presented and include internal structures, contact relations, flow directions, and petrography, including pegmatite segregations. Field stops are: Manitook Mtn. (Suffield), Farmington River Gorge (Tariffville), Talcott Mtn. State Park, Cooks Gap (Plainville), and Rock Ridge Park (Hartford).

KEYWORDS: general geology
basalt

GEOGRAPHIC AREA: Hartford Basin, Connecticut

MAPS: Section: measured sections (basalt)
Misc: basalt flow directions

504 A : GRAY, NORMAN H., 1983, Pillows in the Talcott basalt of north and central Connecticut: Geological Society of America, Abstracts with Programs, v. 15, p. 122.

SUMMARY: Distribution and morphology of pillowed sequences and associated massive flows within the 30- to 50-meter thick Talcott basalt reflect the distribution of ponded water created by the basalt flows themselves.

KEYWORDS: basalt
structure

GEOGRAPHIC AREA: Hartford Basin, Connecticut

505 P : GREENMAN, D.W., 1955, Ground water resources of Bucks County, Pennsylvania: Pennsylvania Geological Survey, Bulletin W-11, 66 p.

SUMMARY: Water chemistry and quality and the character of the Stockton, Lockatong, and Brunswick Formations are presented. The Stockton Fm. is the most reliable water source; however, high Ca, Mg, and sulfate are locally present. The Lockatong is a poor aquifer, and water is moderately hard. The Brunswick Fm., which occupies more than 1/3 of the county, is a moderate water supplier of generally good quality.

KEYWORDS: general geology
hydrology

GEOGRAPHIC AREA: Newark Basin, Pennsylvania, Bucks County

MAPS: Geol: [1:62,500]
Misc: well locations

DATA: Chem. (type of data): water (Stockton, Lockatong, Brunswick Fms.)
Plots: well: depth, yield

506 P : GREGORY, G.E., 1971, Route 84 road cut in New Britain, Connecticut, producing wide variety of mineral specimens: Rocks and Minerals, v. 46, p. 156-158.

SUMMARY: A road cut on the east side of the New Haven Traprock Quarry No. 2 exposes a 4-inch to 18-inch sulfide vein in diabase. Sulfides and secondary minerals include: chalcopyrite, arsenopyrite, covellite, azurite, bornite, and chrysocolla. Vugs of zeolites occur in the diabase. Relative quantities of the sulfide minerals within the vein are not noted.

KEYWORDS: economic geology
copper
diabase
mineralogy

GEOGRAPHIC AREA: Hartford Basin, Connectict

DATA: Photos: outcrop

507 P : GREGORY, GARDINER, 1965, Minerals in the New Jersey traprocks: Rocks and Minerals, v. 40, p. 725-728.

SUMMARY: A brief review is given of the zeolite minerals occurring in the Watchung Mountains.

KEYWORDS: mineralogy
zeolites

GEOGRAPHIC AREA: Newark Basin, New Jersey

DATA: Photos: chabazite, prehnite

508 P : GREGORY, J.T., 1957, Significance of fossil vertebrates for correlation of late Triassic continental deposits of North America: International Geological Congress Report, 20th Session, Mexico City, Sect. 2, p. 7-25.

KEYWORDS: paleontology

GEOGRAPHIC AREA: Regional

509 P : GRISWOLD, L.S., 1893, A basic dike in the Connecticut Triassic: Museum of Comparative Zoology Bulletin, v. 16, p. 239-242.

KEYWORDS: diabase

GEOGRAPHIC AREA: Hartford Basin, Connecticut

510 A : GROW, J.A., KLITGORD, K.D., AND HUTCHINSON, D.R., 1983, U.S. east coast offshore Mesozoic basins: Geological Society of America, Abstracts with Programs, v. 15, p. 122.

SUMMARY: Recognized major offshore basins are from north to south - Georges Bank Basin, Baltimore Canyon Trough, Carolina Trough, and Blake Plateau Trough, with respective sedimentary deposit maximum thickness of 7, 13, 11, and 12 kilometers. Evaporites formed during the transition from rifting to sea-floor spreading.

KEYWORDS: buried basins
economic geology
salt

GEOGRAPHIC AREA: Regional

511 P : GROW, JOHN A., 1981, Structure of the Atlantic margin of the United States: in, Bally, A.W., and others, eds., Geology of Passive Continental Margins, American Association of Petroleum Geologists, Education Course Note, Series No. 19, p. (3)1-(3)41.

SUMMARY: Seismic, magnetic, and gravity data are used to delineate the structure and stratigraphy of the Triassic and Jurassic deposits within offshore basins. These basins are: Blake Plateau Basin, Baltimore Canyon Trough, Carolina Trough, and Georges Bank Basin. Evaporite deposits are present in the two troughs.

KEYWORDS: buried basins
geophysics
stratigraphy

GEOGRAPHIC AREA: Regional

512 T : GRUBBS, DONALD K., 1969, Weathering of diabase: Ph.D. Thesis, University of Pittsburgh, 106 p.

KEYWORDS: diabase
mineralogy

GEOGRAPHIC AREA: Regional

513 P : GUILLOU, ROBERT B., AND SCHMIDT, ROBERT G., 1960, Correlation of aeroradioactivity data and areal geology: U.S. Geological Survey Professional Paper 400B, p. B117-B119.

SUMMARY: Aeroradioactivity profiles in the Bealeton area correlate with geologic units and delineate the contacts between diabase and sedimentary rock. Diabase yields lower values (counts per second) than the sediments.

KEYWORDS: geophysics
aeroradioactivity

GEOGRAPHIC AREA: Culpeper Basin, Virginia

MAPS: Geophys: aeroradioactivity profiles

514 A : GUNTER, K.D., AND KELLY, W.M., 1978, Paleomagnetism and oxide mineralogy of the Lower Jurassic Holyoke basalt: American Geophysical Union, Transactions, v. 59, p. 271.

SUMMARY: While the lower two-thirds of a 64-meter traverse are consistent with published lower Jurassic data, the upper third contains a 180° declination reversal characterized by a rising magnetic moment. The magnetic oxide phase is titanomagnetic with low-temperature maghemite altered to Fe-Ti oxide. No correlation between mineralogy and the magnetic parameters was observed.

KEYWORDS: geophysics
paleomagnetism
basalt

GEOGRAPHIC AREA: Hartford Basin, Massachusetts

515 T : GUTMANN, J.T., 1965, The petrology of the Holyoke diabase, Mt. Holyoke Quadrangle, Massachusetts: Bachelor's Thesis, Amherst College, 63 p.

KEYWORDS: petrology
diabase

GEOGRAPHIC AREA: Hartford Basin, Massachusetts, Hampshire Co., Mt. Holyoke Quad.

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516 M : HAENI, F.P., 1976, Contour map of the bedrock surface, Meriden Quadrangle, Connecticut: U.S. Geological Survey, Map MF-661a.

KEYWORDS: surficial geology

GEOGRAPHIC AREA: Hartford Basin, Connecticut

MAPS: Geol: depth to bedrock [1:24,000]

517 P : HAILWOOD, E.A., AND MITCHELL, J.G., 1971, Paleomagnetic and radiometric dating results from Jurassic intrusions in South Morocco: Geophysical Journal of the Royal Astronomical Society, v. 24, p. 351-364.

SUMMARY: In southern Morocco, the Foum-Zguid (quartz-dolerite) dike, the Draa Valley dolerite sills, and Central Atlas gabbroic and alkalic bodies yield similar pole positions at 61°S, 71°E, A(95) = 14°. The former two, originally considered Paleozoic, give radiometric ages in the Jurassic (181-187 m.y.) - the Central Atlas units are Mesozoic. It is concluded that this widespread Jurassic igneous episode was in response to break-up of Pangaea in the Mesozoic.

KEYWORDS: geophysics
paleomagnetism

GEOGRAPHIC AREA: Morocco

MAPS: Geol: sketch

DATA: Plots: pole plots, NRM

518 P : HAJI-VASSILIOU, A., AND PUFFER, J.H., 1975, A macrocrystalline attapulgite-palygorskite occurrence in calcite veins: American Mineralogist, v. 60, p. 328-330.

SUMMARY: An unusual occurrence of this clay mineral is reported from the Brunswick Fm. near Limerick, six miles east of Pottstown, Pa. The fibrous clay occurs within calcite veins associated with a local shear zone.

KEYWORDS: mineralogy
sediments

GEOGRAPHIC AREA: Newark Basin, Pennsylvania, Montgomery Co., Phoenixville Quad.

DATA: Chem. (type of data): major oxide

519 P : HALLAM, A., 1971, Mesozoic geology and the opening of the North Atlantic: Journal of Geology, v. 79, no. 2, p. 129-157.

SUMMARY: Investigations of the Mesozoic geology of the North Atlantic indicate that continental movement initiated in the Jurassic; evidence is provided by faunal history, igneous episodes, and collapse of the Mediterranean carbonate platform. The evolutionary history of rifting in the area is further discussed. A continental fit along the Quiet Magnetic Zone is preferred.

KEYWORDS: tectonics

GEOGRAPHIC AREA: Regional

520 P : HAMAGUCHI, HIROSHI, AND OTHERS, 1961, Values for trace elements in G-1 and W-1 with neutron activation analysis: Geochimica et Cosmochimica Acta, v. 23, p. 296-299.

SUMMARY: The Centerville, Virginia, diabase standard yields the following values in parts per million: Sc 34.3, Cu 120, As 2.2, Sb 0.95, La 27, Au 0.0049, U 0.28.

KEYWORDS: diabase
geochemistry

GEOGRAPHIC AREA: Culpeper Basin, Virginia

DATA: Chem. (type of data): diabase (trace)

521 P : HAMILTON, ROBERT M., BEHRENDT, J.C., AND ACKERMANN, H.D., 1983, Land multichannel seismic-reflection evidence for tectonic features near Charleston, South Carolina: in, Gohn, G.S., ed., Studies Related to the Charleston, South Carolina, Earthquake of 1886 - Tectonics and Seismicity, U.S. Geological Survey Professional Paper 1313, p. I1-I17.

SUMMARY: Triassic and younger-aged faults and a buried Triassic basin are delineated by seismic data. The spatial and dynamic relationships of these faults are discussed.

KEYWORDS: buried basins
tectonics

GEOGRAPHIC AREA: South Carolina

MAPS: Geophys: seismic profiles

522 P : HAND, B.M., WESSEL, J.M., AND HAYES, M.O., 1969, Antidunes in the Mount Toby Conglomerate (Triassic), Massachusetts: Journal of Sedimentary Petrology, v. 39, p. 1310-1316.

SUMMARY: An exposure near Sunderland reveals a series of 19 antidunes that migrated in an upstream direction. Dimensions of the dunes and hydrodynamic calculations indicate a paleoslope of 3°, water velocity of 100 cm/sec, and water depth of 1.6 cm. This is compatible with sheetwash along an alluvial fan.

KEYWORDS: sedimentation

GEOGRAPHIC AREA: Deerfield Basin, Massachusetts, Franklin Co., Mt. Toby Quad.

DATA: Photos: outcrop
Plots: stream dynamics

523 M : HANDMAN, E.H., 1973, Depth to bedrock, Windsor Locks Quadrangle, Connecticut: U.S. Geological Survey, Map MF-450b.

KEYWORDS: surficial geology

GEOGRAPHIC AREA: Hartford Basin, Connecticut

MAPS: Geol: depth to bedrock [1:24,000]

524 M : HANDMAN, E.H., AND RYDER, R.B., 1973, Contour map of the bedrock surface, Avon Quadrangle, Connecticut: U.S. Geological Survey, Map MF-514a.

KEYWORDS: surficial geology

GEOGRAPHIC AREA: Hartford Basin, Connecticut

MAPS: Geol: depth to bedrock [1:24,000]

525 T : HANDY, W.A., 1976, Depositional history and diagenesis of lacustrine and fluvial sedimentary rocks of the Turners Falls and Mount Toby transition, north-central Massachusetts: M.S. Thesis, University of Massachusetts, 115 p.

KEYWORDS: sedimentation

GEOGRAPHIC AREA: Hartford Basin, Deerfield Basin, Massachusetts

526 Intentionally blank.

527 P : HANSHAW, P.M., AND BARNETT, P.R., 1960, Possible use of boron, chromium, and nickel content in correlating Triassic igneous rocks in Connecticut: U.S. Geological Survey Professional Paper 400B, p. B170-B172.

SUMMARY: The Talcott, Holyoke, and Hampden basalts were studied. The extrusives contain more boron than the intrusives. The Holyoke contains one-half and one-tenth the chromium content of the Hampden and Talcott basalts, respectively. The Holyoke also contains less nickel than the other units. The results are suggested to aid in basalt correlation and recognition.

KEYWORDS: basalt
geochemistry

GEOGRAPHIC AREA: Hartford Basin, Connecticut

DATA: Chem. (no. of data): (37 samples)
Chem. (type of data): B, Ni, Cr ppm

528 M : HANSHAW, PENELOPE M., 1968, Bedrock Geology of the Meriden Quadrangle: U.S. Geological Survey, Geologic Quadrangle Map GQ-738.

KEYWORDS: general geology

GEOGRAPHIC AREA: Hartford Basin, Connecticut, Hartford Co., New Haven Co.

MAPS: Geol: [1:24,000]

529 P : HARDER, E.C., 1910, Structure and origin of the magnetite deposits near Dillsburg, York County, Pennsylvania: Economic Geology, v. 5, p. 599-622.

SUMMARY: The local geology and the underground plans of several of the mines are described. Magnetite ore occurs beneath the relatively flat-lying, near-surface diabase and replaces calcareous sediments. The ore is attributed to the cooling diabase magma with iron preferring replacement of calcareous sediment. Feldspar, pyrite, and garnet are accessories.

KEYWORDS: economic geology
iron

GEOGRAPHIC AREA: Gettysburg Basin, Pennsylvania, York Co., Dillsburg Quad.

MAPS: Section: mine plans

530 T : HARDING, A.G., 1975, The stratigraphic analysis and significance of the Late Triassic to Upper Lower Jurassic rocks of the Western High Atlas Mountains in southwest Morocco: M.S. Thesis, University of South Carolina, 66 p.

KEYWORDS: sedimentation

GEOGRAPHIC AREA: Morocco

531 A : HARDING, ANDREW, AND BROWN, R.H., 1975, Structural controls over thickness and facies distribution in a Late Triassic-Early Jurassic carbonate surface - red bed sequence in Southwestern Morocco, and its relationship to the opening of the Atlantic: Geological Society of America, Abstracts with Programs, v. 7, p. 1099-1100.

SUMMARY: The Liassic rocks consist of a shallow-water carbonate platform (west) which passes east into an evaporitic (sulfate) and fluvial, clastic, red bed sequence. Their juxtaposition is attributed to active growth faulting. A postrifting, regional subsidence event produced the Liassic transgression and its carbonate facies.

KEYWORDS: sedimentation
tectonics

GEOGRAPHIC AREA: Morocco

532 P : HARGRAVES, R.B., AND YOUNG, W.M., 1969, Source of stable remanent magnetism in Lambertville diabase: American Journal of Science, v. 267, p. 1161-1177.

SUMMARY: Measurements of natural, thermal, and saturation remanent magnetism and their stabilities were conducted using plagioclase, pyroxene, and oxide separates. Stable remanence is found to be associated with submicroscopic magnetite particles (.004%) within plagioclase.

KEYWORDS: geophysics
magnetism
paleomagnetism
diabase

GEOGRAPHIC AREA: Newark Basin, New Jersey

DATA: Photos: photomicrographs
Plots: demagnetization, saturation vs. temp.

533 A : HARRINGTON, JOHN W., 1947, A perched Triassic trough on the west wall of the Durham Triassic Basin: Elisha Mitchell Scientific Society, Journal, v. 63, p. 102-103.

SUMMARY: A Triassic outlier at Eastwood Lake northeast of Chapel Hill lies above the main basin floor to the east and is separated from it by a platform of Carolina slate volcanics representing the floor of deposition of the outlier.

KEYWORDS: general geology

GEOGRAPHIC AREA: Durham Basin, North Carolina, Orange Co.

534 T : HARRINGTON, JOHN W., 1948, The west border of the Durham Triassic Basin: Ph.D. Thesis, University of North Carolina, 106 p.

KEYWORDS: structure

GEOGRAPHIC AREA: Durham Basin, North Carolina

535 PM: HARRINGTON, JOHN W., 1951, Structural analysis of the west border of the Durham Triassic Basin: Geological Society of America, Bulletin, v. 62, p. 149-158.

SUMMARY: Multiple-surface analysis of saprolite indicates that the basin did not extend much beyond its present border. 1800 feet of sediments have been eroded since faulting occurred. The basin-crystalline contact zone is divided into three structural zones, and the structural history of the basin is discussed.

KEYWORDS: structure
general geology
faults

GEOGRAPHIC AREA: Durham Basin, North Carolina

MAPS: Geol: west side of Durham basin [1:126,720]

DATA: Plots: average strike lines superposed over border linears

536 T : HARRIS, N.B., 1974, Geology and magnetics at the eastern end of the Holyoke Range, Belchertown, Massachusetts: Senior Thesis, Amherst College, 92 p.

KEYWORDS: general geology
geophysics
magnetism

GEOGRAPHIC AREA: Hartford Basin, Massachusetts, Hampshire Co.

537 M : HARTSHORN, JOSEPH, AND KOTEFF, CARL, 1967, Geology of the Springfield South Quadrangle: U.S. Geological Survey, Geologic Quadrangle Map GQ-678.

KEYWORDS: general geology

GEOGRAPHIC AREA: Hartford Basin, Massachusetts, Connecticut, Hampden Co. (Mass.), Tolland Co. (Conn.)

MAPS: Geol: [1:24,000]

538 P : HAWES, G.W., 1881, On the mineralogical composition of the normal Mesozoic diabase upon the Atlantic border: U.S. Natural Museum Proceedings, v. 4, p. 129-134.

KEYWORDS: diabase
mineralogy
petrology

GEOGRAPHIC AREA: Regional

539 P : HAWES, GEORGE W., 1875, On diabantite, a chlorite occurring in the trap of the Connecticut Valley: American Journal of Science and Arts, 3rd Series, v. 9, p. 454-457.

SUMMARY: The chemical and optical properties of this radiated, foliated chlorite are presented. The mineral occurs within large amygdules in basalt at Farmington Hills and is attributed to primary magmatic vapors.

KEYWORDS: mineralogy
basalt

GEOGRAPHIC AREA: Hartford Basin, Connecticut

DATA: Chem. (type of data): major oxide

540 P : HAWES, GEORGE W., 1875, The trap rocks of the Connecticut Valley: American Journal of Science and Arts, 3rd Series, v. 9, p. 185-192.

SUMMARY: Chemical analyses and petrography indicate that an anhydrous dolerite and a chloritic, hydrous diabase occur in the region. Samples include rock from Mt. Holyoke, West Rock, and Lake Saltonstall. Acquisition of hydrous phases is attributed to alteration.

KEYWORDS: geochemistry
basalt

GEOGRAPHIC AREA: Hartford Basin, Connecticut

DATA: Chem. (type of data): major oxide

541 P : HAWKES, H.E., WEDOW, H., AND BALSLEY, J.R., 1953, Geologic investigation of the Boyertown magnetite deposits in Pennsylvania: U.S. Geological Survey Bulletin 995-D, p. 135-149.

SUMMARY: This Cornwall-type deposit was investigated by aeromagnetics and drill core. Iron ore occurs within Cambro-Ordovician limestone adjacent to diabase and just below the Triassic sediments. Drill core and geophysics indicate downdip continuation of the ore beyond the mining operations. Two large magnetic anomalies, interpreted as possible ore bodies, occur in the vicinity.

KEYWORDS: economic geology
iron
geophysics
aeromagnetism

GEOGRAPHIC AREA: Newark Basin, Pennsylvania, Berks Co., Boyertown Quad.

MAPS: Geol: local
Section: drill core logs, mine section
Geophys: ground magnetic contour maps (local)

542 P : HAWKINS, A.C., 1928, Halite and glauberite cavities in the Triassic rocks of Central New Jersey: American Journal of Science, 5th Series, v. 16, p. 361-362.

SUMMARY: A detailed description is given of the locations and occurrences of halite cavities in red shale and glauberite replaced by calcite or occurring with barite at localities near New Brunswick and Black Wells Mills, New Jersey.

KEYWORDS: mineralogy
sediments
economic geology
barite

GEOGRAPHIC AREA: Newark Basin, New Jersey, Middlesex Co.

543 P : HAWKINS, A.C., 1933, Glauberite crystals from West Paterson, New Jersey: American Mineralogist, v. 18, p. 273-276.

SUMMARY: Glauberite occurs with gypsum in large cavities in the basalt. Its formation is attributed to the action of groundwater present during the Pleistocene glacial period. Crystal forms are discussed.

KEYWORDS: mineralogy
basalt
zeolites

GEOGRAPHIC AREA: Newark Basin, New Jersey, Passaic Co.

544 P : HAWKINS, A.C., 1945, Old copper mines at New Brunswick, New Jersey: Rocks and Minerals, v. 20, p. 207-209.

SUMMARY: The mine workings of the New Brunswick and Raritan Mines and the localities of copper and barite mineralization are briefly described.

KEYWORDS: economic geology
copper
barite

GEOGRAPHIC AREA: Newark Basin, New Jersey, Middlesex Co.

545 P : HAWKINS, A.C., AND WHITLOCK, H.P., 1933, Minerals of the trap rock quarries of Paterson, New Jersey: 16th International Geological Congress, Guidebook 9, p. 128-139.

SUMMARY: The geologic setting of the Watchung basalts, a list of their primary and secondary minerals, and a discussion on the origin of the zeolites are presented. The latter outlines previous work in the area as well as other zeolite provinces. A comprehensive reference list is provided.

KEYWORDS: mineralogy
zeolites

GEOGRAPHIC AREA: Newark Basin, New Jersey, Passaic Co.

546 P : HAWKINS, ALFRED C., 1936, Calcite twins from North Plainfield, New Jersey: Rocks and Minerals, v. 21, p. 809-811.

SUMMARY: The crystallography of twinned calcite occurring in fault breccia in the Somerset basalt quarry between North Plainfield and Watchung is described.

KEYWORDS: mineralogy
basalt

GEOGRAPHIC AREA: Newark Basin, New Jersey, Sommerset County

547 A : HAWKINS, ALFRED C., 1940, Major faulting in the Triassic of New Jersey: Geological Society of America, Bulletin, v. 51, p. 1994-1995.

SUMMARY: The geometry of the Hopewell Fault and its relationships to Sourland Mountain and sharp flexure in the shales are briefly described.

KEYWORDS: structure
faults

GEOGRAPHIC AREA: Newark Basin, New Jersey

548 P : HAWKINS, ALFRED CARY, 1914, Lockatong Formation of the Triassic of New Jersey and Pennsylvania: New York Academy of Science, Annals, v. 23, p. 145-176.

SUMMARY: The formation is shown to represent central basin deposits that owe their iron to primary depositional processes and that intertongue with the Brunswick and Stockton Formations. Joints and faults were developed after diabase intrusion and contain brookite, ilmenite, analcite, and barite. The paleontology and petrography of the formation are outlined.

KEYWORDS: general geology
paleontology
sedimentation
structure

GEOGRAPHIC AREA: Newark Basin, Pennsylvania, New Jersey

MAPS: Geol: sketch
Section: local columnar sections (2)

549 A : HAY, W.W., AND BARRON, E.J., 1981, Triassic-Liassic paleoclimatology and sedimentation in proto-Atlantic rifts: Geological Society of America, Abstracts with Programs, v. 13, no. 7, p. 470.

SUMMARY: Deposition in the rift basins reflects a paleoclimate which became more arid with time. Rifts developed close to a boundary between subtropical and arid climates, so that local relief resulted in arid climates in the basins with greatest relative, local relief.

KEYWORDS: climate

GEOGRAPHIC AREA: Regional

550 P : HAY, W.W., BEHENSKY, J.F., JR., BARRON, E.J., AND SLOAN, J.L., III, 1982, Late Triassic-Liassic paleoclimatology of the proto-central North Atlantic rift system: Palaeography, Palaeoclimatology, Palaeoecology, v. 40, p. 13-30.

SUMMARY: Sedimentology and paleontology elucidate the climatic character of the rift basins during the early Mesozoic. Aridity increased northward and with time (i.e., Triassic to Liassic). Global climate is reviewed for this time period. Topography strongly influenced climate during deposition in the rift basins.

KEYWORDS: climate

GEOGRAPHIC AREA: Regional

551 P : HAYATSU, A., 1979, K-Ar isochron age of the North Mountain basalt, Nova Scotia: Canadian Journal of Earth Sciences, v. 16, p. 973-975.

SUMMARY: The North Mountain Basalt of the southern shore of the Bay of Fundy yields an isochron of 191 m.y. The K-Ar technique is discussed.

KEYWORDS: geophysics
radiometric age
K/Ar dating
basalt

GEOGRAPHIC AREA: Nova Scotia

DATA: Chem. (type of data): K-Ar

552 F : HAYES, A.O., 1933, Geologic features from the Watchung Mountains to Sandy Hook: 16th International Geological Congress, Guidebook 9, p. 45-52.

SUMMARY: This is a brief description of the general features of the New Jersey Triassic east of the Watchung Mountains and includes descriptions of the Triassic-Coastal Plain unconformity and the nature of fossil tracks.

KEYWORDS: general geology
paleontology

GEOGRAPHIC AREA: Newark Basin, New Jersey

MAPS: Geol: [1:937,500]

553 P : HAYES, W.H., 1949, The Bridgewater Copper Mine from the collector's standpoint: Rocks and Minerals, v. 24, p. 27-29.

SUMMARY: The native copper and secondary copper minerals occurring at the mine dumps and workings are described. The mine is located along the SW slope of the First Watchung Mtn., three miles north of Somerville.

KEYWORDS: economic geology
copper

GEOGRAPHIC AREA: Newark Basin, New Jersey, Somerset Co., Bound Brook Quad.

DATA: Photos: specimens

554 P : HAZEN, R.M., AND HAZEN, M.H., 1980, American geological literature, 1669 to 1850: Stroudsburg, Penn., Dowden, Hutchinson and Ross, 431 p.

KEYWORDS: bibliography

GEOGRAPHIC AREA: Regional

555 T : HAZLETT, J.M., 1978, Petrology and provenance of the Triassic limestone conglomerate in the vicinity of Leesburg, Virginia: M.S. Thesis, George Washington University, 100 p.

KEYWORDS: sedimentation

GEOGRAPHIC AREA: Culpeper Basin, Virginia, Loudoun Co.

556 P : HEALD, MILTON T., 1956, Cementation of Triassic arkoses in Connecticut and Massachusetts: Geological Society of America, Bulletin, v. 67, p. 1133-1154.

SUMMARY: The arkoses contain secondary feldspar and little secondary quartz; calcite and laumontite occur; albite forms overgrowths on detrital K-spar and plagioclase. Near intrusives, albite fills pores and replaces primary minerals. The petrography of arkoses along the border faults and adjacent to diabase is discussed. Cementation is attributed to igneous solutions.

KEYWORDS: sedimentation
mineralogy

GEOGRAPHIC AREA: Hartford Basin, Deerfield Basin, Connecticut, Massachusetts

MAPS: Geol: regional sketch

DATA: Photos: photomicrographs
Plots: mineral composition

557 P : HEILPRIN, ANGELO, 1884, On a remarkable exposure of columnar trap near Orange, New Jersey: Philadelphia Academy of Science, Proceedings, v. 36, p. 318-320.

SUMMARY: The trap columns of the O'Rourke Quarry are described and attributed to cooling phenomena. A sketch is provided.

KEYWORDS: structure
basalt

GEOGRAPHIC AREA: Newark Basin, New Jersey, Essex Co.

558 P : HEINRICH, OSWALD J., 1879, The Mesozoic Formation of Virginia: American Institute of Mining (and Metallurgical) Engineers, Transactions, v. 6, p. 227-274.

SUMMARY: The geographic setting of the Mesozoic basins is outlined. Emphasis is placed upon the stratigraphy of the Richmond Basin and its coal seams. Fossils are briefly described. The quality of the coal is discussed.

KEYWORDS: general geology
economic geology
coal

GEOGRAPHIC AREA: Richmond Basin, Virginia

MAPS: Section: Midlothian coal mine column and cross section (regional)

559 T : HEINRICH, SILVIA M., 1980, Chemistry and mineralogy of the Holyoke basalt at East Mountain, Massachusetts: Honors Thesis, Department of Geology, University of Massachusetts, 47 p.

KEYWORDS: mineralogy
geochemistry
basalt

GEOGRAPHIC AREA: Hartford Basin, Massachusetts, Hampden Co., Mt. Tom Quad.

560 A : HEITZMAN, THOMAS, FEICK, K., AND REID, J.B., JR., 1979, The petrology and mode of emplacement of the Holyoke diabase, Long Mountain, Massachusetts: Geological Society of America, Abstracts with Programs, v. 11, p. 16.

SUMMARY: The 500-foot lava sheet evolved as a single lava lake or as an episodically filled lake of constant composition. Grain size increases from top to bottom, augite phenocrysts show constant Wo 35 En 47 Fs 18 with two internal trends near the center, plagioclase is An 75, olivine is not present, and REE patterns are constant with light REE enrichment.

KEYWORDS: petrology
basalt

GEOGRAPHIC AREA: Hartford Basin, Massachusetts

561 M : HENDERSON, J.R., ANDREASON, G.E., AND PETTY, A.J., 1966, Aeromagnetic map of northern New Jersey and adjacent parts of New York and Pennsylvania: U.S. Geological Survey, Map GP-562.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Newark Basin, New Jersey

MAPS: Geophys: aeromagnetism [1:125,000]

562 M : HENDERSON, J.R., CHANDLER, E.J., AND OTHERS, 1962, Aeromagnetic map of the Ramsey Quadrangle, Passaic and Bergen Counties, New Jersey, and Rockland County, New York: U.S. Geological Survey, Map GP-344.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Newark Basin, New Jersey, New York

MAPS: Geophys: aeromagnetism [1:31,680]

563 M : HENDERSON, J.R., CHANDLER, E.J., AND OTHERS, 1963, Aeromagnetic map of parts of the Paterson and Orange Quadrangles, Essex, Passaic, and Bergen Counties, New Jersey: U.S. Geological Survey, Map GP-345.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Newark Basin, New Jersey

MAPS: Geophys: aeromagnetism [1:31,680]

564 M : HENDERSON, J.R., TYSON, N., AND OTHERS, 1958, Aeromagnetic map of the Bernardsville and part of the Bound Brook Quadrangles, Middlesex, Somerset, and Morris Counties, New Jersey: U.S. Geological Survey, Map GP-174.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Newark Basin, New Jersey

MAPS: Geophys: aeromagnetism [1:31,680]

565 M : HENDERSON, J.R., TYSON, N., AND OTHERS, 1958, Aeromagnetic map of the Boonton Quadrangle, Morris County, New Jersey: U.S. Geological Survey, Map GP-167.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Newark Basin, New Jersey

MAPS: Geophys: aeromagnetism [1:31,680]

566 M : HENDERSON, J.R., TYSON, N., AND OTHERS, 1958, Aeromagnetic map of the Caldwell Quadrangle, Essex and Morris Counties, New Jersey: U.S. Geological Survey, Map GP-172.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Newark Basin, New Jersey

MAPS: Geophys: aeromagnetism [1:31,680]

567 M : HENDERSON, J.R., TYSON, N., AND OTHERS, 1958, Aeromagnetic map of the Chatham and parts of the Roselle and Plainfield Quadrangles, Morris, Essex, and Somerset Counties, New Jersey: U.S. Geological Survey, Map GP-175.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Newark Basin, New Jersey

MAPS: Geophys: aeromagnetism [1:31,680]

568 M : HENDERSON, J.R., TYSON, N., AND OTHERS, 1958, Aeromagnetic map of the Gladstone Quadrangle, Somerset, Morris, and Hunterdon Counties, New Jersey: U.S. Geological Survey, Map GP-173.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Newark Basin, New Jersey

MAPS: Geophys: aeromagnetism [1:31,680]

569 M : HENDERSON, J.R., TYSON, N., AND OTHERS, 1958, Aeromagnetic map of the Mendham Quadrangle, Morris County, New Jersey: U.S. Geological Survey, Map GP-170.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Newark Basin, New Jersey

MAPS: Geophys: aeromagnetism [1:31,680]

570 M : HENDERSON, J.R., TYSON, N., AND OTHERS, 1958, Aeromagnetic map of the Morristown Quadrangle, Morris County, New Jersey: U.S. Geological Survey, Map GP-171.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Newark Basin, New Jersey

MAPS: Geophys: aeromagnetism [1:31,680]

571 M : HENDERSON, J.R., TYSON, N., AND OTHERS, 1958, Aeromagnetic map of the Pompton Plains Quadrangle, Morris, Passaic and Essex Counties, New Jersey: U.S. Geological Survey, Map GP-168.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Newark Basin, New Jersey

MAPS: Geophys: aeromagnetism [1:31,680]

572 M : HENDERSON, J.R., TYSON, N., AND OTHERS, 1958, Aeromagnetic map of the Wanaque Quadrangle, Passaic and Bergen Counties, New Jersey: U.S. Geological Survey, Map GP-164.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Newark Basin, New Jersey

MAPS: Geophys: aeromagnetism [1:31,680]

573 P : HENIKA, WILLIAM S., AND JOHNSON, STANLEY S., 1980, Aeroradiometric contour pattern and rock distribution in the Danville 15-minute quadrangle: in, Price, V., Jr., and others, eds., Carolina Geological Society Field Trip Guidebook, 1980, Trip VI, 5 p.

SUMMARY: A groundwater model for uranium deposition is proposed in which diabase and microbreccia dikes pond groundwater up gradient (SE), thus allowing for precipitation of uraniuim, originally leached from basin-adjacent granitic rocks. North-south linear anomalies along the basin margins and symmetrical about diabase or micro- breccia dikes may reflect such a groundwater uranium depositional system.

KEYWORDS: geophysics
aeroradioactivity
economic geology
uranium

GEOGRAPHIC AREA: Danville Basin, Virginia

MAPS: Geophys: aeroradiometric

574 PM: HENIKA, WILLIAM S., AND THAYER, PAUL A., 1977, Geology of the Blairs, Mount Hermon, Danville, and Ringgold Quadrangles, Virginia: Virginia Division of Mineral Resources, Publication 2, 45 p.

SUMMARY: The general geology and structure of part of the basin are presented. The Triassic is represented by the Dry Fork Fm. which contains gray sandstones, mudstones, and conglomerates, the latter along basin margins. The sandstones are arkosic. Petrographic data are presented. Diabase dikes trend N 5°W. The Chatham Fault bounds the basin to the NW with minor faults also present along the SE margin. Beds dip to the NW.

KEYWORDS: general geology
structure
faults

GEOGRAPHIC AREA: Danville Basin, Virginia, Pittsylvania Co.

MAPS: Geol: [1:24,000]
Section: Dry Fork Fm.

DATA: Photos: outcrops and photomicrographs
Plots: sandstone composition

575 M : HENIKA, WILLIAM S., AND THAYER, PAUL A., 1983, Geologic map of the Spring Garden Quadrangle, Virginia: Virginia Division of Mineral Resources Publication 48.

SUMMARY: A portion of the Danville Triassic basin covers the central part of the quadrangle. Paul Thayer mapped the Triassic rocks.

KEYWORDS: general geology
stratigraphy

GEOGRAPHIC AREA: Danville Basin, Virginia, Pittsylvania County, Spring Garden Quadrangle

MAPS: Geol: [1:24,000]

576 T : HENTZ, T.F., 1981, The sedimentology of the Culpeper Group lake beds (Lower Jurassic) at Thoroughfare Gap, Virginia: M.S. Thesis, University of Kansas.

KEYWORDS: sedimentation

GEOGRAPHIC AREA: Culpeper Basin, Virginia

577 A : HENTZ, TUCKER F., 1982, Sedimentology and structure of Lower Jurassic lake beds in the Culpeper Basin at Thoroughfare Gap, Virginia: Geological Society of America, Abstracts with Programs, v. 14, p. 24-25.

SUMMARY: Gray lacustrine strata along the western margin define shore-terrace (sediment agitation by waves), lateral-slope (deposition from suspension, slumping, and proximal gravity flows), and basin-plain (deposition from distal turbidity currents) environments. Morphology of dips and unconformities within several cyclic sequences suggest synsedimentary tilting. Source sediment was from the Blue Ridge (W) and previously deposited Triassic sediments and basalts (E).

KEYWORDS: sedimentation

GEOGRAPHIC AREA: Culpeper Basin, Virginia

578 P : HERMES, O. DON, 1964, A quantitative petrographic study of dolerite in the Deep River Basin, North Carolina: American Mineralogist, v. 49, p. 1718-1729.

SUMMARY: Modal compositions, optical properties, and chemistry of about 50 diabase dikes indicate that olivine, which averages 15-20% and as much as 54%, is present in greater amounts than dikes from other basins - even the olivine-rich zone of the Palisades Sill. Dike centers contain more olivine and Mg than their margins.

KEY..ORDS: mineralogy
petrology
diabase

GEOGRAPHIC AREA: Deep River Basin, North Carolina

DATA: Chem. (type of data): major oxide
Plots: mineral percentages; Mg olivine vs. Mg augite

579 A : HERRICK, D.C., ROSE, A.W., AND DEINES, P., 1972, Mineralogical and isotopic studies of the Cornwall iron deposit, Pennsylvania: Geological Society of America, Abstracts with Programs, v. 4, p. 534-535.

SUMMARY: Deposition temperatures for magnetite were determined from the mineral assemblages and delta-O(18) to be 450°C with FS2(10^{-21}) and FO2(10^{-5}). O(18) values for calcite in and out of the ore zone show little variation. Those for magnetite and the water in equilibrium with ore are unusually heavy. Diffusion may have played an important role.

KEYWORDS: economic geology
iron
geochemistry
isotopes

GEOGRAPHIC AREA: Gettysburg Basin, Pennsylvania

580 T : HERRICK, D.M., 1973, An isotopic study of the magnetite-chalcopyrite deposit at Cornwall, Pennsylvania: Ph.D. Thesis, Pennsylvania State University, 95 p.

KEYWORDS: economic geology
iron

GEOGRAPHIC AREA: Newark Basin, Gettysburg Basin, Pennsylvania, Lebanon Co., Lebanon Quad.

581 P : HERSEY, J.B., 1941, Gravity and magnetic studies along the Paleozoic-Triassic contact in Eastern Pennsylvania: American Geophysical Union, Transactions, v. 22, p. 350-353.

SUMMARY: A discussion is given of magnetic and gravity surveying techniques used in studying the northern basin border between the Delaware River and Quakertown. It is recognized that trap-rock yields high values and can therefore be mapped accurately. (The brief report is preliminary in nature.)

KEYWORDS: geophysics
magnetism
gravity

GEOGRAPHIC AREA: Newark Basin, Pennsylvania

MAPS: Geophys: magnetic traverses (trap-sediment contact)

582 PM: HERZ, NORMAN, 1955, The bedrock geology of the Glastonbury Quadrangle: Connecticut Geological and Natural History Survey, Quadrangle Report No. 5, 24 p.

SUMMARY: The southeast area of the basin contains poorly sorted arkosic sandstone (Portland Fm.) that is in fault contact with the metamorphics. Outcrops are sparse. The border fault is recognized by the mylonitized metamorphics.

KEYWORDS: general geology

GEOGRAPHIC AREA: Hartford Basin, Connecticut, Hartford Co., Glastonburg Quad.

MAPS: Geol: (1) [1:31,680]

583 P : HERZOG, L.F., AND PINSON, W.H., JR., 1955, The Sr and Rb contents of granite G-1 and the diabase W-1: Geochimica et Cosmochimica Acta, v. 8, p. 295-298.

SUMMARY: Analytical techniques are discussed, and the diabase standard is found to contain 28.5 ppm Rb and 117 ppm Sr.

KEYWORDS: diabase
geochemistry

GEOGRAPHIC AREA: Culpeper Basin, Virginia, Fairfax Co., Manassas Quad.

584 P : HESS, H.H., 1941, Pyroxenes of common mafic magmas, Part 1: American Mineralogist, v. 26, p. 515-535.

SUMMARY: The evolution of pyroxenes in basaltic magmas is discussed, including the relationship between augite and pigeonite and the inversion of pigeonite to hypersthene. The evolution of pyroxene within the Palisades diabase is outlined.

KEYWORDS: diabase
petrology
mineralogy

GEOGRAPHIC AREA: Newark Basin, New Jersey

585 P : HICKOCK, W.O., IV, 1933, The iron ore deposits at Cornwall, Pennsylvania: Economic Geology, v. 28, no. 3, p. 193-255.

SUMMARY: This extensive treatise discusses the local geology of the magnetite deposit replacing limestone adjacent to diabase. Emphasis is placed on the mineralogy and petrography of the magnetite and other ore and gangue minerals. Mineral zoning within the ore body is outlined. A lengthy discussion of theories concerning the ore genesis is given. The author proposes direct magmatic emanation from the diabase.

KEYWORDS: economic geology
iron
mineralogy
petrology

GEOGRAPHIC AREA: Gettysburg Basin, Newark Basin, Pennsylvania, Lebanon Co., Lebanon Quad.

MAPS: Geol: sketch map
Section: mineral zoning

DATA: Chem. (type of data): ore, limestone
Photos: magnetite

586 P : HICKOCK, W.O., AND WILLARD, B., 1933, Dinosaur foot tracks near Yocumtown, York County, Pennsylvania: Pennsylvania Academy of Science, Proceedings, v. 7, p. 55-58.

SUMMARY: Two dinosaur species are attributed to tracks found in the central Gettysburg Fm. Correlation of the Gettysburg Fm. with the Upper series in Connecticut is made on similar Conn. fossils. A sketch of the tracks is provided.

KEYWORDS: paleontology

GEOGRAPHIC AREA: Gettysburg Basin, Pennsylvania, York

587 T : HINTHORNE, J.R., 1967, Bedrock and engineering geology of the Mt. Tom area, Massachusetts: M.S. Thesis, University of Massachusetts, 126 p.

KEYWORDS: general geology

GEOGRAPHIC AREA: Hartford Basin, Massachusetts

588 P : HITCHCOCK, C.H., 1890, The use of the terms Laurentian and Newark in geological treatises: American Geologist, v. 5, p. 197-202.

SUMMARY: The term Newark is considered not appropriate because the Newark area does not represent the Triassic system in its fullest development, the term Connecticut sandstone pre-dates the Newark term, and the Connecticut Valley Triassic is shown to have been the model with which other basin areas were correlated.

KEYWORDS: general geology

GEOGRAPHIC AREA: Regional

589 P : HITCHCOCK, C.H., 1895, The Connecticut Sandstone Group: Science, v. 1, no. 3, p. 74-77.

SUMMARY: Arguments are proposed in favor of the term Connecticut and not Newark as a regional name for the Mesozoic system of the Atlantic Coast. (Refer to Redfield, 1856; B.S. Lyman; and C.H. Hitchcock.)

KEYWORDS: general geology

GEOGRAPHIC AREA: Regional

590 P : HITCHCOCK, EDWARD, 1823, A sketch of the geology, mineralogy, and scenery of the regions contiguous to the River Connecticut; with a geological map and drawings of organic remains; and occasional botanical notices, Part II, Simple minerals: American Journal of Science, v. 6, p. 201-236.

SUMMARY: This is a descriptive account of the mineral veins within the Hartford Basin. Mines or veins discussed include: Southampton Lead Mine, Berlin (lead-zinc-barite), Granby (Simsbury Mines), and Greenfield (copper).

KEYWORDS: economic geology
copper
lead
zinc
barite

GEOGRAPHIC AREA: Hartford Basin, Connecticut, Massachusetts

591 P : HITCHCOCK, EDWARD, 1835, Economical geology: in, Hitchcock, E., Report on the Geology, Mineralogy, Botany, and Zoology of Massachusetts, p. 68-74.

SUMMARY: This is a brief descriptive account of the mineralogy and workings of the sphalerite-galena-barite-quartz veins at Southampton, Northampton, Westhampton, Whately, Hatfield, Leverett, and Greenfield (copper). The Greenfield vein is specifically indicated as occurring within basalt and red sandstone (Triassic). Other occurrences are localized along the basin margins and host country rock is only specified for the Southhampton and Leverett veins: granite and schist (pre-Triassic).

KEYWORDS: economic geology
lead
zinc
barite
copper

GEOGRAPHIC AREA: Hartford Basin, Massachusetts

592 P : HITCHCOCK, EDWARD, 1841, Final report on the geology of Massachusetts: Amherst, Massachusetts, Commonwealth of Massachusetts, 831 p.

KEYWORDS: general geology

GEOGRAPHIC AREA: Hartford Basin, Massachusetts

593 P : HITCHCOCK, EDWARD, 1858, Ichnology of New England, a report on the sandstone of the Connecticut Valley, especially its fossil footmarks: W. White, Boston, Massachusetts, 220 p.

SUMMARY: This extensive treatise describes in detail the fossil species (footprints) in the Hartford Basin. Sixty plates of sketches are included. A discussion of the analysis and morphology of footprints is presented.

KEYWORDS: paleontology

GEOGRAPHIC AREA: Hartford Basin, Connecticut, Massachusetts

594 P : HOADLEY, C.W., 1917, A mineralogical pilgrimage through Connecticut: American Mineralogist, v. 2, p. 99-100.

KEYWORDS: mineralogy

GEOGRAPHIC AREA: Hartford Basin, Connecticut

595 P : HOADLEY, C.W., 1935, Anthracite coal found in West Hartford, Connecticut: Rocks and Minerals, v. 10, p. 123.

KEYWORDS: economic geology
coal

GEOGRAPHIC AREA: Hartford Basin, Connecticut

596 P : HOBBS, WILLIAM HERBERT, 1901, The Newark system of the Pomperaug Valley, Connecticut: U.S. Geological Survey Annual Report No. 21, pt. 3, p. 7-160.

SUMMARY: The geology, structure, and paleontology of the basin are outlined. Basalt flows occupy the central area with arkosic sandstone to the west and shale to the east. A complex joint and fault system is discussed with the basin bordered on all sides by faults against schist and gneiss. Beds dip eastward.

KEYWORDS: general geology
paleontology
petrology
basalt

GEOGRAPHIC AREA: Pomperaug Basin, Connecticut

MAPS: Geol: general, structure

DATA: Chem. (type of data): basalt

597 P : HOBBS, WILLIAM HERBERT, 1902, Former extent of the Newark System: Geological Society of America, Bulletin, v. 13, p. 139-148.

SUMMARY: This discussion summarizes the local basin vs. broad terrain or connected basin controversy. The author supports the latter with evidence from erosional considerations, fault continuity, and gradational sediment changes.

KEYWORDS: general geology

GEOGRAPHIC AREA: Regional

598 P : HODYCH, J.P., AND HAYATSU, A., 1980, K-Ar isochron age and paleomagnetism of diabase along the Trans-Avalon Aeromagnetic Lineament - evidence of Late Triassic rifting in Newfoundland: Canadian Journal of Earth Sciences, v. 17, p. 491-499.

SUMMARY: The aeromagnetic lineament (caused by diabase) trends NE across the Avalon Peninsula in East Newfoundland and is genetically related to the Shelburne dike and North Mountain basalt of Nova Scotia by similar age (201 m.y. Avalon dike) and paleomagnetic pole position (87.8°E, 72.9°N).

KEYWORDS: geophysics
radiometric age
isotopes
K/Ar dating
paleomagnetism

GEOGRAPHIC AREA: Maritime

MAPS: Geol: regional
Geophys: aeromagnetics

599 T : HOLLAND, W.T., 1930, A geophysical and geological survey of the Deep River Triassic Basin: M.S. Thesis, University of North Carolina.

KEYWORDS: geophysics
structure

GEOGRAPHIC AREA: Deep River Basin, North Carolina

600 A : HOLMES, J.A., 1889, Conglomerate and pebble beds of the Triassic and Potomac formations in North Carolina: Elisha Mitchell Scientific Society, Journal, v. 6, p. 148.

SUMMARY: Conglomerates near Morrisville and on the Nevie River in Granville County were deposited in a westerly direction when the area to the east was higher than it is today.

KEYWORDS: sedimentation

GEOGRAPHIC AREA: Durham Basin, North Carolina

601 T : HOOKS, W. GARY, 1953, The clay minerals and iron oxide minerals of the Triassic "red beds" of the Durham Basin, North Carolina: M.S. Thesis, University of North Carolina.

KEYWORDS: mineralogy
sediments

GEOGRAPHIC AREA: Durham Basin, North Carolina

602 P : HOOKS, W. GARY, AND INGRAM, ROY L., 1955, The clay minerals and the iron oxide minerals of the Triassic "Red Beds" of the Durham Basin, North Carolina: American Journal of Science, v. 253, p. 19-25.

SUMMARY: X-ray diffraction of red and non-red sediments indicate that illite and montmorillonoids are most abundant, followed by kaolin and vermiculite. The minerals were derived from deep erosion of red lateritic soils with the former two coming from the partially weathered (C-horizon) and the latter two, the more leached (A, B horizons).

KEYWORDS: sedimentation
mineralogy
sediments

GEOGRAPHIC AREA: Durham Basin, North Carolina

603 T : HOPE, R.C., 1975, A paleobotanical analysis of the Sanford Triassic Basin, North Carolina: Ph.D. Thesis, University of South Carolina.

KEYWORDS: paleontology

GEOGRAPHIC AREA: Sanford Basin, North Carolina

604 P : HOPE, R.C., AND PATTERSON, O.F., III, 1969, Triassic flora from the Deep River Basin, North Carolina: North Carolina Division of Mineral Resources, Special Publication No. 2, 23 p.

SUMMARY: Plant species are described from a red-brown siltstone 400 feet above the base of the Pekin Fm. at a clay pit at Gulf. The formation is correlated with the Monitor Butte Mb. of the Chinle Fm. Ten plates of photographs are presented.

KEYWORDS: paleontology

GEOGRAPHIC AREA: Deep River Basin, North Carolina, Chatham Co.

605 P : HORNSTEIN, S., AND SINGER, H., 1970, Granton Quarry, Bergen County, New Jersey: New York Paleontological Society Notes, v. 1, no. 5, p. 3-5.

SUMMARY: The nature and origin of the Lockatong Fm. is discussed briefly, and a partial list of the fish, reptile, and branchiopod fossils is given with references. A discussion of the sediment cycles of the Lockatong Fm. is taken from Van Houten (1964).

KEYWORDS: paleontology

GEOGRAPHIC AREA: Newark Basin, New Jersey, Bergen Co.

606 P : HOSKINS, D.M., 1976, Triassic-Jurassic dike extended: Pennsylvania Geology, v. 7, no. 3, p. 6-8.

SUMMARY: This is a brief note on the observation of the continuation of a diabase dike from the Gettysburg area into the Valley and Ridge Province. The thin dike turns northeastward an additional 40 degrees after crossing the Susquehanna River and may correspond to a Landsat image linear.

KEYWORDS: general geology

GEOGRAPHIC AREA: North of Harrisburg, Pennsylvania

607 P : HOTCHKISS, J., 1884, The copper ores of Loudoun County, Virginia: The Virginias, v. 5, p. 192.

SUMMARY: This is a brief description of the copper-silver workings at Goose Creek. Geology is not emphasized. Several shallow shafts within red shale follow veins of copper carbonate yielding 20-80 percent copper and 20 ounces per ton silver. The mine is operated by Frank N. Wise of Eagle Mining Co., Leesburg, Va.

KEYWORDS: economic geology
copper
silver

GEOGRAPHIC AREA: Culpeper Basin, Virginia, Loudoun Co., Leesburg Quad.

608 P : HOTZ, PRESTON E., 1949, Petrology and habit of some diabase sheets in Southeastern Pennsylvania: U.S. Geological Survey Open-File Report 30, 81 p.

SUMMARY: Detailed descriptions of the mineralogy and petrography are given of the diabase and granophyre. Alkalies and silica increase into the granophyre, while iron attains a maximum in the transition zone. Crystal differentiation accounts for the granophyre. A late-stage, residual, iron-rich volatile phase may escape to form magnetite replacement deposits or may remain in the magma to form gas cavities.

KEYWORDS: diabase
mineralogy
petrology
geochemistry
granophyre

GEOGRAPHIC AREA: Newark Basin, Gettysburg Basin, Pennsylvania

MAPS: Geol: sketches
Misc: Dillsburg drill-hole log

DATA: Chem. (type of data): major oxide
Photos: photomicrographs
Plots: pyroxene composition; mineral % vs. depth; Na2O-K2O-CaO

609 PM: HOTZ, PRESTON E., 1950, Diamond-drill exploration of the Dillsburg magnetite deposits, York County, Pennsylvania: U.S. Geological Survey Bulletin 969-A, 27 p.

SUMMARY: Magnetite replacement bodies of a limestone conglomerate occur between two nearly flat-lying diabase sheets. 15 drill holes provide detailed stratigraphic relationships. Gangue minerals include diopside, chlorite, garnet, and pyrite; and ore grades from 20 to 40 percent metallic iron in veins or pods ranging up to 30 feet thick, but usually only several feet. The deposits are attributed to emanations from the diabase magma.

KEYWORDS: economic geology
iron

GEOGRAPHIC AREA: Gettysburg Basin, Pennsylvania, York Co., Dillsburg Quad.

MAPS: Geol: [1:63,360]
Section: drill cores and cross sections (6 plates)

DATA: Chem. (type of data): Fe ore grades

610 P : HOTZ, PRESTON E., 1952, Form of diabase sheets in Southeastern Pennsylvania: American Journal of Science, v. 250, p. 375-388.

SUMMARY: Diamond drilling and gravity surveys support the fact that the elliptical diabase intrusions are essentially nearly flat lying and saucer-shaped below their enclosed sediment cover. Descriptions of the forms of the Dillsburg, Cornwall, Quakertown, and Boyertown sheets are given. Many similarities are shown to exist with the Karoo intrusives of South Africa.

KEYWORDS: general geology
structure
diabase
economic geology
iron

GEOGRAPHIC AREA: Gettysburg Basin, Newark Basin, Pennsylvania

MAPS: Geol: Dillsburg, Cornwall, Quakertown, Boyertown areas
Section: cross sections of the above

611 P : HOTZ, PRESTON ENSLOW, 1953, Petrology of granophyre in diabase near Dillsburg, Pennsylvania: Geological Society of America, Bulletin, v. 64, p. 675-704.

SUMMARY: Chemistry and petrography indicate that alkalies and silica increase from diabase to granophyre, with iron increasing and maximizing in the transitional zone. Crystal fractionation resulted in granophyre generation and the escape of iron-rich volatiles into the sediment producing magnetite deposits. A drill core through the diabase below the magnetite deposits was studied.

KEYWORDS: diabase
geochemistry
petrology
granophyre
economic geology
iron

GEOGRAPHIC AREA: Gettysburg Basin, Pennsylvania, York Co., Dillsburg Quad.

MAPS: Geol: N. York County, Dillsburg area
Section: drill core

DATA: Chem. (type of data): major oxide, norms; trace
Photos: photomicrographs (sketches)
Plots: pyroxene composition and optics; mineralogy vs. depth; FeO-MgO-(K-Na); K2O-Na2O-CaO

612 A : HOULIK, C.W., JR., AND LAIRD, H.S., 1977, Mesozoic wrench tectonics and the development of the northern Newark Basin: Geological Society of America, Abstracts with Programs, v. 9, p. 275.

SUMMARY: Late Triassic Ramapo Fault movement initiated deposition. The fault zone is intruded by diabase - some of which reached the surface (e.g., Ladentown, N.Y.) - that yields K/Ar dates of 156±7 and 149±7 m.y. Sinistral transform faulting accompanied dip-slip movement. Northern termination of the Newark Basin is attributed to Paleozoic "synthetic" shears.

KEYWORDS: structure
faults
geophysics
radiometric age
K/Ar dating

GEOGRAPHIC AREA: Newark Basin, New Jersey, New York

613 P : HOVEY, E.O., 1889, Observations on some of the trap ridges of the East Haven-Branford Region: American Journal of Science, 3rd Series, v. 38, p. 361-383.

SUMMARY: The structure and relationship of the Pond Rock (basalt) and associated traps to the adjacent sandstone are discussed. The range is considered to be intrusive and later than local faulting, in some disagreement with the previous work of W.M. Davis.

KEYWORDS: general geology
basalt

GEOGRAPHIC AREA: Hartford Basin, Connecticut, New Haven, Branford

MAPS: Geol: [1:36,000]

614 P : HOVEY, E.O., 1890, The oil well of Southbury, Connecticut: Scientific American, v. 62, p. 275.

SUMMARY: An oil well drilled in the Pomperaug basin has little oil or gas potential, but minor silver and gold mineralization is reported.

KEYWORDS: economic geology
oil
silver
gold

GEOGRAPHIC AREA: Pomperaug Basin, Connecticut

615 P : HOVEY, EDMUND OTIS, 1897, A relatively acid dike in the Connecitcut Triassic area: American Journal of Science, 4th Series, v. 3, p. 287-292.

SUMMARY: A group of dikes exposed in Triassic sandstone at New Haven is shown to be a keratophyre. Albite phenocrysts with finer orthoclase groundmass constitutes nearly 90% with chlorite and calcite present. Chemical analysis indicates 60% (Si02), 20.5% (Al203), 2.6% (CaO), and 9.6% (Na20). The occurrence of a non-diabase dike is considered anomalous for the Triassic Newark system.

KEYWORDS: granophyre
petrology
mineralogy

GEOGRAPHIC AREA: Hartford Basin, Connecticut, New Haven Co., Branford Quadrangle

MAPS: Geol: (1) New Haven area
Section: outcrop

616 P : HUBERT, J.F., AND HYDE, M.G., 1982, Sheet-flow deposits of graded beds and mudstones on an alluvial sandflat-playa system: Upper Triassic Blomidon redbeds, St. Mary's Bay, Nova Scotia: Sedimentology, v. 29, p. 457-474.

SUMMARY: Flash floods from mountains to the south of the basin area deposited sand, silt and clay as graded beds on sand flats, and sheet flows were deposited on more distal playas. The Blomidon is represented by 32, 5-meter fining upward cycles generated by this alluvial fan-sandflat-playa system. Conditions were subtropical at 25°N paleolatitude during the late Triassic.

KEYWORDS: sedimentation

GEOGRAPHIC AREA: Maritime Province, Nova Scotia

MAPS: Section: stratigraphic columns and logs

DATA: Photos: outcrops
Plots: lithofacies frequency distributions; paleocurrents

617 A : HUBERT, J.F., DOWDALL, W.L., AND FRANZ, A.J., 1979, Late Triassic paleogeography of red beds in the Hartford Basin and Pomperaug outlier, Connecticut and Massachusetts: Geological Society of America, Abstracts with Programs, v. 11, p. 17.

SUMMARY: The 2000 meters of New Haven Fm. red arkose (Conn.) and Sugarloaf Fm. arkose (Mass.) represent fluvial rocks deposited over a 9 m.y. period in a tropical, semi-arid rift valley at 15°N paleolatitude from Early Norian through Rhaetian. Three facies occur: escarpment aluvial fans, ephemeral braided rivers, and a meander belt.

KEYWORDS: sedimentation

GEOGRAPHIC AREA: Hartford Basin, Connecticut, Massachusetts

618 A : HUBERT, J.F., HYDE, M.G., AND MERTZ, K.A., 1981, Sandflat-playa model: The Upper Triassic Blomidon redbeds of Nova Scotia: Geological Society of America, Abstracts with Programs, v. 17, p. 477.

SUMMARY: This formation, 400-m thick, accumulated by sheet flows over alluvial fans onto sandflats and mudflows (1-cm thick) onto distal playas. Ten- to 15-cm gypsum crusts formed by discharge of groundwater brine rich in Na-SO4-Cl.

KEYWORDS: sedimentation

GEOGRAPHIC AREA: Maritime, Nova Scotia

619 P : HUBERT, J.F., REED, A.A., AND CAREY, P.J., 1976, Paleogeography of the East Berlin Formation, Newark Group, Connecticut Valley: American Journal of Science, v. 276, p. 1183-1207.

SUMMARY: This formation, between the Holyoke and Hampden Basalts, is composed of alluvial fan sandstones-conglomerates; cross-bedded, red, channel sandstones; and alkaline lake gray and black shales. The climate was tropical with large lakes (4700 km^2)), and sediments were derived from the east. Paleowinds, from the northwest, are interpreted.

KEYWORDS: general geology
sedimentation

GEOGRAPHIC AREA: Hartford Basin, Connecticut

MAPS: Section: stratigraphic columns
Misc: paleocurrents, paleoenvironments

DATA: Photos: outcrops

620 F : HUBERT, J.F., REED, A.A., DOWDALL, W.L., AND GILCHRIST, J.M., 1978, Guide to the redbeds of Central Connecticut: 1978 Field Trip, Eastern Section of S.E.P.M.: University of Massachusetts, Department of Geology and Geography, Contribution No. 32, 129 p.

SUMMARY: This guidebook covers the Portland Arkose, New Haven Arkose, the Shuttle Meadow and East Berlin Formations, and the basalt flows. Discussions of the paleoenvironments of deposition, the broad versus isolated terrane theories, and diagenesis are presented.

KEYWORDS: general geology
sedimentation

GEOGRAPHIC AREA: Hartford Basin, Pomperaug Basin, Connecticut

MAPS: Section: stratigraphic columns, cross sections
Misc: paleocurrents, stream morphology

DATA: Photos: outcrops
Plots: paleocurrents, petrography

621 P : HUBERT, JOHN F., 1977, Paleosol caliche in the New Haven Arkose, Connecticut: Record of semiaridity in Late Triassic - Early Jurassic time: Geology, v. 5, p. 302-304.

SUMMARY: (This is a shorter equivalent of the author's 1978 publication.) Comparison is made with Quaternary profiles, and the petrography of the calcareous nodules is discussed. The climate is considered semi-arid with slow sedimentation rate and 100 to 500 mm of rainfall. Calcite often replaces 50 to 70 percent of the fine sediment.

KEYWORDS: sedimentation
climate

GEOGRAPHIC AREA: Hartford Basin, Connecticut

MAPS: Section: profile of local stratigraphy
Misc: samples

DATA: Photos: outcrops

622 P : HUBERT, JOHN F., 1978, Paleosol caliche in the New Haven Arkose, Newark Group, Connecticut: Paleogeography, Paleoclimatology, and Paleoecology, v. 24, p. 151-168.

SUMMARY: Studies of the calcareous caliche horizons of the arkose provide evidence suggesting that the climate (Late Triassic to Early Jurassic) was semi-arid in transition between humid to the south and arid to the northeast. Possible sources of the calcium are discussed including plant concentration and weathering of carbonates west of the basin.

KEYWORDS: sedimentation
climate

GEOGRAPHIC AREA: Hartford Basin, Connecticut

MAPS: Section: local stratigraphic profiles
Misc: caliche localities

DATA: Plots: outcrops, photomicrographs

623 A : HUBERT, JOHN F., AND GILCHRIST, JAMES M., 1984, Brownstones of the Connecticut Valley: Geological Society of America, Abstracts with Programs, v. 16, no. 1, p. 25.

SUMMARY: Sedimentary features of fluvial sandstones in the Hartford Basin, Connecticut, are discussed.

KEYWORDS: sedimentation
petrology

GEOGRAPHIC AREA: Hartford Basin, Connecticut

624 P : HUBERT, JOHN F., AND MERTZ, KARL A., 1980, Eolian dune field of Late Triassic age, Fundy Basin, Nova Scotia: Geology, v. 8, p. 516-519.

SUMMARY: Large dunes within the Wolfville Fm. developed by winds from the NE and place the basin area at a subtropical paleolatitude of 25°N. The dunes occur on the northern side of the basin and are overlain by red-bed evaporites of the Blomidon Fm. It is proposed that, during Late Triassic time, the climate in the Newark Supergroup was one of increasing aridity from south to north.

KEYWORDS: sedimentation

GEOGRAPHIC AREA: Maritime

MAPS: Section: measured (Wolfville Fm.); regional stratigraphy (Fundy Group)
Misc: paleogeography

DATA: Photos: outcrops

625 A : HUBERT, JOHN F., AND OTHERS, 1983, Upper Triassic alluvial fans, braided rivers and eolian dunes of the Wolfville redbeds, Fundy Rift Valley, Nova Scotia: Geological Society of America, Abstracts with Programs, v. 15, p. 121.

SUMMARY: The Wolfville Fm. (375 meters) formed at 20°N paleolatitude, with drainage from the highlands coalescing into braided rivers producing 4- to 10-meter fining upward cycles (described). Beds of eolian sandstone are interbedded with alluvial-fan and braided-river red beds on the north side of the valley.

KEYWORDS: sedimentation

GEOGRAPHIC AREA: Maritime

626 A : HUBERT, JOHN F., AND REED, ALAN A., 1976, Lacustrine cycles in the East Berlin Formation, Newark Group, Connecticut Valley: Geological Society of America, Abstracts with Programs, v. 8, p. 202.

SUMMARY: The Lower Jurassic Formation is composed of 2- to 7-meter symmetrical cycles representing lacustrine conditions with black-pyritic shale and gray mudstones (containing mud rocks, analcime, gypsum, and halite) representing deeper-anaerobic, and shallow conditions respectively. Paleowinds were from the northwest. Diagenesis is represented by replacement and addition of Mg and Na (dolomite, albite).

KEYWORDS: sedimentation

GEOGRAPHIC AREA: Hartford Basin, Connecticut

627 P : HUBERT, JOHN F., AND REED, ALAN A., 1978, Red-bed diagenesis in the East Berlin Formation, Newark Group, Connecticut Valley: Journal of Sedimentary Petrology, v. 48, p. 175-184.

SUMMARY: The formation, an Early Jurassic fluvial and lacustrine sequence, contains authigenic hematite pigment produced by: conversion of detrital limonite stains to hematite by aging, intrastratal solution of Fe-silicates, detrital magnetite oxidation, and replacement of Fe-silicates by dolomite cement.

KEYWORDS: sedimentation
mineralogy

GEOGRAPHIC AREA: Hartford Basin, Connecticut

MAPS: Section: stratigraphic
Misc: geologic sketch map

DATA: Photos: photomicrographs
Plots: mineral composition

628 F : HUBERT, JOHN F., GILCHRIST, JAMES M., AND REED, ALAN A., 1982, Jurassic redbeds of the Connecticut Valley: (1) Brownstones of the Portland Formation; and (2) Playa-Playa lake-Oligomictic lake model for parts of the East Berlin, Shuttle Meadow, and Portland Formations: in, Joesten, R., and Quarrier, S.S., eds., Guidebook for Fieldtrips in Connecticut and South Central Massachusetts, New England Intercollegiate Geological Conf., 74th Meeting, Storrs, Conn., p. 103-141.

SUMMARY: Sedimentary structures, petrography, deposition, and paleontology are discussed for the Portland Formation (Buckland Quarry, Manchester, Conn.). The playa and oligomictic models are outlined. Control for repeated cycles in these two environments was long-term precipitation fluctuation. A laminite rock consisting of alternating light dolomite and kerogen-bearing black mud characterizes the oligomictic lakes. Field stops include: Talcott Basalt, Shuttle Meadow Fm., East Berlin Fm, and Portland Fm.

KEYWORDS: sedimentation
general geology

GEOGRAPHIC AREA: Hartford Basin, Connecticut, Massachusetts

MAPS: Geol: sketches
Section: measures sections

DATA: Photos: outcrops, photomicrographs
Plots: paleocurrents; sandstone composition

629 A : HUBERT, JOHN F., REED, ALAN A., AND CAREY, PATRICK J., 1975, Triassic winds of the Connecticut Valley: Geological Society of America, Abstracts with Programs, v. 7, p. 76-77.

SUMMARY: The 200-meter East Berlin Fm. consists of dark, pyritic mudstone and dolomite (lacustrine), and red mudstones, sandstones, and white sandstones (fluvial). At its paleo 25°N latitude position, winds blew from the NW and N generating lake currents. The valley floor sloped towards the SW as evidenced by slump sheets and the position of gray mudstone.

KEYWORDS: sedimentation

GEOGRAPHIC AREA: Hartford Basin, Connecticut

630 P : HULBERT, E.M., 1897, Copper mining in Connecticut: Connecticut Quarterly, v. 3, p. 23-32.

SUMMARY: This is a descriptive account of the history of mining at the Newgate Prison and Higley Mines (East Granby) and the Bristol Mines. Native copper, silver, and copper sulfides and carbonates occur. No detailed geologic descriptions are given.

KEYWORDS: economic geology
copper
silver

GEOGRAPHIC AREA: Hartford Basin, Connecticut

631 P : HUNT, T. STERRY, 1875, The Cornwall iron mine and some related deposits in Pennsylvania: American Institute of Mining Engineers, Transactions, v. 4, p. 319-325.

SUMMARY: A discussion of the Cornwall, Boyertown, Dillsburg, and Wheatfield Cornwall-type deposits is given. Their size and general geologic character is briefly outlined. The deposits are not considered to be genetically related to the diabase, but are considered sedimentary and belonging to the Taconic rocks of the Valley and Ridge Province.

KEYWORDS: economic geology
iron

GEOGRAPHIC AREA: Newark Basin, Gettysburg Basin, Pennsylvania

632 A : HURTUBISE, D.O., 1983, Geochemistry and petrology of the Pomperaug Basin basalts, Connecticut: Geological Society of America, Abstracts with Programs, v. 15, p. 91.

SUMMARY: The basalts are of the quartz-normative high-Fe2O3 type (Weigand, et al., 1970), plot along the Palisades fractionation trend, closely resemble (chemistry) the Second Watchung (Newark) and Holyoke (Hartford) basalts, and are interpreted as time-and rock- stratigraphic equivalents of these. The sampled unit is that of "t3" (Scott, 1974) and is not correlated with the Talcott basalt as suggested by Scott (1974).

KEYWORDS: general geology
basalt
petrology

GEOGRAPHIC AREA: Pomperaug Basin, Connecticut

633 T : HURTUBISE, DONLON, 1979, Geochemistry and petrology of the Talcott, Holyoke, and Hampden Basalts, southern Hartford Basin, Connecticut: M.S. Thesis, Rutgers University, 70 p.

KEYWORDS: geochemistry
petrology
basalt

GEOGRAPHIC AREA: Hartford Basin, Connecticut

634 P : HUSCH, JONATHAN M., STURGIS, DOUGLAS S., AND BAMBRICK, THOMAS C., 1984, Mesozoic diabases from west-central New Jersey: major and trace element chemistry of whole rock samples: Northeastern Geology, v. 6, p. 51-63.

SUMMARY: Rock suites from seven Mesozoic diabase bodies from west-central New Jersey were analyzed for major and trace element chemistry. Most analyses are similar to the high-Ti quartz normative tholeiites of Weigand and Ragland (1970). Overall, the fractionation patterns follow the classic Palisades trend.

KEYWORDS: diabase
geochemistry

GEOGRAPHIC AREA: Newark Basin, New Jersey

DATA: Chem. (type of data): 25 diabase analyses, major and trace elements

635 M : HYDE, R.C., AND COLTON, R.B., 1973, Depth to bedrock, Broad Brook Quadrangle, Connecticut: U.S. Geological Survey, Map MF-451g.

KEYWORDS: surficial geology

GEOGRAPHIC AREA: Hartford Basin, Connecticut

MAPS: Geol: depth to bedrock [1:24,000]

I

636 P : IDDINGS, JOSEPH P., 1886, The columnar structure in the igneous rock on Orange Mountain, New Jersey: American Journal of Science, 3rd Series, v. 31, p. 321-331.

SUMMARY: The origin of the basaltic columns is attributed to slow cooling after solidification as evidenced by crystals cut by the joints. The geometry of the joint systems is discussed, and it is assumed that platy jointing near the upper surface of the flow results from a faster cooling rate.

KEYWORDS: structure
basalt

GEOGRAPHIC AREA: Newark Basin, New Jersey, Essex Co.

637 T : IDRIS, E.O., 1980, Geophysical investigation of diabase dikes in the Durham Triassic Basin and their hydrological significance: M.S. Thesis, North Carolina State University.

KEYWORDS: hydrology
geophysics

GEOGRAPHIC AREA: Durham Basin, North Carolina

638 PM: INNERS, J.D., AND WILSHUSEN, J.P., 1978, Triassic-Jurassic diabase dike at Hellam, York County, Pennsylvania: Pennsylvania Geology, v. 9, no. 2, p. 12-15.

SUMMARY: A small diabase dike trending N 20°E to N 0 E occurs within Cambro-Ordovician rocks south of the basin. The dike was not recognized previously. Petrographic data are presented.

KEYWORDS: general geology
diabase
petrology

GEOGRAPHIC AREA: Gettysburg Basin, Pennsylvania, York Co., Columbia West Quad., Red Lion Quad.

MAPS: Geol: [1:24,000]

DATA: Photos: outcrop, photomicrograph

639 P : IRVING, E., AND BANKS, M.R., 1961, Paleomagnetic results from the Upper Triassic lavas of Massachusetts: Journal of Geophysical Research, v. 66, no. 6, p. 1935-1939.

SUMMARY: Samples from the Granby and Holyoke lavas yield a pole position at 55°N, 88°E, consistent with other U.S. Triassic measurements. Calculations require the removal of a "soft" magnetic component that results in variable directions. Specific locations of samples are provided.

KEYWORDS: basalt
geophysics
paleomagnetism

GEOGRAPHIC AREA: Hartford Basin, Massachusetts

DATA: Plots: poles

640 P : IRVING, JOHN DUER, 1899, Some contact phenomena of the Palisade diabase: School of Mines Quarterly, v. 20, p. 213-223.

SUMMARY: The internal and external (contact) effects of the intrusion are considered with the former characterized by fining of grain size and increasing density from the center to the edge. The adjacent hornfels zones are described mineralogically. Andalusite on the upper contact confirms an intrusive emplacement.

KEYWORDS: diabase
mineralogy
petrology
metamorphism
hornfels

GEOGRAPHIC AREA: Newark Basin, New Jersey

641 T : IRWIN, D.J., 1982, Sedimentology and petrology of the Jurassic Portland Formation, Hartford Basin: M.S. Thesis, University of Massachusetts.

KEYWORDS: sedimentation

GEOGRAPHIC AREA: Hartford Basin, Massachusetts

642 M : IWAHASHI, TORU, AND HEIRONIMUS, T.L., 1978, Map showing LANDSAT imagery alignments in Fairfax County, Virginia: U.S. Geological Survey Open-File Report 78-525.

KEYWORDS: geophysics

GEOGRAPHIC AREA: Culpeper Basin, Virginia

MAPS: Geophys: landsat [1:48,000]

J

643 P : JANSA, L.F., AND WADE, J.A., 1975, Geology of the continental margin off Nova Scotia and Newfoundland: in, Vol. 2: Offshore Geology of Eastern Canada, Paper 74, v. 30, p. 51-105.

KEYWORDS: general geology

GEOGRAPHIC AREA: Maritime Province, Nova Scotia, Newfoundland (offshore), Canada

644 P : JANSA, L.F., BUJAK, J.P., AND WILLIAMS, G.L., 1980, Upper Triassic salt deposits of the Western North Atlantic: Canadian Journal of Earth Sciences, v. 17, no. 5, p. 547-559.

SUMMARY: Halite (2054 meters) was discovered during drilling in the Carson Sub-basin, Eastern Grand Banks, Newfoundland, and is shown by palynology to be Upper Triassic. A model of the salt formation is developed and includes sea encroachment into the rift-related graben. Further tectonic implications are outlined.

KEYWORDS: paleontology
economic geology
salt
tectonics

GEOGRAPHIC AREA: Maritime Province, Newfoundland (offshore)

MAPS: Geol: N. Atlantic paleogeography
Section: core log

645 F : JENSEN, LYNDON R., 1975, Late Triassic redbeds, Kingsport area: Maritime Sediments, v. 11, no. 2, p. 77-81.

SUMMARY: The stratigraphy of this area of Nova Scotia is described briefly and consists of a lower fluviatile unit (60-750 m), a central lacustrine and fluviatile unit (7-370 m), the North Mtn. Basalt, and an upper sandstone-limestone unit. Strata are folded into a SE plunging syncline within the half-graben.

KEYWORDS: general geology
stratigraphy

GEOGRAPHIC AREA: Maritime Province, Nova Scotia

MAPS: Geol: Kingsport area
Section: stratigraphic column
Misc: block diagram

DATA: Photos: outcrops

646 P : JOHNSON, DONALD H., 1950, A torbernite deposit near Stockton, Hunterdon County, New Jersey: U.S. Geological Survey, Trace Elements Memorandum Report 125, 2 p.

SUMMARY: High radioactivity and torbernite occur in a 10-foot by 20-foot zone of limonite and manganese stained arkosic sandstone of the middle part of the Stockton Formation. The exposure is 0.7 miles NW of Stockton on the road to Raven Rock. Equivalent U ranges from 0.13 to 0.34%, and chemical U ranges from 0.09 to 1.28%.

KEYWORDS: economic geology
uranium

GEOGRAPHIC AREA: Newark Basin, New Jersey, Hunterdon Co., Stockton Quad.

DATA: Chem. (type of data): U, Th

647 F : JOHNSON, HELGI, 1957, Trap rock aggregates in New Jersey: Geological Society of America, Guidebook for Fieldtrips, 1957, Field Trip No. 7, p. 42-45.

SUMMARY: A brief review of the Watchung basalts and diabase is given with a field trip stop at the Summit, New Jersey basalt quarry.

KEYWORDS: general geology

GEOGRAPHIC AREA: Newark Basin, New Jersey, Union Co., Roselle Quad.

MAPS: Geol: geol. sketch map of diabase and basalt in Newark Basin, N.J.

648 F : JOHNSON, MEREDITH E., AND MCLAUGHLIN, DEAN B., 1957, Triassic formations in the Delaware Valley: Geological Society of America, Guidebook for Fieldtrips, 1957, Field Trip No. 2, 38 p.

SUMMARY: The lithologic character, fossils, and relationships among the arkosic Stockton Formation, the argillaceous Lockatong Formation, and the red shale Brunswick Formation are outlined with specific reference to field trip stops along the Delaware River between Lambertville and Holland. A uranium occurrence in the Stockton is included.

KEYWORDS: general geology
paleontology
economic geology
uranium

GEOGRAPHIC AREA: Newark Basin, New Jersey, Hunterdon Co.

MAPS: Section: strat. sections
Misc: field stops with road log

649 M : JOHNSON, STANLEY S., AND FROELICH, ALBERT J., 1982, Aeromagnetic contour map of the Culpeper Basin and vicinity, Virginia: Virginia Division of Mineral Resources Publication.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Culpeper Basin, Virginia

MAPS: Geophys: aeromagnetism [1:125,000], 100 gammas

650 PM: JOHNSON, STANLEY S., AND SWEET, PALMER C., 1969, Magnetic and gravity surveys of Albemarle and Fluvanna Counties, Virginia: Virginia Division of Mineral Resources, Report of Investigations 20, 10 p.

SUMMARY: Bouguer gravity and total intensity magnetic surveys are superimposed upon the geology of the northern part of the Scottsville Basin in southern Albemarle County. No significant geophysical features are noted for the basin. Instrumentation techniques are outlined.

KEYWORDS: general geology
geophysics
gravity
magnetism

GEOGRAPHIC AREA: Scottsville Basin, Virginia

MAPS: Geol: [1:62,500]
Geophys: gravity and magnetics [1:62,500]

651 P : JOHNSON, W.R., JR., AND STRALEY, H.W., III, 1935, An attempt to locate the boundaries of the Durham Triassic Basin with a magnetometer: American Geophysical Union, Transactions, 16th Annual Meeting, Part 1, p. 176-181.

SUMMARY: A series of traverses across the basin indicates faulting on the NW border, distribution of fanglomerates, and possible faulting within the basin. The irregularity of the basin floor and the occurrences of crystalline Paleozoic inliers is recognized.

KEYWORDS: geophysics
magnetism
structure

GEOGRAPHIC AREA: Durham Basin, North Carolina

MAPS: Geophys: magnetometer traverses

652 PM: JOHNSTON, HERBERT E., 1966, Hydrology of the New Oxford Formation in Lancaster County, Pennsylvania: Pennsylvania Geological Survey, Bulletin W23, 80 p.

SUMMARY: Groundwater is most abundant in coarser sandstones and conglomerates, is of the calcium-bicarbonate type, and 80% of 349 wells have dissolved-solids contents less than 250 ppm. Water is dominantly soft to moderately hard. No relationship exists between well yield and depth. Yield, depth, pH, and hardness data are provided.

KEYWORDS: hydrology

GEOGRAPHIC AREA: Gettysburg Basin, Pennsylvania, Lancaster Co.

MAPS: Geol: [1:62,500]
Section: well logs
Misc: well locations

653 P : JOHNSTON, PAUL M., 1960, Ground water supplies in shale and sandstone in Fairfax, Loudoun, and Prince William Counties, Virginia: U.S. Geological Survey Circular 424, 7 p.

SUMMARY: Two wells drilled at the Dulles Int. Airport yielded between 330 and 600 gallons per minute at depths up to 955 feet, much deeper than previously reported in the Triassic rocks of the area. Water is hard (533 to 500 ppm); but the abundance of water and the depth of the Triassic rocks suggest that they may be a significant source of ground water.

KEYWORDS: hydrology

GEOGRAPHIC AREA: Culpeper Basin, Virginia

DATA: Chem. (type of data): water (2 holes, plus 10 previosly published)

654 PM: JOHNSTON, PAUL M., 1962, Geology and ground water resources of the Fairfax Quadrangle, Virginia: U.S. Geological Survey Water-Supply Paper 1539L, 61 p.

SUMMARY: A small area of Triassic Manassas sandstone occupies the NW corner of the area. The hydrology of the quad. primarily concerns the Paleozoic and older formations, but water chemistry and quality are described from two Triassic wells. The Triassic is considered a poor aquifer.

KEYWORDS: hydrology

GEOGRAPHIC AREA: Culpeper Basin, Virginia, Fairfax Co.

MAPS: Geol: [1:24,000]
Misc: wells and springs

655 M : JOHNSTON, R.H., 1978, Probable yields of wells in bedrock aquifers of Fairfax County, Virginia: U.S. Geological Survey Open-File Report 78-267.

KEYWORDS: hydrology

GEOGRAPHIC AREA: Culpeper Basin, Virginia

MAPS: Misc: water well yield [1:48,000]

656 M : JOHNSTON, R.H., AND LARSON, J.D., 1979, Principal sources of ground water in Fairfax County, Virginia: U.S. Geological Survey Open-File Report 79-211.

KEYWORDS: hydrology

GEOGRAPHIC AREA: Culpeper Basin, Virginia

MAPS: Misc: ground-water aquifer [1:48,000]

657 M : JOHNSTON, R.H., AND VAN DRIEL, J.N., 1979, Evaluation of potential yields of water wells in bedrock aquifers of Fairfax County, Virginia - a computer composite map: U.S. Geological Survey Open-File Report 79-525.

KEYWORDS: hydrology

GEOGRAPHIC AREA: Culpeper Basin, Virginia

MAPS: Misc: water well yield [1:48,000]

658 P : JOHNSTON, WALTER R., 1850, On the coal formation of central North Carolina: American Association for the Advancement of Science, Proceedings, v. 4, p. 274-275.

SUMMARY: Several coal localities where coal has been worked are described briefly. The semi-bituminous coal at Haughton's Mills along a tributary to the Deep River is four feet thick, has a specific gravity of 1.31, and its volatile and fixed carbon contents are 24% and 73%, respectively. An anthracite coal 6.5 mi SW of Horton's Mills has a specific gravity of 1.55, and its volatile and carbon contents are 7% and 84%, respectively.

KEYWORDS: economic geology
coal

GEOGRAPHIC AREA: Durham Basin, North Carolina

659 M : JONAS, A.I., AND STOSE, G.W., 1938, Geologic map of Frederick County: Maryland Geological Survey

KEYWORDS: general geology

GEOGRAPHIC AREA: Gettysburg Basin, Maryland, Frederick Co.

MAPS: Geol: [1:62,500]

660 PM: JONAS, ANNA I., 1917, The Precambrian and Triassic diabase in Eastern Pennsylvania: American Museum of Natural History, Bulletin, v. 37, p. 173-181.

SUMMARY: The field relations and lithologic character of Triassic and Precambrian diabase in the region are outlined. The two are distinguished by the alteration and pyrite content of the latter, and by the fact that the latter dikes do not cross into the Triassic region and are found only in the metamorphics north of the basin.

KEYWORDS: general geology
diabase

GEOGRAPHIC AREA: Newark Basin, Pennsylvania, Montgomery, Bucks, Lehigh

MAPS: Geol: [1:62,500]

661 PM: JONAS, ANNA I., AND STOSE, GEORGE W., 1926, New Holland Quadrangle: Pennsylvania Geological Survey, 4th Series, Atlas No. 178, 40 p.

SUMMARY: The southern area of the basin is mapped and described. The Triassic rocks consist of (lower to upper): arkosic s.s., red congl., red shale (Gettysburg Formation), and conglomerate. Faults occur within the basin and form the borders of the basin tongue at Ephrata known as the Ephrata syncline. Beds dip to the NW and are elsewhere in overlap contact with older rocks.

KEYWORDS: general geology
structure

GEOGRAPHIC AREA: Newark Basin, Pennsylvania, Lancaster, Berks, Ephrata Quad., Terre Hill Quad.

MAPS: Geol: [1:62,500]

662 PM: JONAS, ANNA I., AND STOSE, GEORGE W., 1930, Lancaster Quadrangle: Pennsylvania Geological Survey, 4th Series, Atlas No. 168, 106 p.

SUMMARY: The geology of the southern edge of the basin is included in the report and consists of the arkosic, basal New Oxford and the red, argillaceous Gettysburg Formations lying in overlap contact with Ordovician rocks to the south. A conglomeratic member lies at the base of the Gettysburg Formation and achieves prominent relief in the area. The diabase is described. Beds dip to the NW at 35° (avg) and are not folded, but normal faults occur.

KEYWORDS: general geology

GEOGRAPHIC AREA: Gettysburg Basin, Pennsylvania, Lancaster Co., Lebanon Co., Manheim Quad., Lititz Quad.

MAPS: Geol: [1:62,500]

663 T : JONES, D.F., 1975, Stratigraphy, environments of deposition, petrology, age, and provenance of the basal red beds of the Argana Valley, Western High Atlas Mountains, Morocco: M.S. Thesis, New Mexico Institute of Mining Technology, 148 p.

KEYWORDS: sedimentation

GEOGRAPHIC AREA: Morocco

664 P : JONES, P.L., 1979, Hartford 1°x2° NTMS area, Connecticut, New Jersey, and New York: U.S. Department of Energy, National Uranium Resource Evaluation Program, Savannah River Laboratory, Aiken, South Carolina, GJBS-94, 70 p.

SUMMARY: This work is a data release on the chemistry of ground and stream water and stream sediment samples for the southern Hartford Basin. Data include: groundwater (pH, well depth, U, Br, Cl, F, Mn, Na, and V), stream sediment (pH, U, Th, Hf, Al, Ce, Fe, Mn, Sc, Na, Ti, V, and REE's), and stream water (pH, V, Al, Br, Cl, Dy, F, Mn, Na, and V).

KEYWORDS: hydrology
geochemistry

GEOGRAPHIC AREA: Hartford Basin, Connecticut

MAPS: Geol: [1:250,000]
Misc: sample locations; U and Th distribution [1:250,000]

DATA: Chem. (type of data): (see summary)

665 A : JUSTUS, PHILIP S., 1967, Evidence for volcanism or shallow intrusion in the Triassic Pekin Formation of the Deep River Basin, North Carolina: Elisha Mitchell Scientific Society, Journal, v. 83, p. 176-177.

SUMMARY: Amygdaloidal basalt, basaltic breccia, and vitrophyre occur at Gulf 700 feet above the base of the Pekin Formation. The basalt contains augite, orthopyroxene, and zoned andesine with magnetite, apatite, and pyrite. Field relations are difficult to determine, and the intrusive or extrusive origin is elusive.

KEYWORDS: basalt
mineralogy
petrology

GEOGRAPHIC AREA: Sanford Basin, North Carolina, Chatham Co., Goldston Quad.

666 A : JUSTUS, PHILIP S., 1967, Sequence of development of microscopic textures in diabase dikes of the Deep River Triassic Basin, North Carolina: Geological Society of America, Abstracts with Programs, Annual Meeting, p. 113.

SUMMARY: Symmetrical textural development about dike centers for three dike types (based on olivine content) reveal: intergranular and intersertal textures develop independent of composition along chilled zones, and subophitic texture after intergranular and prior to ophitic textures occur independent of composition. Subophitic and ophitic textures develop as a result of olivine modal variation: subophitic (less olivine). Textural types are outlined and may be used to delimit zones of equal cooling rate within intrusions (refer to Justus and Butler, 1966).

KEYWORDS: diabase
mineralogy
petrology

GEOGRAPHIC AREA: Deep River Basin, North Carolina

667 A : JUSTUS, PHILIP S., AND BUTLER, J. ROBERT, 1966, Modal and textural zonation of diabase dikes in the Deep River Basin, North Carolina: Geological Society of America, Special Paper 101, p. 363.

SUMMARY: Ten dikes consist of plagioclase (32-60%), clinopyroxene (6-42%), and olivine (2-58%), with modal symmetry about dike centers evident in most. Increasing olivine toward dike centers is attributed to flowage differentiation. Three dike groups, recognized according to olivine content, illustrate distinct textural development from contact to center. The most common (10-45% olivine) is: porphyritic-intergranular-subophitic-ophitic from edge to center.

KEYWORDS: diabase
mineralogy
petrology

GEOGRAPHIC AREA: Deep River Basin, North Carolina

668 A : JUSTUS, PHILIP S., AND WEIGAND, PETER W., 1971, Distribution of dolerite magma types and variation of dike-swarm pattern: clues to tectonic history of Appalachians in Early Mesozoic: Pennsylvania Academy of Science, Proceedings, v. 45, p. 202-203.

SUMMARY: Four magma types are recognized: ol. norm., low-Ti qtz. norm., high-Ti qtz. norm., and high-Fe qtz. norm. The petrogenetic relations of these types are outlined in detail, and it is recognized that olivine norm. dikes predominate toward the south. Further discussion considers the tectonic/stress history with relation to magma emplacement.

KEYWORDS: diabase
geochemistry

GEOGRAPHIC AREA: Regional

669 A : JUSTUS, PHILIP S., THAYER, PAUL A., AND WEIGAND, PETER, 1970, Comparative geochemistry and petrology of diabase dikes in the North Carolina Triassic basins: Geological Society of America, Abstracts with Programs, v. 2, p. 223.

SUMMARY: A review of the diabase chemistry-types is presented. High-alumina and alkali basalts are found in the Dan River Basin with most of the dikes being olivine tholeiites, with fewer micropegmatite- bearing tholeiites and a rare troctolite. Diabases differentiated at low pressure - the olivine member at decreasing oxygen fugacity and increasing iron.

KEYWORDS: diabase
geochemistry
petrology

GEOGRAPHIC AREA: North Carolina

DATA: Chem. (type of data): major oxide (averages)

670 T : JUSTUS, PHILIP STANLEY, 1966, Modal and textural zonation of diabase dikes, Deep River Basin, North Carolina: M.S. Thesis, University of North Carolina.

KEYWORDS: diabase
mineralogy
petrology

GEOGRAPHIC AREA: Deep River Basin, North Carolina

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671 T : KAISERMAN, RONALD M., 1984, Lithologic controls on groundwater chemistry in uranium-bearing rocks of the southern Culpeper Triassic-Jurassic Basin, Virginia: M.S. Thesis, University of Virginia, 110 p.

KEYWORDS: geochemistry
hydrology
economic geology
uranium

GEOGRAPHIC AREA: Culpeper Basin, Virginia

672 P : KATO, F., 1891, Some of Bergen Hill's rare minerals: Mineralogists' Monthly, v. 6, no. 8, p. 85-89.

SUMMARY: A brief review of the occurrence of rare minerals from Bergen and Weehawken is given and includes copper, chalcopyrite, galena, sphalerite, barite, byssolite, hyalite, diabantite, and titanite.

KEYWORDS: basalt
mineralogy

GEOGRAPHIC AREA: Newark Basin, New Jersey, Hudson Co.

673 T : KATZ, S.B., 1983, Sedimentary features and soil-like fabrics in chemical cycles of the Lockatong Formation, Newark Supergroup (Late Triassic), New Jersey and Pennsylvania: M.S. Thesis, State University of New York, Stony Brook.

SUMMARY: Detailed descriptions are given of sedimentary features and stratigraphy in the Lockatong Formation cycles. Soil-like sedimentary fabrics in massive mudstone units are described. Comparison to modern playa mudflat environments suggest alternation of pluvial to arid conditions during deposition.

KEYWORDS: sedimentation

GEOGRAPHIC AREA: Newark Basin, New Jersey, Pennsylvania

674 P : KAYE, CLIFFORD A., 1983, Discovery of a Late Triassic basin north of Boston and some implications as to post-Paleozoic tectonics in Northeastern Massachusetts: American Journal of Science, v. 283, p. 1060-1079.

SUMMARY: A 6 km by 0.5 km NE-trending Triassic basin, partially fault-bounded, occurs 17 km north of Boston at Peabody. Red conglomerate, arkose, and shale occur, the latter containing Late Triassic plant fossils. Other faults of similar orientation in the area are considered post-Paleozoic.

KEYWORDS: general geology

GEOGRAPHIC AREA: Massachusetts

MAPS: Geol: sketch

DATA: Photos: outcrops, fossils

675 P : KEEN, C.E., HALL, B.R., AND SULLIVAN, K.D., 1977, Mesozoic evolution of the Newfoundland Basin: Earth and Planetary Science Letters, v. 37, p. 307-320.

SUMMARY: Geophysical data from the basin indicate it formed by Cretaceous sea-floor spreading. Basalts from the Newfoundland Seamount chain show affinity with oceanic island basalts and not with mid-ocean ridge basalts. A tectonic reconstruction of the N. Atlantic from 155-73 m.y. is presented.

KEYWORDS: tectonics
geophysics
seismic profiles
gravity
magnetism

GEOGRAPHIC AREA: Maritime Province, Newfoundland (offshore)

MAPS: Geophys: magnetic, seismic, gravity profiles
Misc: tectonic reconstruction

DATA: Chem. (type of data): REE (basalt)

676 PM: KEITH, ARTHUR, 1894, Description of the Harpers Ferry sheet (Virginia, Maryland, West Virginia): U.S. Geological Survey Atlas, Folio No. 10.

SUMMARY: (Covers Triassic basin area west of 77°30' and north of 39°.)

KEYWORDS: general geology
bedrock geology

GEOGRAPHIC AREA: Culpeper Basin, Virginia

MAPS: Geol: [1:125,000]

677 P : KEITH, M.L., CRUFT, E.F., AND DAHLBERG, E.C., 1967, Trace metals in stream sediments of southeastern Pennsylvania, Part I. Geochemical prospecting guide based on regional distribution of zinc, copper, nickel cobalt, chromium, and vanadium: Pennsylvania State University, Earth and Mineral Sciences Experiment Station, Bulletin 82, 14 p.

SUMMARY: Statistical evaluation of the metals defines areas within the Triassic that contain enrichment. Enrichment of chromium, cobalt, and vanadium occurs in the Gettysburg area, which is underlain by Triassic and diabase sediments. Unlike this area, copper and nickel enrichment characterizes the region underlain by Triassic in Lebanon and Lancaster Counties and including the Cornwall and Morgantown magnetite deposits.

KEYWORDS: economic geology
iron
copper

GEOGRAPHIC AREA: Gettysburg Basin, Newark Basin, Pennsylvania

MAPS: Misc: trace metal distribution (bar scale only)

678 P : KEITH, N.S., 1906, The copper deposits of New Jersey: Mining Magazine, v. 13, p. 468-475.

SUMMARY: Copper deposits within sediments adjacent to diabase are described. These are the Bound Brook, the Schuyler Mine (North Arlington, Bergen County), and the Pahaquarry Mine (Warren County), which is not apparently related to diabase. Copper sulfides and carbonates occur within shale and sandstone. Native copper is abundant below a depth of 700 feet at the Bound Brook deposit. Gold and silver values are also noted for this deposit. Mine workings and history are emphasized.

KEYWORDS: economic geology
copper
gold
silver

GEOGRAPHIC AREA: Newark Basin, New Jersey

DATA: Photos: mines

679 P : KELLER, JANE, AND BRAINARD, CHARLOTTE, 1940, Faulted phyllite east of Greenfield, Massachusetts: American Journal of Science, v. 238, p. 354-365.

SUMMARY: A narrow horst block of pre-Triassic phyllite occurs within the Mount Toby Conglomerate just inside the east border of the basin. Fault observations are outlined along the Connecticut River just north of French King Bridge.

KEYWORDS: general geology
structure
faults

GEOGRAPHIC AREA: Deerfield Basin, Massachusetts, Franklin Co., Millers Falls Quad.

MAPS: Geol: (sketch) French King Bridge area

680 A : KELLY, W.M., 1977, Alteration of oxide mineral phases in red beds and basalts in the Connecticut Rift Valley: American Geophysical Union, Transactions, v. 58, no. 6, p. 382.

SUMMARY: In basalts, magnetite exhibits high temperature sub-solidus alteration to ilmenite or hematite/rutile. Hematite also develops in fractures. No detrital oxide minerals remain in the redbeds, all magnetite altering to hematite. The study was conducted to interpret the remnant magnetization and paleomagnetism of the rocks.

KEYWORDS: sediments
mineralogy
geophysics
paleomagnetism

GEOGRAPHIC AREA: Hartford Basin, Connecticut

681 A : KELLY, W.M., 1979, Magnetic minerals of the red beds of the northern Connecticut Valley - DRM or CRM?: American Geophysical Union, Transactions, v. 60, p. 815.

SUMMARY: Hematite is the dominant magnetic oxide. Most of the hematite is altered magnetite or ilmenite. The grains are not detrital in origin. Hematite also occurs around iron-silicate grains. It is suggested that the red beds have acquired their magnetization after deposition.

KEYWORDS: geophysics
magnetism

GEOGRAPHIC AREA: Hartford Basin, Connecticut

682 P : KINDLE, CECIL H., 1944, A discovery of limestone in the Newark Series: Geological Review, City College Geological Society, New York, v. 4, no. 1. p. 3-4.

SUMMARY: A small limestone bed is found in a railroad cut north of the Granton Quarry in Hudson County at North Bergen and indicates that the Lockatong Formation exists farther east than originally described by Kummel (1897). Lake deposits are also evident in the quarry.

KEYWORDS: general geology

GEOGRAPHIC AREA: Newark Basin, New Jersey, Hudson Co.

683 P : KING, PHILIP B., 1961, Systematic pattern of Triassic dikes in the Appalachian region: U.S. Geological Survey Professional Paper 424-B, p. B93-B95.

SUMMARY: It is recognized that diabase dikes, unlike the basin border faults, are discordant with pre-existing structure and foliation. The dikes trend NW to the southern, then N in the central, and finally NE in the northern Appalachians, indicating a rotating tensile stress field.

KEYWORDS: structure
tectonics

GEOGRAPHIC AREA: Regional

MAPS: Geol: (regional) basins and dikes

684 P : KING, PHILIP B., 1971, Systematic pattern of Triassic dikes in the Appalachian region - second report: U.S. Geological Survey Professional Paper 750-D, p. D84-D88.

SUMMARY: A systematic pattern is seen whereby the dikes trend NW to the south, N in the central, and NE in the northern Appalachians. Dikes terminate against the Brevard zone, and this is attributed to a greater depth to the mantle NW of the zone.

KEYWORDS: tectonics
structure
diabase

GEOGRAPHIC AREA: Regional

MAPS: Misc: [1:6,336,000] (dike distribution)

685 T : KINGERLY, T.L., 1954, The geology of the Triassic Basin, Scottsville, Virginia: M.S. Thesis, University of Cincinnati.

KEYWORDS: general geology

GEOGRAPHIC AREA: Scottsville Basin, Virginia

686 T : KINGSTON, M.J., 1979, The geochemistry of the fine grained sediments of the Doswell Formation, Taylorsville Basin, Virginia: M.S. Thesis, George Washington University, 95 p.

KEYWORDS: sedimentation
geochemistry
sediments
mineralogy

GEOGRAPHIC AREA: Taylorsville Basin, Virginia

687 P : KITSON, J.E., 1934, Geology of the Connecticut Valley: Rocks and Minerals, v. 9, p. 157-159.

KEYWORDS: general geology

GEOGRAPHIC AREA: Hartford Basin, Connecticut

688 P : KIZIS, J.A., JR., AND LUX, D.R., 1974, Petrography of some mafic dikes northeast of Hartford, Connecticut: The Compass, v. 52, no. 1, p. 15-19.

SUMMARY: Two sub-parallel diabase dikes within pre-Triassic metamorphics east of the Hartford Basin show similar mineralogy, no differentiation; and a common magma source is suggested.

KEYWORDS: mineralogy
petrology
diabase

GEOGRAPHIC AREA: Connecticut, Tolland Co.

MAPS: Misc: sample locations

689 P : KLEIN, GEORGE DE VRIES, 1962, Triassic sedimentation, Maritime Provinces, Canada: Geological Society of America, Bulletin, v. 73, p. 1127-1146.

SUMMARY: The stratigraphy of the Bay of Fundy Triassic sedimentary rocks and basalts is discussed. Primary structures and depositional environments are stressed. Sandstone compositional variation within formations is attributed to provenance and correlated to the parent pre-Triassic units.

KEYWORDS: general geology
sedimentation

GEOGRAPHIC AREA: Maritime Province

MAPS: Geol: distribution of facies within formations [1:1,520,640]
Section: stratigraphic

DATA: Photos: outcrops
Plots: sandstone compositions

690 P : KLEIN, GEORGE DE VRIES, 1963, Regional implications of Triassic paleocurrents, Maritime Provinces, Canada: Journal of Geology, v. 71, p. 801-808.

SUMMARY: Cross-stratification measurements in the Fundy Group (Upper Triassic) of Nova Scotia indicate derivation of sediment from the north and west as well as the south and southeast. Such a pattern is shown to occur in the U.S. basins and suggests sedimentation in separate basins.

KEYWORDS: sedimentation

GEOGRAPHIC AREA: Maritime Province, Nova Scotia

MAPS: Geol: with current directions (Bay of Fundy region)

691 F : KLEIN, GEORGE DE VRIES, 1968, Sedimentology of Triassic rocks in the Lower Connecticut Valley: in, Orville, P.M., ed., Guidebook for Field Trips in Connecticut, New England Intercollegiate Geological Con- ference, 60th Meeting, Guidebook No. 2, Trip C-1, 19 p.

SUMMARY: This field guide discusses the stratigraphy and depositional environments of the Portland Arkose, East Berlin Fm., Shuttle Meadow Fm., Talcott Fm., and the New Haven arkose. Interpretation of sedimentary structures is emphasized. (Nine field stops.)

KEYWORDS: sedimentation
general geology

GEOGRAPHIC AREA: Hartford Basin, Connecticut

MAPS: Geol: sketch

DATA: Photos: outcrops

692 P : KLEIN, GEORGE DE VRIES, 1969, Deposition of Triassic sedimentary rocks in separate basins, Eastern North America: Geological Society of America, Bulletin, v. 80, p. 1825-1832.

SUMMARY: This report summarizes previous data and suggests that K-Ar measurements on sediments indicate deposition in separate non-connected basins. In addition, the three lava flows in N.J. and Conn. cannot be correlated as once thought.

KEYWORDS: sedimentation

GEOGRAPHIC AREA: Regional

MAPS: Misc: (regional) sediment dispersal patterns

693 P : KLEMIC, HARRY, 1962, Uranium occurrences in sedimentary rocks of Pennsylvania: U.S. Geological Survey Bulletin 1107-D, p. D243-D288.

SUMMARY: Several uranium occurrences are noted and described in the Stockton Arkose and Lockatong argillite of eastern Bucks County. Chemical analyses are given with distinct uranium minerals only being noted in the Stockton occurrences. Locations of outcrops are given.

KEYWORDS: economic geology
uranium

GEOGRAPHIC AREA: Newark Basin, Pennsylvania, Bucks Co.

694 P : KLITGORD, KIM D., AND BEHRENDT, JOHN C., 1979, Basin structure of the U.S. Atlantic margin: in, Watkins, Joel S., Montadent, Lucia, and Kickersa, P.W., eds., Geological and Geophysical Investigations of Continental Margins: American Association of Petroleum Geologists, Memoir 29, p. 85-112.

KEYWORDS: buried basins
geophysics
structure
seismic profiles

GEOGRAPHIC AREA: Regional

695 P : KLITGORD, KIM D., DILLON, WILLIAM P., AND POPENOE, PETER, 1983, Mesozoic tectonics of the Southeastern United States Coastal Plain and continental margin: U.S. Geological Survey Professional Paper 1313-P, 15 p.

SUMMARY: Magnetic, gravity, seismic-reflection, and drill hole data are used to ellucidate the tectonic zones and history of the SE coastal offshore area. Two elongate zones of graben development are noted, an onshore and an offshore, with the latter serving as the locus of Jurassic and later rifting.

KEYWORDS: seismic profiles
magnetism
gravity
tectonics
geophysics
buried basins

GEOGRAPHIC AREA: Regional

MAPS: Geol: tectono-geologic reconstructions with geophysical overlay

696 A : KLUGER, K.L., 1977, Chemical leaching of Triassic red beds from the Newark Basin reveals acquisition of multiple polarities: American Geophysical Union, Transactions, v. 58, p. 382.

SUMMARY: Thermal and chemical demagnetization of the sediments reveals a possible dual polarity acquisition unable to be detected by thermal treatment. Red beds may require 10^5 years to achieve remanence, and their use in magnetic stratigraphy is questionable.

KEYWORDS: geophysics
magnetism

GEOGRAPHIC AREA: Regional

697 M : KNAPP, D.A., 1978, Geologic map of the Granville area, Hampden County, Massachusetts: U.S. Geological Survey Open-File Report 78-271.

KEYWORDS: general geology

GEOGRAPHIC AREA: Hartford Basin, Massachusetts, Hampden Co., Southwick Quad.

MAPS: Geol: [1:24,000]

698 A : KOBAYASHI, K., TASHBOOK, L.F., AND NAGATA, T., 1964, Paleomagnetic measurements for the Newark Series of the Connecticut Valley: Geological Society of America, Special Paper 76, p. 94.

SUMMARY: 46 samples of sediments, diabase, basalt, and hornfels are in agreement with previous work (i.e., 42°N, 73°W). The "fold test" of Graham correlated the data with previous New Jersey results, and conclusions regarding depositional history have been drawn. (These conclusions and results are not outlined in the abstract.)

KEYWORDS: geophysics
paleomagnetism

GEOGRAPHIC AREA: Hartford Basin, Connecticut

699 P : KOBAYASHI, KAZUO, AND SCHWARZ, E.J., 1966, Magnetic properties of the contact zone between Upper Triassic red beds and basalt in Connecticut: Journal of Geophysical Research, v. 71, no. 22, p. 5357-5364.

SUMMARY: Samples near Middletown of the East Berlin Formation and the Hamden basalt were thermomagnetically analyzed between -190°C and 620°C. Magnetite is shown to form at least at 375°C up to 40 cm from the basalt. Evidence for a magnetic reversal during the Late Triassic is presented.

KEYWORDS: geophysics
magnetism
paleomagnetism
metamorphism
hornfels

GEOGRAPHIC AREA: Hartford Basin, Connecticut, Middlesex Co., Middletown Quad.

DATA: Plots: thermomagnetic curves, NRM directions

700 A : KOCH, HENNING F., 1967, Probable flow structures of the diabase of the Durham Triassic Basin, North Carolina: Elisha Mitchell Scientific Society, Journal, v. 83, p. 176.

SUMMARY: Evidence for basaltic extrusive volcanism along the western margin of the basin is suggested by the nature of the overlying sediment contact, which is considered to have been an erosional surface. Basalts may also exist in the western margin of the Sanford Basin.

KEYWORDS: general geology
basalt

GEOGRAPHIC AREA: Durham Basin, North Carolina

701 P : KOCH, HENNING F., 1967, The diabase of the Butner-Creedmoor Area, Granville County, North Carolina: Southeastern Geology, v. 8, p. 73-79.

SUMMARY: Diabase sills and dikes are mapped on the basis of soil type, which is a brown, heavy, plastic clay soil, and residual diabase rock. Diabase sills are considered to represent flows by the lack of contact metamorphism in overlying sediments while it occurs in underlying sediments, and the presence of a possible unconformable surface above the diabase.

KEYWORDS: general geology
diabase

GEOGRAPHIC AREA: Durham Basin, North Carolina, Granville County

MAPS: Geol: sketch

702 P : KODAMA, KENNETH P., 1983, Magnetic and gravity evidence for a subsurface connection between the Palisades Sill and the Ladentown basalts: Geological Society of America, Bulletin, v. 94, p. 151-158.

SUMMARY: Magnetic and gravity measurements near Mount Ivy, N.Y., indicate that a 200-meter thick "dense slab" dipping south connects the NW edge of the Palisades diabase sill with the Ladentown basalt flows 1.3 km to the west and indicates a Palisades magma source for the flows. A N-S trending normal fault may offset the sill at its NW edge.

KEYWORDS: diabase
basalt
geophysics
magnetism
gravity

GEOGRAPHIC AREA: Newark Basin, New York, Rockland Co.

MAPS: Geophys: gravity-magnetics
Misc: stations

DATA: Plots: NRM's; magnetic profiles

703 P : KOLTZ, CHARLES, 1982, Geology in the Connecticut River Valley of western Massachusetts: in, Farquhar, O.C., (ed.), Geotechnology in Massachusetts: Amherst, Massachusetts, Graduate School, University of Massachusetts, p. 335-340.

KEYWORDS: general geology

GEOGRAPHIC AREA: Hartford Basin, Massachusetts

704 T : KOUTSOMITIS, D., 1980, Gravity investigation of the northern Triassic-Jurassic Newark Basin and Palisades sill in Rockland County, New York: M.S. Thesis, Rutgers University, 103 p.

KEYWORDS: geophysics
gravity

GEOGRAPHIC AREA: Newark Basin, New York

705 T : KOZA, D.M., 1976, Petrology of the Higganum diabase dike in Connecticut and Massachusetts: M.S. Thesis, University of Connecticut.

KEYWORDS: diabase
petrology

GEOGRAPHIC AREA: Hartford Basin, Connecticut, Massachusetts

706 P : KRAUS, E.H., AND COOK, C.W., 1906, Datolite from Westfield, Massachusetts: American Journal of Science, v. 22, p. 21-28.

KEYWORDS: basalt
mineralogy
zeolites

GEOGRAPHIC AREA: Hartford Basin, Massachusetts

707 PM: KREISA, R.D., 1980, Geology of the Omega, South Boston, Cluster Springs and Virgilina Quadrangles: Virginia Division of Mineral Resources, Publication 5, 22 p.

SUMMARY: The southern area of the basin is bounded on the west by a normal fault and largely covered by Quaternary alluvium. The most common lithology in the basin is a poorly sorted, grayish-red feldspathic sandstone comprised of quartz, plagioclase, microcline, biotite, muscovite, rock fragments, and hematitic cement. A fossiliferous (bivalve - Unionacea; crustacea - ostracode, branchiopod; and fish scales) gray red shale is interbedded with the sandstone. Coarse conglomerate occurs along the western and eastern edges of the basin.

KEYWORDS: general geology
paleontology

GEOGRAPHIC AREA: Scottsburg Basin, Virginia, Halifax County, Omega Quad.

MAPS: Geol: [1:24,000]

708 PM: KROLL, RICHARD L., 1976, Barndoor diabase intrusions, North-Central Connecticut: Geological Society of America, Bulletin, v. 87, p. 1449-1454.

SUMMARY: The petrography and emplacement of the diabase within the New Haven Arkose is outlined. Features include: semispherically fractured pigeonite, pale-green pyroxene, differentiation in magma chambers and emplacement from 2 magma chambers by 5 conduits, and chemical similarity to the Talcott basalts.

KEYWORDS: mineralogy
petrology
diabase
general geology

GEOGRAPHIC AREA: Hartford Basin, Connecticut, Hartford Co., Tariffville Quad.

MAPS: Geol: [1:126,720]
Section: diabase

DATA: Chem. (type of data): B, Cr, Ni (basalt)
Photos: pigeonite
Plots: augite composition; alk.-FeO-MgO

709 A : KRYNINE, PAUL D., 1941, Triassic sediments of Connecticut: Geological Society of America, Bulletin, v. 52, p. 1919.

SUMMARY: (See Krynine, 1950.) Sediments, divided into 7 non-opaque heavy mineral zones, form an east-dipping wedge up to 16,000 feet thick against the eastern fault and were derived from 2 main alluvial fan systems on the eastern border. Red clay, swamps, flora, fresh arkose, and dessication suggest heavy precipitation and hot temperature but alternating dry seasons.

KEYWORDS: sedimentation

GEOGRAPHIC AREA: Hartford Basin, Connecticut

710 PM: KRYNINE, PAUL D., 1950, Petrology, stratigraphy, and origin of the Triassic sedimentary rocks of Connecticut: Connecticut Geological and Natural History Survey, Bulletin 73, 247 p.

SUMMARY: This extensive work covers southern Conn. and proposes a stratigraphy as follows: New Haven Arkose (lower), Meriden Formation (lacustrine, central), and the Portland Arkose (upper). Detailed petrographic-mineralogic and textural data is presented. The climate is interpreted to have been humid-tropical.

KEYWORDS: general geology
stratigraphy
sedimentation
climate

GEOGRAPHIC AREA: Hartford Basin, Pomperaug Basin, Connecticut

MAPS: Geol: [1:126,720]
Section: stratigraphic columns; sections (type)

DATA: Plots: mineralogy; texture

711 P : KUMMEL, HENRY B., 1898, The Newark system or red sandstone belt: New Jersey Geological Survey, Annual Report 1897, p. 23-159.

SUMMARY: This report summarizes the geological character, distribution, and structure of the Stockton, Lockatong, and Brunswick Formations, and the diabase and basalt. Deposition and history are briefly summarized: shallow water deposition occurring with subsidence of a peneplained basin followed by tilting and faulting.

KEYWORDS: general geology
structure
economic geology
coal

GEOGRAPHIC AREA: Newark Basin, New Jersey

MAPS: Geol: N.J. general; sketches

DATA: Photos: outcrops

712 PM: KUMMEL, HENRY B., 1899, The Newark rocks of New Jersey and New York: Journal of Geology, v. 7, p. 23-52.

SUMMARY: The geology of the Stockton, Lockatong, and Brunswick Formations is discussed, and lateral facies changes along strike to the NW and NE are emphasized. The structure, thicknesses of these units, and deposition and provenance are discussed. A pre-Triassic peneplain, followed by shallow water lacustrine deposition, is favored.

KEYWORDS: general geology

GEOGRAPHIC AREA: Newark Basin, New Jersey, New York

MAPS: Geol: [1:633,600]

713 P : KUMMEL, HENRY B., 1900, The Newark or new red sandstone rocks of Rockland County, New York: New York State Museum, 52nd Annual Report, v. 2, p. 9-50.

SUMMARY: This work is a descriptive account of the Brunswick, Lockatong, and Stockton Fms., the Palisades and Ladentown diabase intrusives (structure, relationship to sediments, contact metamorphism), and structure of the Newark Basin in New York. A depositional model is developed.

KEYWORDS: general geology
stratigraphy
diabase

GEOGRAPHIC AREA: Newark Basin, New York

DATA: Photos: outcrops

714 P : KUMMEL, HENRY B., 1909, Copper mining in New Jersey: Engineering and Mining Journal, v. 87, p. 808.

SUMMARY: The mining methods of the Somerville Mine at the base of the First Watchung Mountains are outlined. Ore occurs in the first several feet of shale adjacent to and beneath the basalt. Native copper dominates beyond the first 600 feet along the 1400-foot main slope.

KEYWORDS: economic geology
copper

GEOGRAPHIC AREA: Newark Basin, New Jersey

715 T : KUNIHOLM, J.G., 1980, Depositional interpretation of the Late Triassic and Early Jurassic sedimentary strata exposed at Turners Falls, Massachusetts: B.A. Honors Thesis, Amherst College, 66 p.

KEYWORDS: sedimentation

GEOGRAPHIC AREA: Deerfield Basin, Massachusetts

716 T : KUSIAK, JOHN, 1977, A detailed gravity and magnetic interpretation of the structure and deformational history of the Jacksonwald syncline, Berks County, Pennsylvania: Ph.D. Thesis, Pennsylvania State University.

KEYWORDS: geophysics
gravity
magnetism
structure

GEOGRAPHIC AREA: Newark Basin, Pennsylvania, Berks Co.

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717 P : LA GANZA, R.F., 1960, Paragenetic relationships of deuteric minerals in Triassic dolerite near New Haven, Connecticut: Neues Jahrbuch fur Mineralogie, Abhandlungen, v. 94, p. 559-563.

KEYWORDS: diabase
mineralogy

GEOGRAPHIC AREA: Hartford Basin, Connecticut

718 T : LANNING, R.M., 1972, An olivine tholeiite swarm in Lancaster County, Pennsylvania: M.S. Thesis, Pennsylvania State University, 79 p.

KEYWORDS: diabase
petrology
geochemistry

GEOGRAPHIC AREA: Gettysburg Basin, Pennsylvania

719 P : LANPHERE, MARVIN A., 1983, $^{40}Ar/^{39}Ar$ ages of basalt from Clubhouse Crossroads Test Hole No. 2, near Charleston, South Carolina: U.S. Geological Survey Professional Paper 1313B, B1-B8.

SUMMARY: $^{40}Ar/^{39}Ar$ total-fusion ages on the basalt range from 182 to 236 m.y., with an isochron age of 184$\pm$3.3 m.y. Such an age is consistent with emplacement shortly after initial Atlantic rifting about 190 m.y. ago.

KEYWORDS: radiometric age
Ar/Ar dating

GEOGRAPHIC AREA: South Carolina

720 A : LAPHAM, D.M., 1971, Triassic tholeiite magma as a fundamental of Mesozoic continental rifting: Pennsylvania Academy of Science, Proceedings, v. 45, p. 201-202.

SUMMARY: Qtz.-norm. tholeiitic intrusions in Pennsylvania follow a 3-stage history: flows during late sedimentation, sub-horizontal intrusion, and filling of extensional fractures. Olivine-deficient tholeiites occur distal from magma foci. Magma ponding in the crust and mantle inhomogeneity may explain flows of high Fe and K, TiO_2 provinces, and Sr variation.

KEYWORDS: diabase
petrology
geochemistry

GEOGRAPHIC AREA: Regional; Newark Basin, Gettysburg Basin, Pennsylvania

721 A : LAPHAM, DAVIS M., 1960, Photomicrography of the Cornwall magnetite ore body, Cornwall, Pennsylvania: Geological Society of America, Bulletin, v. 71, p. 1913.

SUMMARY: This study of the eastern ore body indicates: diabase is not Fe-depleted, amphibole-chlorite-sericite in upper diabase increase toward ore, and ore locatization controls include compositional and textural banding of the host sedimentary rocks. Ore was emplaced later than crystallization of diabase and is associated with hydrothermal solution.

KEYWORDS: economic geology
iron
diabase
mineralogy
petrology

GEOGRAPHIC AREA: Gettysburg Basin, Pennsylvania, Lebanon Co., Lebanon Quad.

722 P : LAPHAM, DAVIS M., 1963, Leonhardite and laumontite in diabase from Dillsburg, Pennsylvania: American Mineralogist, v. 48, p. 683-689.

SUMMARY: The chemistry, x-ray patterns, and optics of leonhardite and laumontite are presented. The minerals occur with calcite, quartz, zeolites, and minor sulfides, and fluorite in fractures in the top 300 feet of the diabase sheet on Route 15. Formation may be due to low-temperature hydrothermal solutions.

KEYWORDS: diabase
mineralogy
petrology

GEOGRAPHIC AREA: Gettysburg Basin, Pennsylvania, York Co., Dillsburg Quad.

723 P : LAPHAM, DAVIS M., 1968, Triassic magnetite and diabase at Cornwall, Pennsylvania: in, Ridge, J.D., ed., Ore Deposits of the United States 1933-1967, vol. 1, American Institute of Mining and Metallurgical Engineers, p. 73-94.

SUMMARY: Magnetite, chalcopyrite (with Ag, Au), and pyrite (with Co) occur in replacement bodies of Cambro-Ordovician limestone adjacent to a diabase sheet. Calc-silicate replacement of limestone, potassium metasomatism, and metal-mineral zoning occur. Magnetite mineralization followed intrusion of an iron-alkali fractionated diabase.

KEYWORDS: economic geology
iron

GEOGRAPHIC AREA: Gettysburg Basin, Pennsylvania, Lebanon Co., Lebanon Quad.

MAPS: Geol: Cornwall area
Section: cross section

DATA: Chem. (type of data): ore (Fe, S, Cu, Ni, Co, Mn, P); major oxide (ore, diabase, country rock)
Plots: paragenesis; mineral-chemical zoning

724 P : LAPHAM, DAVIS M., AND SAYLOR, TIMOTHY E., 1970, Chemical analyses of three Triassic (?) diabase dikes in Pennsylvania: Pennsylvania Geological Survey, 4th Series, Information Circular 68, 16 p.

SUMMARY: Samples from diabase dikes between Gettysburg and Duncannon, and Cornwall, Pa., and Pilot, Md., are studied chemically and petrographically. Comparison with other tholeiites is made. The later two dikes are compositionally distinct, with the former dike swarm trend being compositionally uniform. Al_2O_3 varies inversely with TiO_2. Diabase dike and sheet composition vary only slightly.

KEYWORDS: diabase
geochemistry
petrology

GEOGRAPHIC AREA: Gettysburg Basin, Pennsylvania, Maryland

DATA: Chem. (type of data): major oxide, trace
Plots: Al_2O_3 vs. TiO_2

725 P : LAROCHELLE, A., 1967, Paleomagnetic directions of a basic sill in Prince Edward Island: Canada Geological Survey, Paper 67-39-1, 6 p.

SUMMARY: Paleomagnetic directions indicate that the sill, which intrudes red beds of Permian (?) age, is Upper Permian in age. The occurrence is on Hog Island, Malpeque Bay. Previously published Triassic pole positions are noted.

KEYWORDS: diabase
geophysics
paleomagnetism

GEOGRAPHIC AREA: Maritime Province, Prince Edward Island, Canada

DATA: Plots: poles, NRM's

726 P : LAROCHELLE, A., 1967, Preliminary data on the paleomagnetism of the North Mountain basalt, Nova Scotia: Canada Geological Survey, Paper 67-39-2, 5 p.

SUMMARY: Data from this unit along the Bay of Fundy yield a pole position at 113°E - 66°N, which, together with other Triassic pole positions from the Newark Series (avg. 102°E, 64°N), indicate that the Triassic pole is 10° farther north than suggested by Irving (1964).

KEYWORDS: paleomagnetism
basalt

GEOGRAPHIC AREA: Maritime Province, Nova Scotia, Canada

DATA: Plots: NRM's, poles

727 P : LAROCHELLE, A., AND WANLESS, R.K., 1966, The paleomagnetism of a Triassic diabase dike in Nova Scotia: Journal of Geophysical Research, v. 71, no. 20, p. 4949-4953.

SUMMARY: This dike in southeast Nova Scotia is 197 m.y. and yields a pole position at 98°E, 69°N in agreement with other North American Triassic pole positions.

KEYWORDS: geophysics
paleomagnetism
radiometric age
K/Ar dating

GEOGRAPHIC AREA: Maritime Province, Nova Scotia, Canada

MAPS: Geol: dike location

DATA: Plots: poles

728 P : LARSEN, ESPER S., AND GOTTFRIED, DAVID, 1960, Uranium and thorium in selected suites of igneous rocks: American Journal of Science, Bradley Volume, v. 258A, p. 151-169.

SUMMARY: Uranium and thorium contents of normal diabase (pyroxene, labradorite), intermediate diabase (amphibole, less calcic plagioclase, quartz), and granophyre (albite, amphibole, quartz) are (U-Th) 0.5-2.1, 1.4-5.4, and 2.5-9.6, respectively. Locations are not provided. Discussion of the differentiation trend behavior of the two elements is discussed.

KEYWORDS: diabase
geochemistry

GEOGRAPHIC AREA: Culpeper Basin, Virginia, Fairfax Co.

DATA: Chem. (type of data): diabase (U, Th)

729 P : LARSON, E.E., AND LA FOUNTAIN, L., 1970, Timing and breakup of the continents around the Atlantic as determined by paleomagnetism: Earth and Planetary Science Letters, v. 8, p. 341-351.

SUMMARY: Paleomagnetic data indicates that through much of the Triassic the continents were contiguous and that breakup began about 200 m.y. ago. Spreading in the North and South Atlantic was uniform during the first 100 m.y.; but, during the last 100 m.y., the South Atlantic has opened at a faster rate. Paleomagnetic data for the North Atlantic is in disagreement with ocean floor magnetic anomalies and present drift rates.

KEYWORDS: tectonics
geophysics
paleomagnetism

GEOGRAPHIC AREA: Regional

730 P : LARSON, J.D., 1978, Chemical composition of surface water during low flow - Fairfax County, Virginia: U.S. Geological Survey Open-File Report 78-719, 31 p.

SUMMARY: Chemical analyses of stream discharges in August 1977 were studied. Streams in the Triassic rocks have the highest level of natural contamination of dissolved minerals, due largely to its hard, high sulfate character. Such chemistry also reflects the presence of more soluble minerals (calcite) and longer transit time.

KEYWORDS: hydrology

GEOGRAPHIC AREA: Culpeper Basin, Virginia

MAPS: Misc: (water chemistry and discharge) [1:48,000]

DATA: Chem. (type of data): water

731 M : LARSON, J.D., 1978, Chemical quality of groundwater, Fairfax County, Virginia: U.S. Geological Survey Open-File Report 78-268.

KEYWORDS: hydrology

GEOGRAPHIC AREA: Culpeper Basin, Virginia

MAPS: Misc: ground water [1:48,000]

732 P : LARSON, J.D., 1978, Hydrogeology of the observation well site at the U.S. Geological Survey, National Center, Reston, Virginia: U.S. Geological Survey Open-File Report 78-144, 35 p.

SUMMARY: Geophysical, petrographic, and flowmeter studies of two wells just within the east border of the basin are presented. The Manassas sandstone is a fractured-rock aquifer and provides high-quality water. Core logs are presented.

KEYWORDS: hydrology

GEOGRAPHIC AREA: Culpeper Basin, Virginia, Fairfax County

DATA: Chem. (type of data): water

733 T : LAWLER, JEANNE PASSONTE, 1981, Fluid inclusion evidence for ore-forming solutions, Phoenixville, Audubon, New Galena District, Pennsylvania: M.S. Thesis, Bryn Mayr College.

KEYWORDS: economic geology
lead
zinc
barite
copper

GEOGRAPHIC AREA: Newark Basin, Pennsylvania

734 A : LAWLOR, S.J.M., MURPHY, S.M.T.J., AND CHAPMAN, R.W., 1967, Hydrocarbons isolated from shales of the East Berlin Formation, Connecticut: Geological Society of America, Special Paper 115, p. 128-129.

SUMMARY: Aromatic hydrocarbons, with smaller amounts of saturated and acid components, are found in the gray and black shales just below the Hampden basalt. The black shale in the contact zone contains less organic matter than the gray shale below this zone, a phenomenon related to the heat of the extrusion.

KEYWORDS: economic geology
oil
metamorphism

GEOGRAPHIC AREA: Hartford Basin, Connecticut, Hartford Co., Middletown Quad.

735 T : LAWRENCE, D.E., 1966, A contribution to the petrology of the Great Dike of Nova Scotia: M.S. Thesis, Dalhousie University, 108 p.

KEYWORDS: diabase
petrology

GEOGRAPHIC AREA: Maritime Province, Nova Scotia, Canada

736 A : LEA, I., 1857, Observations on the red sandstone near Gwynned, Montgomery County, Pennsylvania: Academy of Natural Sciences, Philadelphia, Proceedings, v. 9, p. 173.

SUMMARY: This brief note refers to a fish scale occurrence at Gwynned which is shown to be Radiolepes speciosus, the species that occurs in the Chatham series of N. Carolina. (No details are given.)

KEYWORDS: paleontology

GEOGRAPHIC AREA: Newark Basin, Pennsylvania, Montgomery County

737 M : LEAVY, B.D., 1984, Map showing planar and linear features, Culpeper basin and vicinity: U.S. Geological Survey Miscellaneous Investigations Report I-1313-G.

KEYWORDS: structure
faults

GEOGRAPHIC AREA: Culpeper Basin, Virginia

MAPS: Misc: structure [1:125,000]

738 M : LEAVY, B.D., FROELICH, A.J., AND ABRAM, E.C., 1982, Bedrock map and geotechnical properties of rocks of the Culpeper Basin and vicinity, Virginia and Maryland: U.S. Geological Survey, Miscellaneous Investigations, Map I-1313-C.

KEYWORDS: bedrock geology

GEOGRAPHIC AREA: Culpeper Basin, Virginia, Maryland

MAPS: Geol: [1:125,000]

739 M : LEAVY, B.D., GROSZ, A.E., AND JOHNSON, S.S., 1982, Total count aeroradioactivity map of the Culpeper Basin and vicinity, Virginia: Virginia Division of Mineral Resources Publication No. 40.

KEYWORDS: geophysics
aeroradioactivity

GEOGRAPHIC AREA: Culpeper Basin, Virginia

MAPS: Geophys: aeroradioactivity [1:125,000]

740 A : LEAVY, B.D., JOHNSON, S.S., KELLER, G.R., AND FROELICH, A.J., 1981, A preliminary interpretation of a gravity investigation of the Culpeper Basin, Virginia: Geological Society of America, Abstracts with Programs, v. 13, p. 142.

SUMMARY: Basin sediments along the western margin produce weak gravity lows, while pre-Mesozoic basement rocks and Jurassic igneous rocks cause stronger anomalies. The trend of the basin is parallel to the pre-Mesozoic rocks in the N part of the basin but cuts westward across the regional strike in the south. The basin is estimated to be 2- to 3-km thick at its deepest part.

KEYWORDS: geophysics
gravity

GEOGRAPHIC AREA: Culpeper Basin, Virginia

741 A : LEAVY, BRIAN D., 1980, Tectonic and sedimentary structures along the eastern margin of the Culpeper Basin, Virginia: Geological Society of America, Abstracts with Programs, v. 12, p. 182.

SUMMARY: Exposures of normal border faults at Herndon and Manassas trend N 6°E (avg) with the latter showing a 27-meter displacement. The faults do not parallel the schistosity of the pre-Triassic rocks. Faults within the basin are mostly syndepositional.

KEYWORDS: structure
faults

GEOGRAPHIC AREA: Culpeper Basin, Virginia, Fairfax Co.

742 A : LEAVY, BRIAN D., 1983, Physical and chemical characteristics of four Jurassic basalt units in the Culpeper Basin, Virginia: Geological Society of America, Abstracts with Programs, v. 15, p. 92.

SUMMARY: Four basalt units occur along the western margin of the basin and are intercalated with sedimentary rocks. The three older flows are quartz-normative, with the oldest a high TiO2 type. For the most part thick ponded flows and Tomkeieff sequences are absent, unlike basalts of the Newark Basin. Relationships between the flows and conglomerates along the basin margin suggest that the basin was active tectonically during basalt extrusion.

KEYWORDS: basalt
general geology
petrology

GEOGRAPHIC AREA: Culpeper Basin, Virginia

743 P : LEBLING, Clemens, 1915, Die senkungen im bereiche der Newarktrias; in: Tectonische Forschungen in den Appalachen: Geologische Rundschau, v. 5, p. 449-462.

KEYWORDS: general geology

GEOGRAPHIC AREA: Regional

744 T : LECHLER, PAUL, 1978, Geochemistry of Cushetunk Mountain: M.S. Thesis, Rutgers University, 37 p.

KEYWORDS: diabase
basalt
geochemistry
petrology

GEOGRAPHIC AREA: Newark Basin, New Jersey

745 P : LEE, C.H., 1978, Preliminary study of the uranium potential of the Triassic Sanford Basin and Colon cross structure, North Carolina: U.S. Department of Energy, Grand Junction Operations, GJBX-8(78), 13 p.

SUMMARY: Potential for uranium deposits may exist at the contacts between the Pekin and Cumnock, and the Pekin and Sanford Formations near the Colon cross structure. The Jonesboro Fault may also be a favorable precipitation site. Uranium may be leached from exposed rocks and redeposited at depth (Cumnock shale).

KEYWORDS: economic geology
uranium

GEOGRAPHIC AREA: Sanford Basin, North Carolina

MAPS: Geol: (2)
Section: cross section, stratigraphic column

746 P : LEE, K.Y., 1977, Triassic stratigraphy in the northern part of the Culpeper Basin, Virginia and Maryland: U.S. Geological Survey Bulletin 1422-C, 17 p.

SUMMARY: (See K.Y. Lee, 1979.) The Manassas sandstone and conglomerate, the Balls Bluff siltstone, and the Leesburg limestone conglomerate and a clastic upper unit with basalt flows constitute the eastern edge, the central, and the western edge of the basin, respectively. The three formations are respectively correlated to the Stockton, Lockatong and Brunswick Formations of the Newark Basin.

KEYWORDS: general geology

GEOGRAPHIC AREA: Culpeper Basin, Virginia, Maryland

MAPS: Geol: [1:250,000]

747 M : LEE, K.Y., 1978, Geologic map of the Arcola Quadrangle, Loudoun and Fairfax Counties, Virginia: U.S. Geological Survey Miscellaneous Field Studies Map, MF-973.

KEYWORDS: general geology

GEOGRAPHIC AREA: Culpeper Basin, Virginia, Loudoun Co., Fairfax Co., Arcola Quad.

MAPS: Geol: [1:24,000]

748 P : LEE, K.Y., 1979, Triassic-Jurassic geology of the northern part of the Culpeper Basin, Virginia and Maryland: U.S. Geological Survey Open-File Report 79-1557, 10 p.

SUMMARY: The stratigraphy of the basin and the mineralogic and field relations of the units are outlined (see Lee, 1980). The Culpeper Group consists of the Manassas, Balls Bluff, and Bull Run Formations with basalt flows in the latter. Diabase and granophyre are present.

KEYWORDS: general geology

GEOGRAPHIC AREA: Culpeper Basin, Virginia, Maryland

749 P : LEE, K.Y., 1980, Triassic-Jurassic geology of the southern part of the Culpeper Basin and the Barboursville Basin, Virginia: U.S. Geological Survey Open-File Report 80-468, 9 p.

SUMMARY: The stratigraphy of the basin is briefly outlined and consists of the Manassas sandstone, the Balls Bluff siltstone, several basalt flows and diabase intrusives, and an upper Bull Run conglomerate. Copper and barite occur but are not discussed in detail.

KEYWORDS: general geology

GEOGRAPHIC AREA: Culpeper Basin, Virginia

750 A : LEE, K.Y., 1982, Thermal metamorphism of Triassic and Jurassic sedimentary rocks in the Culpeper Basin, Virginia: Geological Society of America, Abstracts with Programs, v. 14, p. 34.

SUMMARY: The mineralogic composition of the contact metamorphic sedimentary rocks is outlined, and four groups are recognized: hornfels, granofels, quartzite, and marble. Parental materials for these are respectively: shale-mudstone-siltstone, arkose, (forms within granofels), limestone conglomerate. Thermal effects include: addition of Na_2O and K_2O to lacustrine deposits, and addition of boron to arkosic rocks.

KEYWORDS: metamorphism
hornfels

GEOGRAPHIC AREA: Culpeper Basin, Virginia

751 A : LEE, L. DOYCE, 1971, A diabase dike in Meriwether County, Georgia: Georgia Academy of Science, Bulletin, v. 29, p. 127.

SUMMARY: The mineralogy and petrography of a 28-mile long, NW-trending dike are outlined. Plagioclase (An60), clinopyroxene, pyrite, magnetite, and olivine are the constituents. Grain size increases toward the center of the dike with pyrite and magnetite more abundant (4.3%) in the finer grained diabase.

KEYWORDS: diabase
mineralogy
petrology

GEOGRAPHIC AREA: Georgia, Meriwether Co.

752 P : LEE, O. IVAN, 1937, Ye ancient copper mine of Arent Schuyler: Rocks and Minerals, v. 12, p. 99-109.

SUMMARY: A review is given of the history of mining at the Schuyler Mine. A descriptive account of the underground workings is also provided. Minerals found at the deposit include: azurite, calcite, chalcocite, chrysocolla, copper, covellite, cuprite, epidote, gold, malachite, silver, and rutile. No details on the geology are provided.

KEYWORDS: economic geology
copper

GEOGRAPHIC AREA: Newark Basin, New Jersey, Bergen County, Orange Quad.

DATA: Photos: underground workings (3)

753 P : LEGRAND, HARRY E., 1954, Geology and ground water in the Statesville area, North Carolina: North Carolina Department of Conservation and Development, Bulletin 68, 68 p.

SUMMARY: Chemistry of water from one well within Triassic sandstone is presented (pH 6.8, hardness as $CaCO_3$ 59 ppm, dissolved solids 84 ppm); and a small (1 sq. mile) area of Triassic occurs in Iredell County to the SW of the basin and is considered an erosional remnant of the basin.

KEYWORDS: hydrology

GEOGRAPHIC AREA: Davie County Basin, North Carolina

MAPS: Geol: sketch

DATA: Chem. (type of data): water

754 PM: LEGRAND, HARRY ELWOOD, 1960, Geology and ground water resources of Pittsylvania and Halifax Counties: Virginia Division of Mineral Resources, Bulletin 75, 86 p.

SUMMARY: Data from wells in the Triassic sediments are presented (gallons per minute, locations, depth, chemistry). It is noted that ground-water circulation is probably confined to the upper 50 feet of the shales and sandstones.

KEYWORDS: general geology
hydrology

GEOGRAPHIC AREA: Danville Basin, Scottsburg Basin, Walnut Creek Basin, Virginia, Halifax Co., Pittsylvania Co.

MAPS: Geol: (bar scale only)

755 PM: LEHMANN, E.P., 1959, The bedrock geology of the Middletown Quadrangle: Connecticut Geological and Natural History Survey, Quadrangle Report 8, 40 p.

SUMMARY: The stratigraphy, field relations, and petrography of (from oldest) the New Haven Arkose, Talcott Basalt, Shuttle Meadow Formation, Holyoke Basalt, East Berlin Formation, Hampden Basalt, and Portland Arkose are presented, including fossils, primary structure and type sections. Structure is also outlined and consists primarily of intra-basin normal faults.

KEYWORDS: general geology
faults

GEOGRAPHIC AREA: Hartford Basin, Connecticut, Middlesex, Hartford Co., New Haven Quad.

MAPS: Geol: [1:24,000]

DATA: Photos: outcrops
Plots: joint system map

756 A : LEITH, C.J., AND CUSTER, R.L.P., 1967, Triassic paleocurrents in the Durham Basin, North Carolina: Geological Society of America, Special Paper 115, p. 484-485.

SUMMARY: Cross bedding, channel and pebble structures indicate that current flow was toward the northeast. Sediment derived from bordering metamorphics was deposited on floodplains, river channels, and lakes. The NE flank of the Colon cross structure influenced drainage direction, particularly in the oldest (lower) units.

KEYWORDS: sedimentation

GEOGRAPHIC AREA: Durham Basin, North Carolina

757 M : LEO, G.W., ROBINSON, PETER, AND HALL, D.J., 1977, Bedrock geologic map of the Ludlow Quadrangle, Hampden and Hampshire Counties, Massachusetts: U.S. Geological Survey, Geologic Quadrangle Map GQ-1353.

KEYWORDS: general geology

GEOGRAPHIC AREA: Hartford Basin, Massachusetts

MAPS: Geol: [1:24,000]

758 P : LE PICHON, XAVIER, AND FOX, PAUL J., 1971, Marginal offsets, fracture zones, and the early opening of the North Atlantic: Journal of Geophysical Research, v. 76, no. 26, p. 6294-6308.

SUMMARY: (This is an auxilliary tectonic study included to provide information on the tectonic evolution of the opening of the Atlantic.) Emphasis is placed upon the fracture zones, their respective poles and the regional rotational history.

KEYWORDS: tectonics

GEOGRAPHIC AREA: Regional

MAPS: Misc: reconstruction of continents

759 P : LE ROSE, PETER F., 1971, The Triassic basins of eastern North America: Rocks and Minerals, v. 46, no. 2, p. 81-82.

SUMMARY: A general review is given of the regional geologic features of the basins. The climatic history is considered complex, with the Early Triassic wet, followed by a period of instability (fanglomerates), and finally a "calm" mudflat period. Southern basin areas were more humid (coal) than the arid northern basins.

KEYWORDS: general geology
climate

GEOGRAPHIC AREA: Regional

760 P : LESLEY, J.P., 1891, On an important boring through 2000 feet of Trias, in Eastern Pennsylvania: American Philosophical Society, Proceedings, v. 29, p. 20-25.

SUMMARY: A 2084-foot drill hole at Revere is logged and consists primarily of brown to gray shale and sandstone with black shale and a 9-foot anthracite coal bed recognized by the corer. The author doubts the occurrence of the coal based on field observations (additional comments by B.S. Lyman).

KEYWORDS: general geology
economic geology
coal

GEOGRAPHIC AREA: Newark Basin, Pennsylvania, Bucks Co.

761 P : LESTER, J.G., AND ALLEN, A.T., 1950, Diabase of the Georgia Piedmont: Geological Society of America, Bulletin, v. 61, p. 1217-1224.

SUMMARY: Fifty-seven dikes, not previously recognized, are mapped, and their petrography, weathering and field relations are discussed. Dikes trend NW and range from 10°W in the west to 35°W toward the east. Dike swarms consist of shorter dikes of varying orientation. Dikes, truncated by the Brevard zone to the north, are intruded parallel to NW-SE-trending syncline axes.

KEYWORDS: general geology
diabase
mineralogy

GEOGRAPHIC AREA: Georgia

MAPS: Geol: (2) no scale

762 A : LE TOURNEAU, PETER M., AND HORNE, GREGORY S., 1984, Alluvial fan development in the Lower Jurassic Portland Formation, Connecticut: Geological Society of America, Abstracts with Programs, v. 16, no. 1, p. 46-47.

SUMMARY: Sedimentary facies associated with alluvial fan sequences in the Jurassic Portland formation are discussed.

KEYWORDS: sedimentology
sedimentation

GEOGRAPHIC AREA: Hartford Basin, Connecticut

763 P : LEVISON, WILLIAM GOOLD, 1909, On the origin and sequences of the minerals of the Newark (Triassic) igneous rocks of New Jersey: New York Academy of Science, Annals, v. 19, p. 121-134.

SUMMARY: Crystallization of the secondary minerals in the trap is attributed to the action of groundwater, which is shown by experiment to dissolve diabase. No prevalent paragenesis is shown to exist, but quartz, calcite, and datolite appear to be most often primary. Descriptions of zeolites from various N.J. quarries are presented.

KEYWORDS: basalt
mineralogy
zeolites

GEOGRAPHIC AREA: Newark Basin, New Jersey

DATA: Photos: mineral specimens

764 A : LEWIS, CATHERINE L., AND PHILPOTTS, ANTHONY R., 1984, Origin of pipe vesicles: Geological Society of America, Abstracts with Programs, v. 16, no. 1, p. 47.

SUMMARY: Pipe vesicles in Mesozoic basalts of the Hartford Basin, Connecticut, are interpreted as forming from nucleation and growth of bubbles of gas exsolved from the crystallizing lava.

KEYWORDS: basalt
petrology

GEOGRAPHIC AREA: Hartford Basin, Connecticut

765 P : LEWIS, H. CARVILLE, 1885, A great trap dyke across Southeastern Pennsylvania: American Philosophical Society, Proceedings, v. 22, p. 438-456.

SUMMARY: The field relations of a seventy-mile long diabase dike are described in detail.

KEYWORDS: general geology
diabase

GEOGRAPHIC AREA: Pennsylvania, Chester County

MAPS: Geol: [1:300,000]

766 P : LEWIS, J. VOLNEY, 1907, Copper deposits of the New Jersey Triassic: Economic Geology, v. 2, p. 242-257.

SUMMARY: Ores, consisting of native copper and chalcocite, occur in contact with basalt and diabase sheets at Griggstown, Arlington, and Somerville, to name a few. In contrast to theory by Weed (1902), the author proposes a primary hydrothermal origin. A number of mines are described, and it is recognized that several copper-silver occurrences are not spatially related to diabase or basalt.

KEYWORDS: economic geology
copper
silver

GEOGRAPHIC AREA: Newark Basin, New Jersey

MAPS: Misc: copper occurrences

767 P : LEWIS, J. VOLNEY, 1907, Structure and correlation of Newark trap rocks of New Jersey: Geological Society of America, Bulletin, v. 18, p. 195-210.

SUMMARY: Study of the field relations of the igneous rocks indicates: Second Watchung Mountain is a double flow; New Vernon correlates with Long Hill; Sand Brook and New Germantown remnants correlate with First and Second Watchungs; Palisades Sill continues (correlates with) Rocky Hill-Baldpate Mountains-Sourland Mountains-Byram mass.

KEYWORDS: general geology
diabase
basalt

GEOGRAPHIC AREA: Newark Basin, New Jersey

MAPS: Geol: (3) sketches

768 P : LEWIS, J. VOLNEY, 1907, The double crest of Second Watchung Mountain: Journal of Geology, v. 15, p. 39-45.

SUMMARY: The double crest is attributed to a second flow occurring shortly after a first, but after a period of sedimentation following the first flow. Deformation of the basin in the area occurred after the first flow so that the intervening sedimentation between the two flows is localized near the center of the local basin downwarping. The double crest is not attributed to a curved fault.

KEYWORDS: general geology
basalt
structure

GEOGRAPHIC AREA: Newark Basin, New Jersey

MAPS: Geol: (2) sketch

769 P : LEWIS, J. VOLNEY, 1907, The Newark (Triassic) copper ores of New Jersey: New Jersey Geological Survey, Annual Report of the State Geologist, 1906, p. 131-164.

SUMMARY: The geology, nature of workings, and ore minerals are described for the Rocky Hill, Schuyler, Flemington, Somerville, Chimney Rock, and other mines. A primary hydrothermal source depositing oxidized copper minerals in nearer intrusives and native copper distally accounts for these occurrences in the sedimentary rocks associated with intrusives.

KEYWORDS: economic geology
copper
silver

GEOGRAPHIC AREA: Newark Basin, New Jersey

MAPS: Misc: mine plans

770 P : LEWIS, J. VOLNEY, 1908, The Palisade diabase of New Jersey: American Journal of Science, v. 26, p. 155-162.

SUMMARY: The detailed petrography and chemistry of the diabase is presented. The diabase is chiefly a quartz-diabase with a subordinate olivine-diabase near its base attributed to crystal gravity settling. Hypersthene and diopside are the chief pyroxenes with feldspars ranging from orthoclase and albite to labradorite.

KEYWORDS: diabase
mineralogy
petrology

GEOGRAPHIC AREA: Newark Basin, New Jersey

DATA: Chem. (no. of data): (8)
Chem. (type of data): major oxide (diabase, augite)

771 P : LEWIS, J. VOLNEY, 1915, Origin of the secondary minerals of the Triassic trap rocks: New Jersey Geological Survey, Bulletin 16, p. 45-49.

SUMMARY: The zeolite and other secondary minerals are listed and attributed not to the action of groundwater, but to primary magmatic fluids emanating from late, volatile-rich differentiates. Such an origin best correlates with field relations and the occurrence of boron- and fluorine-rich minerals (datolite, fluorite, apatite, and tourmaline).

KEYWORDS: basalt
mineralogy
zeolites

GEOGRAPHIC AREA: Newark Basin, New Jersey

772 P : LEWIS, J. VOLNEY, 1915, The pillow lavas of the Watchung Mountains: New Jersey Geological Survey, Bulletin 16, p. 51-56.

SUMMARY: Pillow lavas, measuring one to two feet and characterized by an outer glassy coating, elliptical shape, radiating joints, and central vesicle, occur in the upper First Mountain basalt and the lower part of the Second Mountain. Locations include McBride Ave., Paterson; Little Falls; and Glenside Park. Theories on pillow origin follow.

KEYWORDS: basalt

GEOGRAPHIC AREA: Newark Basin, New Jersey, Pasaic Co.

773 P : LEWIS, J.V., 1908, Petrography of the Newark igneous rocks of New Jersey: New Jersey Geological Survey, Annual Report of the State Geologist, 1907, p. 97-167.

SUMMARY: This extensive work describes the petrography, mineralogy, and chemistry of the diabase, its differentiates, inclusions, and associated hornfels facies. The micro- and megascopic character of the basalts are also outlined.

KEYWORDS: diabase
basalt
mineralogy
petrology
metamorphism
hornfels

GEOGRAPHIC AREA: Newark Basin, New Jersey

DATA: Chem. (type of data): augite, diabase, feldspar, arkose inclusions (major oxide)
Photos: outcrops, quarries (40); photomicrographs (32)
Plots: composition

774 P : LEWIS, J.V., 1914, Origin of pillow lavas: Geological Society of America Bulletin, v. 25, p. 32-33, 591-654.

KEYWORDS: basalt

GEOGRAPHIC AREA: Regional

775 P : LEWIS, J.V., AND KUMMEL, H.B., 1940, The geology of New Jersey (revised): New Jersey Department of Conservation and Development, Bulletin 50, 203 p.

SUMMARY: The structural relations; character of the Stockton, Lockatong, and Brunswick Fms.; the basalt and diabase; and depositional history of the early Mesozoic are briefly outlined.

KEYWORDS: general geology

GEOGRAPHIC AREA: Newark Basin, New Jersey

776 T : LEWIS, STANLEY R., 1974, Significance of the vertical and lateral changes in the clay mineralogy of the Dunbarton Triassic Basin, South Carolina: M.S. Thesis, University of North Carolina.

KEYWORDS: buried basins
sediments
mineralogy

GEOGRAPHIC AREA: Dunbarton Basin, South Carolina

777 T : LIGGON, GEORGE H., 1972, Petrology and depositional environments of some Triassic sediments in North Carolina: M.S. Thesis, North Carolina State University.

KEYWORDS: sedimentation
sediments
petrology

GEOGRAPHIC AREA: North Carolina

778 A : LINDHOLM, R.C., GORE, P.J., AND CROWLEY, J.K., 1982, A lacustrine sequence in the Upper Triassic Bull Run Formation (Culpeper Basin) in Northern Virginia: Geological Society of America, Abstracts with Programs, v. 14, p. 35.

SUMMARY: A seven-meter lacustrine transgressive-regressive sequence consists of a central (2 m) olive-gray lutite that accumulated below wave-base. Olive-gray shale and sandstone occur above and below and were deposited toward the lake margin. A 2 to 3 cm black stromatolitic limestone occurs at the top. Ostracods and the clam shrimp Cyzicus are abundant in the shallower deposits.

KEYWORDS: sedimentation
paleontology

GEOGRAPHIC AREA: Culpeper Basin, Virginia, Prince William Co., Manassas Quad.

779 P : LINDHOLM, R.C., HAZLETT, J.M., AND FAGIN, S.W., 1979, Petrology of Triassic-Jurassic conglomerates in the Culpeper Basin, Virginia: Journal of Sedimentary Petrology, v. 49, no. 4, p. 1245-1262.

SUMMARY: The muddy sandy pebble conglomerates of the Bull Run Formation contain clasts derived from Precambrian Blue Ridge greenstone, quartzite, and limestone and were deposited as debris flows along east-dipping alluvial fans along the fault-bounded western margin. The geometry of the intersection of the fault with the Blue Ridge anticlinorium to the west dictated that, to the south, progressively older Blue Ridge Formations provided these clastics.

KEYWORDS: sedimentation
structure
faults

GEOGRAPHIC AREA: Culpeper Basin, Virginia

MAPS: Geol: sketches

DATA: Plots: clast lithology and size relationships;; mineral composition

780 A : LINDHOLM, ROY C., 1977, Geology of Jurassic-Triassic Culpeper Basin, north of Rappahannock River, Virginia: American Association of Petroleum Geologists, Bulletin, v. 61, p. 809.

SUMMARY: Beds dip westward and generally increase in dip westward toward the border fault; local faulting may occur on the eastern margin. Paleocurrent data indicate that sediments were derived from the west. 2800 feet of basalt is present as at least five flows toward the western margin.

KEYWORDS: general geology

GEOGRAPHIC AREA: Culpeper Basin, Virginia

781 A : LINDHOLM, ROY C., 1977, The Culpeper Basin, Virginia: a case study in which Triassic tectonic patterns were inherited from pre-existing structural fabrics: Geological Society of America, Abstracts with Programs, v. 9, p. 1070.

SUMMARY: East-dipping pre-Triassic foliation is shown to be responsible for east-dipping normal faults on the west edges of the basin. The converse is true for border faults along eastern edges. Coarse sediment deposition fining upward is attributed to renewed border faulting. Tilting of beds caused ponding of basalt toward the west.

KEYWORDS: structure
faults
sedimentation

GEOGRAPHIC AREA: Culpeper Basin, Virginia; Regional

782 A : LINDHOLM, ROY C., 1978, Tectonic control of sedimentation in Triassic-Jurassic Culpeper Basin, Virginia: American Association of Petroleum Geologists, Bulletin, v. 62, no. 3, p. 537.

SUMMARY: A first fining upward sequence followed incipient border faulting. A second coarse sequence of border conglomerates indicates renewed faulting. Tilting to the west occurred before deposition ended, as the upper basalt flows and upper lacustrine beds thicken toward the western border fault, indicating ponding.

KEYWORDS: sedimentation

GEOGRAPHIC AREA: Culpeper Basin, Virginia

783 P : LINDHOLM, ROY C., 1978, Triassic-Jurassic faulting in Eastern North America - a model based on pre-Triassic structures: Geology, v. 6, p. 365-368.

SUMMARY: Analysis of structural data from bordering pre-Triassic rocks indicates that, where a western-east dipping border fault occurs, the pre-Triassic foliation is parallel to the fault and dipping east. The converse is true for eastern border, west dipping faults. The tectonic development of these basins is attributed to pre-existing foliation which dictates on which side the border fault will develop (see Leavy, 1980).

KEYWORDS: structure
faults

GEOGRAPHIC AREA: Regional

DATA: Plots: (Newark, Gettysburg, N. England, Deep River) structure

784 P : LINDHOLM, ROY C., 1979, Geologic history and stratigraphy of the Triassic-Jurassic Culpeper Basin, Virginia: summary: Geological Society of America, Bulletin, v. 90, p. 995-997.

SUMMARY: This paper presents a revision of the basin's stratigraphic nomenclature for the Culpeper Basin, Virginia. A general fining upward sequence is represented by (from lowest): Reston Formation, Manassas s.s., and the Bull Run Formation. Coarse conglomerates derived from the Blue Ridge mark renewed margin faulting. Upper basalt flows with intercalated lacustrine beds (Buckland Formation) are in turn overlain by western conglomerate to shale facies (Waterfall Formation).

KEYWORDS: general geology
stratigraphy

GEOGRAPHIC AREA: Culpeper Basin, Virginia, Maryland

785 P : LINDHOLM, ROY C., 1982, Flat stratification: two ancient examples: Journal of Sedimentary Petrology, v. 52, no. 1, p. 227-231.

SUMMARY: This structure, produced by migration of small (5 mm or less in height, 10 cm or less ampl.) ripples in shallow (5 mm or less) water, is observed in the Bull Run siltstone of the Culpeper Basin. This planar stratification correlates with the hypothesized shallow, sheet-washed, mud-flat environment of the formation.

KEYWORDS: sedimentation

GEOGRAPHIC AREA: Culpeper Basin, Virginia

DATA: Photos: sedimentary structures

786 T : LINDSKOLD, JOHN ERIC, 1961, Geology and petrology of the Gainesville, Virginia, Quadrangle: M.S. Thesis, George Washington University, 50 p.

KEYWORDS: general geology
petrology

GEOGRAPHIC AREA: Culpeper Basin, Virginia, Prince William Co., Gainesville Quad.

787 T : LINEBERGER, DAVID H., JR., 1983, Geology of the Chatham fault zone, Pittsylvania County, Virginia: M.S. Thesis, Universtiy of North Carolina, 74 p.

KEYWORDS: structure
faults

GEOGRAPHIC AREA: Danville Basin, Virginia

788 P : LITTLE, RICHARD D., 1982, Lithified armored mud balls of the Lower Jurassic Turners Falls sandstone, north-central Massachusetts: Journal of Geology, v. 90, p. 203-207.

SUMMARY: Study of the fluvial, armored mud balls indicates that they formed "quickly, from nearby mud deposits, in a distal fan environment." Their ellipsoidal shape suggests modification of disc-shaped mud clasts by stream abrasion.

KEYWORDS: sedimentation

GEOGRAPHIC AREA: Deerfield Basin, Massachusetts

MAPS: Misc: sample locality

DATA: Photos: specimens
Plots: major axis vs. minor axis

789 M : LOCKWOOD, KESSLER AND BARTLETT, INC., 1973, Aeromagnetic map of northern Frederick County, Maryland and parts of adjacent counties in Maryland and Pennsylvania: U.S. Geological Survey Open-File (unnumbered).

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Gettysburg Basin, Maryland, Pennsylvania

MAPS: Geophys: aeromagnetism [1:62,500]

790 P : LODDING, WILLIAM, AND STURM, EDWARD, 1968, Weathering and orientation in Triassic clay sediments of New Jersey: Clays and Clay Minerals, v. 16, p. 179-186.

SUMMARY: Weathered Lockatong Fm. (illite-chlorite-feldspar) becomes nearly entirely kaolinite in the upper clay zone. The Brunswick shale consists largely of illite with minor kaolinite, quartz, feldspar, and montmorillonite. Similarly here, kaolinite increases upward, but illite (30%) remains. Unlike chlorite, illite is strongly aligned in the weathered zone. Differences in clay mineralogy in the two formations are attributed to different parent mineralogies and not to different diagenesis.

KEYWORDS: sedimentation
sediments
mineralogy

GEOGRAPHIC AREA: Newark Basin, New Jersey, Middlesex Co.

DATA: Chem. (type of data): major oxide (Brunswick, Lockatong)
Plots: mineralogy (Brunswick, Lockatong)

791 A : LOMANDO, ANTHONY J., AND ENGELDER, TERRY, 1980, Strain within the rocks of the Newark Basin, New York: Geological Society of America, Abstracts with Programs, v. 12, p. 70-71.

SUMMARY: Deformed calcite of the Brunswick Formation indicates a north-trending maximum compressive strain (E1) decreases from 60° along the western fault to 20° in the basin center. The 60°E1 refers to normal faulting, while the 20°E1 refers to a maximum strain parallel to bedding that is responsible for N 40°E left-lateral, strike slip faults within the basin.

KEYWORDS: structure
faults

GEOGRAPHIC AREA: Newark Basin, New York

792 M : LONDQUIST, C.J., 1973, Contour map of the bedrock surface, Ludlow Quadrangle, Massachusetts: U.S. Geological Survey, Map MF-503a.

KEYWORDS: surficial geology

GEOGRAPHIC AREA: Hartford Basin, Massachusetts

MAPS: Geol: depth to bedrock [1:24,000]

793 M : LONDQUIST, C.J., 1973, Contour map of the bedrock surface, Mount Tom Quadrangle, Massachusetts: U.S. Geological Survey, Map MF-504a.

KEYWORDS: surficiai geology

GEOGRAPHIC AREA: Hartford Basin, Massachusetts

MAPS: Geol: depth to bedrock [1:24,000]

794 M : LONDQUIST, C.J., 1973, Depth to bedrock, Hampden Quadrangle, Massachusetts-Connecticut: U.S. Geological Survey, Map MF-486b.

KEYWORDS: surficial geology

GEOGRAPHIC AREA: Hartford Basin, Massachusetts

MAPS: Geol: depth to bedrock [1:24,000]

795 M : LONDQUIST, C.J., 1974, Contour map of the bedrock surface, Mount Toby Quadrangle, Massachusetts: U.S. Geological Survey, Map MF-621a.

KEYWORDS: surficial geology

GEOGRAPHIC AREA: Deerfield Basin, Massachusetts

MAPS: Geol: depth to bedrock [1:24,000]

796 M : LONDQUIST, C.J., 1974, Map showing depth to bedrock, Shelburne Falls Quadrangle, Massachusetts: U.S. Geological Survey, Map MF-591a.

KEYWORDS: surficial geology

GEOGRAPHIC AREA: Deerfield Basin, Massachusetts

MAPS: Geol: depth to bedrock [1:24,000]

797 M : LONDQUIST, C.J., 1976, Map showing depth to bedrock, Mount Holyoke Quadrangle, Massachusetts: U.S. Geological Survey, Map MF-640b.

KEYWORDS: surficial geology

GEOGRAPHIC AREA: Hartford Basin, Massachusetts

MAPS: Geol: depth to bedrock [1:24,000]

798 M : LONDQUIST, C.J., AND HANSEN, B.P., 1974, Contour map of the bedrock surface, Greenfield Quadrangle, Massachusetts: U.S. Geological Survey, Map MF-629a.

KEYWORDS: surficial geology

GEOGRAPHIC AREA: Deerfield Basin, Massachusetts

MAPS: Geol: depth to bedrock [1:24,000]

799 M : LONDQUIST, C.J., AND LEO, G.W., 1974, Map showing depth to bedrock, Ludlow Quadrangle, Massachusetts: U.S. Geological Survey Miscellaneous Field Studies, Map MF-503b.

KEYWORDS: surficial geology

GEOGRAPHIC AREA: Hartford Basin, Massachusetts

MAPS: Geol: depth to bedrock [1:24,000]

800 A : LONGWELL, C.R., 1937, Geologic interpretation of gravity anomalies in Connecticut and Massachusetts: Geological Society of America Proceedings, 1936, p. 86-87.

KEYWORDS: geophysics
gravity

GEOGRAPHIC AREA: Hartford Basin, Connecticut, Hartford Basin, Massachusetts

801 P : LONGWELL, C.R., 1937, Sedimentation in relation to faulting: Geological Society of America Bulletin, v. 48, p. 433-442.

KEYWORDS: sedimentation
faults
tectonics

GEOGRAPHIC AREA: Regional

802 P : LONGWELL, C.R., 1943, Geologic interpretation of gravity anomalies in the southern New England - Hudson Valley region: Geological Society of America Bulletin, v. 54, p. 555-590.

SUMMARY: The Hartford Basin is poorly delineated by gravity in this study. Implications for the structural style and origin of the basin are not discussed. (Of interest is the occurrence of a gravity high axis which trends N-S and just outside of the western basin margin and continues south into New Jersey.)

KEYWORDS: geophysics
gravity

GEOGRAPHIC AREA: Hartford Basin, Connecticut

803 P : LONGWELL, C.R., AND DANA, E.S., 1932, Walks and rides in central Connecticut and Massachusetts: Published by the authors (New Haven, Connecticut), 229 p.

KEYWORDS: general geology

GEOGRAPHIC AREA: Hartford Basin, Connecticut, Hartford Basin, Massachusetts

804 P : LONGWELL, CHESTER R., 1922, Notes on the structure of the Triassic rocks in Southern Connecticut: American Journal of Science, 5th Series, v. 4, p. 223-236.

SUMMARY: The author describes the sediments and basalt present in a tunnel through Saltonstall Ridge several miles east of New Haven. Normal faults occur and are related to regional structure. The eastern fanglomerates are discussed, and it is suggested that their basalt fragments indicate that basalt flows spread east of the border fault. Beds dip progressively greater toward the eastern border fault.

KEYWORDS: structure
sedimentation

GEOGRAPHIC AREA: Hartford Basin, Connecticut

MAPS: Misc: location of tunnel

805 P : LONGWELL, CHESTER R., 1928, The Triassic of Connecticut: American Journal of Science, 5th Series, v. 16, p. 259-263.

SUMMARY: This is chiefly a critique of the work of J.K. Roberts (1928) on the Virginia Triassic in which he proposes a synformal trough model for Connecticut. The author, citing structure and sedimentologic evidence, favors an eastern fault bounded half-graben in which beds dip homoclinally eastward.

KEYWORDS: structure

GEOGRAPHIC AREA: Hartford Basin, Connecticut; Regional

MAPS: Section: sketches

806 F : LONGWELL, CHESTER R., 1933, The Triassic belt of Massachusetts and Connecticut: International Geological Congress, 16th, Guidebook 1, Excursion A-1, p. 93-118.

SUMMARY: The general stratigraphy, structure, and paleontology of the area is outlined, and field trips include Amherst to Hartford and New Haven to New York. A broad-terraine hypothesis is favored whereby the Newark and Hartford Basins represent the remnant limbs of an anticlinally-arched graben.

KEYWORDS: general geology

GEOGRAPHIC AREA: Hartford Basin, Connecticut, Massachusetts

MAPS: Geol: sketches
Section: cross sections, block diagrams (sketches)

807 PM: LONGWILL, STANLEY M., AND WOOD, CHARLES R., 1965, Ground-water resources of the Brunswick Formation in Montgomery and Berks Counties, Pennsylvania: Pennsylvania Geological Survey, Water Resource Report W22, 59 p.

SUMMARY: Water yield is greater than that of the Lockatong Fm., and wells drilled below 200 ft. will obtain maximum yields. Water is generally harder than that of the Lockatong, is of the calcium-sulfate type, and dissolved-solids content is 302 ppm (avg).

KEYWORDS: hydrology

GEOGRAPHIC AREA: Newark Basin, Pennsylvania, Montgomery Co., Berks Co.

MAPS: Geol: [1:62,500]
Section: well logs
Misc: well locations

DATA: Chem. (type of data): water
Plots: yields vs. depth; Mg, Na, Ca vs. dissolved-solids content

808 P : LORENZ, JOHN, 1976, Triassic sediments and basin structure of the Kerrouchen Basin, Central Morocco: Journal of Sedimentary Petrology, v. 46, no. 4, p. 897-905.

SUMMARY: This elongated basin in the southern High Atlas is underlain by Paleozoic metamorphics. Coarse clastics eroded from granites (SE part of basin) and from meta-sediments (NE part of basin) deposited in the down-faulted (SE) and downwarped basin (NE). With diminished tectonic activity, mudflat deposits covered the coarser sediments. Basalts are intercalated with these upper mudstones.

KEYWORDS: sedimentation
general geology

GEOGRAPHIC AREA: Morocco

MAPS: Geol: sketches
Section: block diagrams

DATA: Plots: sedimentary textures

809 P : LOWE, KURT E., 1959, Structure of the Palisades intrusion at Haverstraw and West Nyack, N.Y.: New York Academy of Sciences, Annals, v. 80, p. 1127-1138.

SUMMARY: Quarries at these two localities provide information on the nature of the contact between the intrusion and the sediments. At Haverstraw, the southwest contact dips more steeply (40°) than the dip of sediments (16°) or the northeast contact (11°). Leaning polygonal columns exposed in the quarry support the steepening. It is shown that the intrusion is dikelike. (Discussion by R.W. Fairbridge and H.D. Thompson follows.)

KEYWORDS: structure
diabase

GEOGRAPHIC AREA: Newark Basin, New York

MAPS: Misc: location of quarries

DATA: Photos: quarries

810 T : LUCANIA, J.A., 1974, The limestone cobble conglomerate and associated Ladentown basalt, Rockland County, New York: M.S. Thesis, Brooklyn College.

KEYWORDS: general geology

GEOGRAPHIC AREA: Newark Basin, New York

811 P : LULL, RICHARD SWAN, 1904, Fossil footprints of the Jura Trias of North America: Boston Society of Natural History, Memoir 5, no. 11, p. 461-557.

SUMMARY: Detailed descriptions are presented of the ichnology of reptilian species found primarily in the Hartford Basin. Discussions of morphology and an extensive bibliography are included.

KEYWORDS: paleontology

GEOGRAPHIC AREA: Regional

812 P : LULL, RICHARD SWANN, 1915, Triassic life of the Connecticut Valley: Connecticut Geological and Natural History Survey, Bulletin 24, 285 p.

SUMMARY: This extensive work deals with the development of life in the Hartford Basin and describes in detail the fish, reptile, plant and other fossil remains present. Each species is described, and sketches, photographs, and sketch maps are included.

KEYWORDS: paleontology

GEOGRAPHIC AREA: Hartford Basin, Connecticut

813 P : LULL, RICHARD SWANN, 1953, Triassic life of the Connecticut Valley (revised edition): Connecticut Geological and Natural History Survey, Bulletin 81, 366 p.

SUMMARY: This extensive work describes the species of flora and aquatic and terrestrial vertebrates present as fossil skeletons and footprints in the Triassic. Sketches, photographs, and sketch maps of localities are presented.

KEYWORDS: paleontology

GEOGRAPHIC AREA: Hartford Basin, Connecticut

814 PM: LUNDGREN, LAWRENCE, JR., 1979, The bedrock geology of the Haddem Quadrangle: Connecticut Geological and Natural History Survey, Quadrangle Report 37, 44 p. 13 figs.

SUMMARY: The Higganum diabase dike crosses the quadrangle, and it is described in the text as consisting of the common plagioclase-augite diabase as well as a coarser leuco-diabase composed of quartz, biotite, K-feldspar, and angular intergrowths of plagioclase and K-feldspar. Localities of dike exposures are given. No detailed petrography or chemistry is presented.

KEYWORDS: general geology
diabase
mineralogy
petrology

GEOGRAPHIC AREA: Connecticut, Middlesex Co. (not in basin)

MAPS: Geol: [1:24,000]

815 PM: LUTTRELL, GWENDOLYN W., 1966, Base- and precious-metal and related ore deposits of Virginia: Virginia Division of Mineral Resources, Mineral Resources Report 7, 167 p.

SUMMARY: Abandoned mines, prospects, and occurrences of copper and barite mineralization in the Triassic-Jurassic basins of Virginia are described. Most Mesozoic occurrences are located in northern Virginia.

KEYWORDS: bibliography
economic geology
copper
barite

GEOGRAPHIC AREA: Virginia

MAPS: Misc: mineral resource [1:500,000]

816 P : LYELL, SIR CHARLES, 1847, On the structure and probable age of the coal field of the James River, near Richmond, Virginia: Quarterly Journal of the Geological Society of London, v. 3, p. 261-280.

SUMMARY: The general stratigraphy, the organic content of the coal, observations of the coal altered to coke adjacent to basalt, and the fossil fish remains are discussed. It is concluded that the coal beds are equivalent to the lower Oolitic or Jurassic of Europe. Comparisons are also made to the Paleozoic coal fields near St. Etienne, France.

KEYWORDS: paleontology
general geology

GEOGRAPHIC AREA: Richmond Basin, Virginia

DATA: Photos: fossil fish (sketches)

817 P : LYMAN, B.S., 1893, The Great Mesozoic Fault of New Jersey: American Philosophical Society, Proceedings, v. 31, p. 314-317.

SUMMARY: Based upon the presence of a major fault in eastern Bucks County, Pennsylvania, that places a pre-Triassic horst within the basin, the fault is extended into the New Jersey Triassic. Evidence for the extension is provided by topography and the character of the sediments on either side of the fault.

KEYWORDS: structure
faults

GEOGRAPHIC AREA: Newark Basin, New Jersey

MAPS: Geol: [1:126,720]

818 P : LYMAN, B.S., 1894, Further on the age of the Newark brownstone: American Philosophical Society Proceedings, v. 33, p. 9-10.

KEYWORDS: paleontology

GEOGRAPHIC AREA: Regional

819 P : LYMAN, B.S., 1894, Some New Red horizons: American Philosophical Society Proceedings, v. 33, p. 192-215.

KEYWORDS: sediments

GEOGRAPHIC AREA: Regional

820 P : LYMAN, BENJAMIN SMITH, 1895, Report on the new red of Bucks and Montgomery Counties: Geological Survey of Pennsylvania, 2nd, Final Report, v. 3, Part 2, p. 2589-2638.

SUMMARY: From lower to upper units, the area is divided into Norristown red sh., Gwynedd black sh., Lansdale red sh., Perkasie green sh., and Pottstown red sh. Coal occurrences (2-inch seams) occur in the Gwynedd, and localities are given. A gold-bearing conglomerate (?) was found near Yardleyville. Copper occurrences and the New Galena and Perkiomen lead-zinc prospects are mentioned. Fossil plants and reptile tracks are sketched.

KEYWORDS: general geology
paleontology
economic geology
gold
copper
lead
zinc

GEOGRAPHIC AREA: Newark Basin, Pennsylvania, Bucks County, Montgomery County

821 P : LYMAN, BENJAMIN SMITH, 1898, Copper traces in Bucks and Montgomery Counties: Journal of the Franklin Institute, v. 146, no. 6, p. 416-423.

SUMMARY: About 30 localities of copper occurrences are briefly described in the Triassic area. It is recognized that the copper carbonates occur in darker shales (green to black), and that their precipitation is due to reduction of copper sulfate by the organic matter in these shales.

KEYWORDS: economic geology
copper

GEOGRAPHIC AREA: Newark Basin, Pennsylvania, Bucks County, Montgomery County

822 P : LYMAN, BENJAMIN SMITH, 1902, Lodel Creek and Skippack Creek: Philadelphia Academy of Natural Sciences, Proceedings, v. 53, p. 604-607.

SUMMARY: A quarry (Fisher's Quarry) at Lodel Creek yields slabs of red shale containing dinosaur footprints and 2-inch (amplitude) ripple marks. Between Norristown and Collegeville at Skippack Creek, a 21-inch x 8-inch Cyad leaf was found in red sandstone. These features are indicative of a shallow estuary environment. (Locations are not precisely given.)

KEYWORDS: paleontology
sedimentation

GEOGRAPHIC AREA: Newark Basin, Pennsylvania, Montgomery County

M

823 P : MACCARTHY, GERALD R., 1936, Magnetic anomalies and geologic structures of the Carolina Coastal Plain: Journal of Geology, v. 44, p. 396-406.

SUMMARY: A Triassic basin is outlined from Lynchburg, S.C. to Raeford, N.C. by magnetometer surveys.

KEYWORDS: buried basins
geophysics
magnetism

GEOGRAPHIC AREA: North Carolina

824 M : MACLACHLAN, D.B., 1976, Allentown East Quadrangle, Pennsylvania: in, Berg, T.M., and Dodge, C.M., eds., 1981, Atlas of Preliminary Geologic Quadrangle Maps of Pennsylvania, Pennsylvania Geological Survey, Map 61, p. 17.

KEYWORDS: general geology

GEOGRAPHIC AREA: Newark Basin, Pennsylvania, Lehigh Co., Allentown East Quad.

MAPS: Geol: [1:24,000]

825 M : MACLACHLAN, D.B., 1976, Hellertown Quadrangle, Pennsylvania: in, Berg, T.M., and Dodge, C.M., eds., 1981, Alas of Preliminary Geologic Quadrangle Maps of Pennsylvania, Pennsylvania Geological Survey, Map 61, p. 271.

KEYWORDS: general geology

GEOGRAPHIC AREA: Newark Basin, Pennsylvania, Bucks Co., Lehigh Co., Northampton Co., Hellertown Quad.

MAPS: Geol: [1:24,000]

826 M : MACLACHLAN, D.B., AND BERG, T.M., 1977, Hershey Quadrangle, Pennsylvania: in, Berg, T.M., and Dodge, C.M., eds., 1981, Atlas of Preliminary Geologic Quadrangle Maps of Pennsylvania, Pennsylvania Geological Survey, Map 61, p. 272.

KEYWORDS: general geology

GEOGRAPHIC AREA: Gettysburg Basin, Pennsylvania, Dauphin Co., Hershey Quad.

MAPS: Geol: [1:24,000]

827 PM: MACLACHLAN, D.B., BUCKWALTER, T.V., AND MCLAUGHLAN, D.B., 1975, Geology and mineral resources of the Sinking Spring 7.5-minute Quadrangle, Berks and Lancaster Counties, Pennsylvania: Pennsylvania Geological Survey, Atlas 177d, 228 p.

SUMMARY: Included in text are discussions of the sandstone and conglomerate of the Hammer Creek Fm.; sedimentation and provenance; diabase mineralogy, structure, intrusion thickness, and contact metamorphic effects; and a detailed study of the structure. The Wheatfield magnetite deposit occurs along the northern basin margin but is not described in detail.

KEYWORDS: general geology
structure
economic geology
iron
sedimentation

GEOGRAPHIC AREA: Newark Basin, Pennsylvania, Berks County, Lancaster County, Sinking Spring Quad.

MAPS: Geol: [1:24,000]
Section: Hammer Creek Fm.
Misc: pegmatitic diabase

DATA: Photos: outcrops
Plots: stereograms (bedding)

828 M : MACLACHLAN, DAVID B., 1983, Geology and mineral resources of the Reading and Birdsboro Quadrangles, Berks County, Pennsylvania: Pennsylvania Geological Survey, Atlas 187cd.

KEYWORDS: general geology

GEOGRAPHIC AREA: Newark Basin, Pennsylvania, Berks Co., Reading Quad., Birdsboro Quad.

MAPS: Geol: [1:24,000]

829 P : MAHER, JOHN C., 1971, Geologic framework and petroleum potential of the Atlantic Coastal Plain and continental shelf: U.S. Geological Survey Professiona Paper 659, 98 p.

SUMMARY: Based on well data, buried basins are indicated under the Maryland, Alabama, and Georgia Coastal Plains. These early Mesozoic rocks are considered good reservoirs for oil but not good source rocks. A table presents well locations and lithologic information.

KEYWORDS: buried basins
economic geology
oil

GEOGRAPHIC AREA: Regional

MAPS: Section: (well logs-stratigraphic) Coastal Plain (Md., Alabama, Georgia)

830 P : MANCHESTER, J.G., 1931, The minerals of New York City and its environs: Bulletin of the New York Mineralogical Club, v. 3, 64 p.

SUMMARY: This volume describes the mineralogy of some of the abandoned copper mines and prospects in Triassic rocks in northern New Jersey.

KEYWORDS: mineralogy
economic geology
copper

GEOGRAPHIC AREA: Newark Basin, New Jersey

831 P : MANCHESTER, JAMES G., 1919, The minerals of the Bergen Archways: American Mineralogist, v. 4, no. 9, p. 107-116.

SUMMARY: Exposures along the Bergen Hill-Palisades intrusion are mentioned and zeolite minerals are described from the Bergen archways construction. Minerals discussed include: diabantite, chalcopyrite, calcite, sphalerite, analcite, datolite, and apophyllite.

KEYWORDS: basalt
mineralogy
zeolites

GEOGRAPHIC AREA: Newark Basin, New Jersey, Bergen Co.

DATA: Photos: minerals

832 P : MANN, VIRGIL I., AND ZABLOCKI, FRANK S., 1961, Gravity features of the Deep River-Wadesboro Triassic Basin of North Carolina: Southeastern Geology, v. 2, no. 4, p. 191-216.

SUMMARY: Gravity studies indicate that the basin is not a significant gravity feature and cannot be easily delineated. The Durham, Sanford, and Wadesboro Basins are deepest (respectively) in their northeast and southeast, central, and southeastern parts. The Sanford Basin continues under the Coastal Plain to the south. The NW Durham Basin consists of numerous fault blocks while the SE is a graben against the Jonesboro Fault.

KEYWORDS: geophysics
gravity
structure

GEOGRAPHIC AREA: Deep River Basin, Wadesboro Basin, North Carolina

MAPS: Geophys: gravity profiles

833 A : MANSPEIZER, WARREN, 1969, Paleoflow structures in Late Triassic basaltic lava of the Newark Basin and their regional implication: Geological Society of America, Abstracts with Programs, v. 1, pt. 7, p. 142.

SUMMARY: Vesicles in the First, Second, and Third Watchung basalts indicate respective flow directions of N49E, N70E, and S82W. The former two flowed east conforming to the paleoslope, and the latter flowed west and may be genetically related to the Palisades Sill, which, therefore, postdates the first two flows. The Talcott, Holyoke, and Hampden basalts flowed east and may be genetically related to West Rock and Mt. Carmel.

KEYWORDS: structure
basalt

GEOGRAPHIC AREA: Newark Basin, New Jersey; Hartford Basin, Connecticut, Massachusetts

834 A : MANSPEIZER, WARREN, 1969, Radial and concentric joints, First Watchung Mountains, New Jersey: Geological Society of America, Abstracts with Programs, v. 1, pt. 1, p. 38.

SUMMARY: An exposure along Route 280 in Orange exposes a complete Tomkeieff structural sequence of colonnade (columns) and entablature (curved joints). Radial and concentric joints developed in response to undulating near-surface isotherms that paralleled surface topography.

KEYWORDS: structure
basalt

GEOGRAPHIC AREA: Newark Basin, New Jersey, Essex Co., Orange Quad.

835 F : MANSPEIZER, WARREN, 1980, Rift tectonics inferred from volcanic and clastic structures: in, Manspeizer, W., ed., Field Studies of New Jersey Geology and Guide to Field Trips, 52nd Annual Meeting, N.Y. State Geological Association, p. 314-350.

SUMMARY: This guidebook concerns structures within the Passaic and Feltville Formations and the First and Second Watchung basalts. Features include pillow lavas, palagonite forset bedding, and tumuli. The tectonic and structural history of the basins with reference to the Newark is outlined. It is shown that the Ramapo border fault did not provide ingress for the magmas of the Watchung Mountains.

KEYWORDS: structure
basalt
sedimentation
tectonics
faults

GEOGRAPHIC AREA: Newark Basin, New Jersey; Regional

MAPS: Geol: sketch (field stops)
Section: stratigraphic sections

DATA: Photos: outcrops, sedimentary structures

836 P : MANSPEIZER, WARREN, 1981, Early Mesozoic basins of the Central Atlantic passive margins: American Association of Petroleum Geologists, Education Course Note Series No. 19, Part 4, 60 p.

SUMMARY: This extensive work deals with the tectonic evolution, sedimentation and volcanism of the Atlantic margins during the early Mesozoic. The author stresses the view that such development not be considered an end-phase of the Appalachian Revolution, but the initial phase of the Atlantic tectonic cycle.

KEYWORDS: tectonics
general geology
sedimentation

GEOGRAPHIC AREA: Regional

MAPS: Geol: sketches, Morocco, Newark; block diagrams
Section: stratigraphic (U.S. and Morocco)

DATA: Plots: correlation by fossils

837 P : MANSPEIZER, WARREN, 1982, Triassic-Liassic basins and climate of the Atlantic passive margin: Geologische Rundschau, v. 71, p. 895-917.

SUMMARY: The physiographic and climatic evolution of the Atlantic rim rift basins is outlined. The model is based upon tracking of the Laurasian Plate over hot spots, and the generation of assymetric basins by strike-slip motion.

KEYWORDS: climate
sedimentation

GEOGRAPHIC AREA: Regional

838 A : MANSPEIZER, WARREN, 1983, Inherited Appalachian-Hercynian structures and their impact on Triassic-Liassic "rifting": Geological Society of America, Abstracts with Programs, v. 15, no. 3, p. 184.

SUMMARY: The evolution of rifting based on pre-existing transform boundaries is outlined. Continued stress along these zones broke the passive margin into wrench-induced rift basins (Newark and Hartford) and thrust fault-induced, listric normal thrustfault controlled basins (e.g. Richmond).

KEYWORDS: tectonics
structure

GEOGRAPHIC AREA: Regional

839 A : MANSPEIZER, WARREN, PUFFER, JOHN H., AND COUSMINER, HAROLD L., 1976, Subduction, rifting, and sea floor spreading: a volcanic record in Morocco and Eastern North America: Geological Society of America, Abstracts wtih Programs, v. 8, p. 224-225.

SUMMARY: Moroccan early Mesozoic volcanics include: Ladinian andesites to the northeast, High Atlas olivine- and quartz-tholeiites (198 m.y.), and the Meseta and Middle Atlas low-alkali, quartz-tholeiites (187 m.y.). The olivine- and quartz-tholeiites and the low-alkali tholeiites are similar to the York Haven-Watchung and Quarryville basalts in the Newark basin, respectively. Andesites are attributed to subduction, the other tholeiites to incipient and later rifting.

KEYWORDS: geochemistry
petrology
basalt
general geology

GEOGRAPHIC AREA: Morocco

840 P : MANSPEIZER, WARREN, PUFFER, JOHN H., AND COUSMINER, HAROLD L., 1978, Separation of Morocco and Eastern North America: a Triassic-Liassic stratigraphic record: Geological Society of America, Bulletin, v. 89, p. 901-920.

SUMMARY: (See same authors, 1976.) Also: The Early Mesozoic of Morocco is divided into three zones: Oran Meseta - andesite, carbonate evaporites; High Atlas (SW) - red beds, evaporites, tholeiites (equals York Haven type); Meseta (W and Central) - evaporites, qtz. tholeiites (equals Rossville type). A four-stage tectonic model is developed to explain these features.

KEYWORDS: general geology
structure
geochemistry
basalt
geophysics
radiometric age
K/Ar dating

GEOGRAPHIC AREA: Morocco

MAPS: Geol: sketches of provinces
Section: stratigraphic columns

DATA: Chem. (type of data): K-Ar; tholeiites (major oxide, trace elements, norms)
Plots: differentiation trends

841 P : MARINE, I. WENDELL, 1974, Geohydrology of buried Triassic basin at Savannah River Plant, South Carolina: American Association of Petroleum Geologists, Bulletin, v. 58, no. 9, p. 1825-1837.

SUMMARY: Seismic and gravity data indicate the basin is 30 miles long and 6 miles wide and contains 5300 feet of mudstone, sandstone, and border conglomerate, but no coal or igneous rocks. Permeability and porosity is low. Formational waterhead exceeds overlying Coastal Plain aquifers. Water chemistry is presented.

KEYWORDS: general geology
buried basins
hydrology
geophysics
seismic profiles
gravity

GEOGRAPHIC AREA: South Carolina, Georgia, Dunbarton Basin

DATA: Chem. (type of data): water (gas, major elements)

842 A : MARINE, I. WENDELL, 1976, Structural model of the buried Dunbarton Triassic Basin in South Carolina and Georgia: Geological Society of America, Abstracts with Programs, v. 8, no. 2, p. 225.

SUMMARY: This basin, 350 meters below the Coastal Plain cover, lies on the state line 32 km SE of the fall line. Geophysics indicates that the basin consists of fault blocks. No faulting has occurred since an erosional surface on top of the Triassic was developed 100 m.y. ago.

KEYWORDS: buried basins
structure

GEOGRAPHIC AREA: South Carolina, Georgia, Dunbarton Basin

843 P : MARINE, I. WENDELL, AND SIPLE, GEORGE E., 1974, Buried Triassic basin in the Central Savannah River Area, South Carolina and Georgia: Geological Society of America, Bulletin, v. 85, p. 311-320.

SUMMARY: Data from aeromagnetics, seismic refraction, and wells delineates the Dunbarton Basin 32 km SE of Augusta. The basin is buried beneath 350 meters of coastal sediment, possesses a well-defined (geophysics) western margin, contains 500 meters of a western fanglomerate, and at least 900 meters of red mudstone and sandstone in its center. Hydrologic data are given.

KEYWORDS: buried basins
hydrology
geophysics
aeromagnetism
seismic profiles

GEOGRAPHIC AREA: South Carolina, Georgia, Dunbarton Basin

MAPS: Geol: (regional) buried and exposed basins
Geophys: aeromagnetic

DATA: Chem. (type of data): water
Photos: drill core
Plots: redbed particle size

844 M : MARR, JOHN D., JR., 1980, The geology of the Willis Mountain Quadrangle, Virginia: Virginia Division of Mineral Resources, Publication 25.

KEYWORDS: general geology

GEOGRAPHIC AREA: Farmville Basin, Virginia, Buckingham Co., Cumberland Co., Willis Mountain Quad.

MAPS: Geol: [1:24,000]

845 PM: MARR, JOHN D., JR., 1981, Stratigraphy and structure (Triassic system by M.B. McCollum): in, Geologic Investigations in the Willis Mountain and Andersonville Quadrangles, Virginia, Virginia Division of Mineral Resources Publication 29, p. 3-8.

SUMMARY: Triassic coarse fanglomerate occurs in the NW part of the Farmville Basin within the SE corner of the Willis Mtn. Quadrangle. The basin is bordered on its NW side by a high-angle, SE-dipping normal fault. The fanglomerate is composed of pebble- to boulder-sized metamorphic clasts within a fine-grained arkosic matrix.

KEYWORDS: general geology

GEOGRAPHIC AREA: Farmville Basin, Virginia, Cumberland Co., Willis Mtn. Quad.

MAPS: Geol: [1:24,000]

846 M : MARR, JOHN D., JR., 1984, Geologic map of the Pittsville and Chatham Quadrangles, Virginia: Virginia Division of Mineral Resources Publication 49.

SUMMARY: A small portion of the southeast corner of the Chatham quadrangle is underlain by Triassic rocks of the Danville basin.

KEYWORDS: general geology

GEOGRAPHIC AREA: Danville Basin, Virginia, Pittsylvania County, Chatham Quadrangle

MAPS: Geol: [1:24,000]

847 A : MARTELLO, ANGELA R., GRAY, NORMAN H., PHILPOTTS, ANTHONY R., DOWLING, JOHN J., and KOZA, DOUGLAS M., 1984, Mesozoic diabase dikes of southeastern New England: Geological Society of America, Abstracts with Programs, v. 16, no. 1, p. 48.

SUMMARY: Four diabase dikes are correlated with basalt flows in the Hartford Basin, Connecticut, on the basis of petrologic and geochemical similarities.

KEYWORDS: diabase
petrology
geochemistry

GEOGRAPHIC AREA: Hartford Basin, Connecticut

848 P : MASON, BRIAN H., 1960, Trap rock minerals of New Jersey: New Jersey Geological Survey, Bulletin 64, 51 p.

SUMMARY: The geologic setting, paragenesis, quarry localities and individual minerals are described emphasizing information from previous literature. Zeolites as well as sulfides, native copper and silver, and carbonates are described.

KEYWORDS: diabase
basalt
mineralogy
zeolites

GEOGRAPHIC AREA: Newark Basin, New Jersey

DATA: Photos: mineral specimens

849 T : MASSA, VITO, JR., 1979, A geophysical and geological investigation of the Edison copper mine area, Edison, New Jersey: M.S. Thesis, Rutgers University, 33 p.

KEYWORDS: economic geology
copper
geophysics
magnetism

GEOGRAPHIC AREA: Newark Basin, New Jersey

850 T : MASTERSON, W.D., 1979, Potassium-argon dating of the Watchung basalt flows: Senior Paper Series, Yale University, Department of Geology and Geophysics, 13 p.

KEYWORDS: basalt
radiometric age
K/Ar dating

GEOGRAPHIC AREA: Newark Basin, New Jersey

851 P : MATTIS, ALLEN F., 1977, Nonmarine Triassic sedimentation, Central High Atlas Mountains, Morocco: Journal of Sedimentary Petrology, v. 47, no. 1, p. 107-119.

SUMMARY: 1000 m of mudstone, sandstone, and conglomerate red beds with intercalated basalt flows in the upper part of the section occur in NE-trending basins whose sediment transport direction was parallel to the basin axis, and whose sediment source was of local Paleozoic provenance. Lacustrine and playa conditions occurred locally. Facies relationships are discussed.

KEYWORDS: sedimentation

GEOGRAPHIC AREA: Morocco

MAPS: Section: geologic cross section; stratigraphic
Misc: paleocurrents

DATA: Photos: photomicrographs (sediments)

852 P : MAXEY, LAWRENCE R., 1973, Dolerite dikes of the New Jersey highlands: probable comagmatic relation with the Mesozoic Palisades Sill and dolerite dikes of Eastern United States: Geological Society of America, Bulletin, v. 84, p. 1081-1086.

SUMMARY: Four quartz-tholeiites and one olivine-tholeiite dike of presumed early Mesozoic age that cut Precambrian rocks in northern N.J., contain high TiO_2 that corresponds with Ti-rich Palisades sill dolerite (60% solidified) and the Palisades differentiation trend. Separation of the dike magma occurred at a later stage of differentiation than did the Palisades magma.

KEYWORDS: geochemistry
petrology
diabase

GEOGRAPHIC AREA: New Jersey (not in basin)

MAPS: Geol: sketch

DATA: Chem. (type of data): major oxide
Plots: mafic index vs. TiO_2; variation plots

853 P : MAY, PAUL R., 1971, Pattern of Triassic-Jurassic diabase dikes around the North Atlantic in the context of predrift position of the continents: Geological Society of America, Bulletin, v. 82, p. 1285-1292.

SUMMARY: Early Mesozoic dolerite dikes from the eastern U.S., northeastern South America, and northwestern Africa form a radial pattern convergent on the Blake Plateau, the Bahama Platform, and the Western Senegal Basin. The pattern corresponds to a net of principal stresses imposed by the upper mantle prior to incipient rifting.

KEYWORDS: tectonics
structure

GEOGRAPHIC AREA: Regional

MAPS: Geol: regional dike patterns

854 P : MAY, V. JEFF, AND THOMAS, J.D., 1968, Geology and ground-water resources in the Raleigh area, North Carolina: North Carolina Department of Water Resources, Division of Ground Water, Ground Water Bulletin No. 15, 135 p.

SUMMARY: Water properties within Triassic rocks are presented, and it is shown that the rocks are poor aquifers and water is hard. Data include: well yield vs. depth, well locations, and chemistry.

KEYWORDS: hydrology

GEOGRAPHIC AREA: Durham Basin, North Carolina

MAPS: Misc: well locations

855 P : MCCAULEY, JOHN F., 1961, Uranium in Pennsylvania: Pennsylvania Geological Survey, Bulletin M43, 71 p.

SUMMARY: Several uranium occurrences in the arkosic Stockton Formation are described. Uranium is associated with ferruginous zones with pyrite common. Meta-autunite and metazeunerite occur. Minor amounts of zirconium, arsenic, and zinc were detected by qualitative analysis.

KEYWORDS: economic geology
uranium

GEOGRAPHIC AREA: Newark Basin, Pennsylvania, Bucks Co., Stockton Quad.

MAPS: Misc: uranium occurrences

856 P : MCCOLLUM, MICHAEL B., 1971, Basalt flows in the Triassic Culpeper Basin, Virginia: Geological Society of America, Bulletin, v. 82, p. 2331-2332.

SUMMARY: Five basalt units occur in the western part of the basin and are best exposed near Buckland. A gabbro feeder dike is exposed near Haymarket. The thickness of these flows and their intercalated sediments is about 5500 feet with three flows of 175 ft., one of 500 ft., and a multiflow unit of 1600 ft.

KEYWORDS: general geology
basalt

GEOGRAPHIC AREA: Culpeper Basin, Virginia

MAPS: Geol: sketch

857 P : MCCUNE, A.R., THOMSON, K.S., AND OLSEN, P.E., 1984, Semionotid fishes from the Mesozoic great lakes of North America: in, Echelle, A.A., and Kornfield, I., (eds.), Evolution of fish species flocks: University of Maine at Orono Press (Orono, Maine), p. 27-44.

KEYWORDS: paleontology

GEOGRAPHIC AREA: Regional

858 T : MCDONALD, N.G., 1970, Paleontology and paleoecology of a previously undescribed locality of Triassic black shale near Durham, Connecticut: B.A. Thesis, Franklin and Marshall College, 73 p.

KEYWORDS: paleontology
sedimentation

GEOGRAPHIC AREA: Hartford Basin, Connecticut

859 A : MCDONALD, N.G., 1983, History of paleoichthyology in the Newark Supergroup basins, eastern North America: Geological Society of America, Abstracts with Programs, v. 15, no. 3, p. 121.

KEYWORDS: paleontology

GEOGRAPHIC AREA: Regional

860 T : MCDONALD, NICHOLAS G., 1975, Fossil fishes from the Newark Group of the Connecticut Valley: M.S. Thesis, Wesleyan University, 250 p.

KEYWORDS: paleontology

GEOGRAPHIC AREA: Hartford Basin, Connecticut

861 F : MCDONALD, NICHOLAS G., 1982, Paleontology of the Mesozoic rocks of the Connecticut Valley: in, Joesten, R., and Quarrier, S.S., eds., Guidebook for Field Trips in Connecticut and South Central Massachusetts, New England Intercollegiate Geological Conference, 74th Annual Meeting, p. 143-172.

SUMMARY: Field stops include: Turners Falls sandstone, Clathropteris locality at Holyoke, Dinosaur State Park at Rocky Hill, and the East Berlin Fm. at Cromwell (Conn.) and Westfield (Conn.). A review of fossil reptile, reptile track, fish, coprolite, invertebrate, and floral fossil species occurring in the Hartford Basin is presented. A comprehensive bibliography is included.

KEYWORDS: paleontology

GEOGRAPHIC AREA: Hartford Basin, Connecticut

MAPS: Section: stratigraphic columns

862 A : MCDONALD, NICHOLAS G., AND TEXTORIS, DANIEL A., 1984, Petrology of ooid-bearing silcrete, Upper Triassic Cherry Brook Basin, Connecticut: Geological Society of America, Abstracts with Programs, v. 16, no. 1, p. 49.

SUMMARY: The petrology of a seven-meter-thick zone of siliceous mudstone-sandstone in the Cherry Brook Basin (located 2 km west of the Hartford Basin) is discussed. This unit is interpreted as a paleosoil.

KEYWORDS: sedimentology
petrology

GEOGRAPHIC AREA: Hartford Basin, Connecticut

863 P : MCFARLAN, E., AND DRAKE, C.L., eds., 1977, Geology of continental margins: American Association of Petroleum Geologists, Continuing Education, Course Note Series No. 5, 121 p.

SUMMARY: This symposium volume contains articles and abstracts concerning the stratigraphy, structure, evolution, and mineral resources of the Atlantic Continental Margin system. Early Mesozoic offshore geology is included in the discussions.

KEYWORDS: buried basins

GEOGRAPHIC AREA: Regional

864 T : MCGOWEN, MICHAEL, 1981, The Feltville Formation of the Watchung syncline, Newark Basin, New Jersey: M.S. Thesis, Rutgers University, 135 p.

KEYWORDS: general geology

GEOGRAPHIC AREA: Newark Basin, New Jersey

865 P : MCHONE, J. GREGORY, 1978, Distribution, orientation, and ages of mafic dikes in Central New England: Geological Society of America, Bulletin, v. 89, p. 1645-1655.

SUMMARY: Study of diabase dikes from New Hampshire and Vermont indicate that they intruded NE-trending fractures during the Late Triassic. Later intrusions of camptonite and spessartite dikes in the Jurassic and monchiquite dikes in the Cretaceous indicate a rotating tensile stress field from NW (Triassic) to north and northeast (Cretaceous).

KEYWORDS: general geology
diabase
geophysics
radiometric age
K/Ar dating

GEOGRAPHIC AREA: New England

MAPS: Misc: dike distributions and patterns

DATA: Chem. (type of data): K-Ar

866 A : MCHONE, J.G., 1982, Mesozoic rifting in northern New England: Geological Society of America, Abstracts with Programs, v. 14, p. 40.

SUMMARY: Evidence of Mesozoic fault activity and the presence of Mesozoic alkalic intrusives suggest that NE-trending faults and basins in the Lake Champlain Valley, the Taconic Mtn. border zones, and the upper Connecticut River Valley may have been active during the Mesozoic.

KEYWORDS: tectonics
structure

GEOGRAPHIC AREA: New England, Regional

867 P : MCHONE, J.G., AND TRYGSTAD, J.C., 1982, Mesozoic mafic dikes of southern Maine: Maine Geology, Bulletin No. 2, p. 16-32.

SUMMARY: Orientation, petrography, and geochemistry of Early Jurassic diabase dikes and Early Jurassic and later lamprophyre dikes are discussed. The dikes trend N 30°E (avg.), and the diabase dikes are considered alkali olivine basalts. A petrogenetic model is developed consistent with tectonic and magmatic processes.

KEYWORDS: diabase
geochemistry
petrology

GEOGRAPHIC AREA: New England

DATA: Chem. (type of data): diabase (major oxide, trace)
Photos: photomicrographs

868 T : MCINTOSH, W.C., 1976, Paleomagnetic reversals in the Newark Group, Brunswick Formation of eastern Pennsylvania and central New Jersey: Bachelor's Thesis, Princeton University, 78 p.

KEYWORDS: geophysics
paleomagnetism

GEOGRAPHIC AREA: Newark Basin, Pennsylvania, New Jersey

869 PM: MCKEE, E.D., AND OTHERS, 1959, Paleotectonic maps of the Triassic system: U.S. Geological Survey Miscellaneous Geologic Investigations Map I-300.

SUMMARY: A brief discussion of the regional characteristics of the East Coast basins is given. Maps (with sources of information provided) include: basement rock type, lithofacies of basin sediments, sediment thickness, lithologic units (detailed for Deep River, N.C., and Newark, Pa., basins) only.

KEYWORDS: general geology

GEOGRAPHIC AREA: Regional

MAPS: Geol: [1:100,000] (Deep River), [1:250,000] (Newark), (others) [1:5,000,000]

870 P : MCKEOWN, F.A., CHOQUETTE, P.W., AND BAKER, R.C., 1954, Uranium occurrences in Bucks County, Pennsylvania, and Hunterdon County, New Jersey: U.S. Geological Survey, Trace Elements Investigations Report 414, 36 p.

SUMMARY: Eleven uraniferous argillite (Lockatong Fm.) and five uraniferous sandstone (Stockton Fm.) occurrences are described. Argillite occurrences contain .010% uranium (avg.) and as much as .034%, are limited to strike lengths of from several hundred to several thousand feet, and are 1 to 6 feet in thickness. Sandstone occurrences are associated with pyrite, limonite, and feldspar alteration, are smaller in extent, but are higher in grade within zones rich in mud pellets.

KEYWORDS: economic geology
uranium

GEOGRAPHIC AREA: Newark Basin, Pennsylvania, New Jersey

MAPS: Section: measured (Stockton Fm.)
Misc: uranium locations [1:31,680]; Delaware Quarry [1:360]

871 P : MCKOWN, MERTON, 1948, Quartz crystal casts after anhydrite from Paterson, N.J.: Rocks and Minerals, v. 23, p. 406-407.

SUMMARY: Cavities within the Prospect Park basalt quarry yield quartz casts (up to 3 inches in length) after anhydrite.

KEYWORDS: basalt
mineralogy
zeolites

GEOGRAPHIC AREA: Newark Basin, New Jersey, Passaic Co., Paterson Quad.

872 P : MCLAUGHLIN, D.B., 1933, A note on the stratigraphy of the Brunswick Formation (Newark) in Pennsylvania: Michigan Academy of Science, Papers, v. 18, p. 421-435.

SUMMARY: Detailed geologic field studies of the black shale members in Bucks and Montgomery Counties revise earlier mapping and the nature of the shale members, which is here considered to be one of lateral continuity and not of a lenticular or fault-repetitive nature.

KEYWORDS: general geology
stratigraphy

GEOGRAPHIC AREA: Newark Basin, Pennsylvania

MAPS: Geol: sketches
Section: columnar sections

873 P : MCLAUGHLIN, DEAN B., 1932, The thickness of the Newark Series in Pennsylvania and the age of the border conglomerate: Michigan Academy of Science, Papers, v. 16, p. 421-427.

SUMMARY: Unlike J.K. Roberts' (1928) estimate of 2000 feet for the Culpeper Basin strata, a total thickness of over 20,000 feet is suggested for the eastern Pa. area and along the Delaware River section. The border conglomerates, as they chiefly occur within Brunswick units, are considered the youngest deposits in the basins, a fact in agreement with the work of Wherry (1913) and Stose (Fairfield-Gettysburg Folio).

KEYWORDS: general geology
sedimentation

GEOGRAPHIC AREA: Newark Basin, Pennsylvania

874 P : MCLAUGHLIN, DEAN B., 1939, A great alluvial fan in the Triassic of Pennsylvania: Michigan Academy of Science, Papers, v. 24, p. 59-74.

SUMMARY: Between the Gettysburg and Newark Basins, a large alluvial fan south of Reading deposited coarse quartzite-limestone gravel and arkosic sands whose source was derived from the north. Lateral deposition along the basin area away from this fan developed the finer Lockatong, Brunswick, and Gettysburg Formations.

KEYWORDS: general geology
sedimentation

GEOGRAPHIC AREA: Newark Basin, Gettysburg Basin, Pennsylvania

MAPS: Geol: sketches
Section: columnar sections

875 P : MCLAUGHLIN, DEAN B., 1941, The distribution of minor faults in the Triassic of Pennsylvania: Michigan Academy of Science, Papers, v. 27, p. 465-479.

SUMMARY: Minor faults cluster along major fault and fracture zones that cross the basin or that form the northern border. The Delaware River section reveals few dislocations, so that the effect of faults upon the previously calculated thicknesses is negligible.

KEYWORDS: structure
faults

GEOGRAPHIC AREA: Newark Basin, Pennsylvania

MAPS: Geol: sketches

876 P : MCLAUGHLIN, DEAN B., 1943, The Revere well and Triassic stratigraphy: Pennsylvania Academy of Science, Proceedings, v. 17, p. 104-110.

SUMMARY: The well (2084 feet in the Brunswick Fm.) along Rapp Creek at Revere, Pa., and studies of the outcrop patterns in the area reveal that the Brunswick Formation, which is interbedded with Lockatong gray beds, is not disturbed by faulting and that the well log and the outcrop sections of the Delaware River and the area around Revere correlate well. A regional stratigraphic column is developed.

KEYWORDS: general geology
stratigraphy

GEOGRAPHIC AREA: Newark Basin, Pennsylvania, Bucks Co., Riegelsville Quad.

MAPS: Geol: sketch
Section: stratigraphic (from Stockton, N.J. to Haycock Mtn., Pa.)

877 P : MCLAUGHLIN, DEAN B., 1944, Triassic stratigraphy in the Point Pleasant District, Pennsylvania: Pennsylvania Academy of Science, Proceedings, v. 18, p. 62-69.

SUMMARY: The geology of the Lockatong, Brunswick, and Stockton Formations is discussed in detail. Formations are divided into individual shale units based primarily on color.

KEYWORDS: general geology
stratigraphy

GEOGRAPHIC AREA: Newark Basin, Pennsylvania, Bucks Co., Lumberville Quad.

MAPS: Geol: sketches

878 P : MCLAUGHLIN, DEAN B., 1945, Type sections of the Stockton and Lockatong Formations: Pennsylvania Academy of Science, Proceedings, v. 19, p. 102-113.

SUMMARY: Exposures along the Delaware River reveal the sections of the two formations. The lower Stockton consists of gray arkose and conglomerate, red sandstone, and lesser amounts of shale. The upper Lockatong consists of red, gray, and black argillites and limestone. No faults in the formations are present north of Lumberville.

KEYWORDS: general geology
stratigraphy

GEOGRAPHIC AREA: Newark Basin, New Jersey, Pennsylvania, Bucks Co., Hunterdon Co.

MAPS: Geol: sketch (Delaware River area)
Section: type section

879 P : MCLAUGHLIN, DEAN B., 1946, Continuity of strata in the Newark Series: Michigan Academy of Science, Papers, v. 32, p. 295-303.

SUMMARY: Extensive continuity of the dark shale members of the Lockatong and Brunswick Fms. and the lesser lateral continuity of Stockton and red Brunswick beds indicates that deposition of the former was characterized by regional lacustrine quiessence, while the latter was characterized by more turbulant deposition.

KEYWORDS: general geology
sedimentation

GEOGRAPHIC AREA: Newark Basin, Pennsylvania, New Jersey

MAPS: Section: columnar sections

880 P : MCLAUGHLIN, DEAN B., 1946, The Triassic rocks of the Hunterdon Plateau, New Jersey: Pennsylvania Academy of Science, Proceedings, v. 20, p. 89-98.

SUMMARY: A detailed discussion of the geology of this synformally warped area of western Hunterdon County is presented. The Brunswick and Lockatong Formations occur.

KEYWORDS: general geology
structure

GEOGRAPHIC AREA: Newark Basin, New Jersey, Hunterdon Co.

MAPS: Geol: sketches

881 P : MCLAUGHLIN, DEAN B., 1950, A suggested correlation of Triassic areas of the Eastern United States: Pennsylvania Academy of Science, Proceedings, v. 24, p. 161-169.

SUMMARY: Consideration of the similar geologic history of sedimentation in the Newark Basins results in correlation among the basins. Several correlation tables are presented. Equivalence is drawn between the three lava flows of N.J. and Conn., Richmond coal and Stockton Formation, and New Oxford Formation and Manassas Formation, to name a few. Evidence is based partly on paleontology.

KEYWORDS: general geology
stratigraphy

GEOGRAPHIC AREA: Regional

882 A : MCLAUGHLIN, DEAN B., 1953, Triassic Basin in Pennsylvania and New Jersey: Geological Society of America, Bulletin, v. 64, p. 1452-1453.

SUMMARY: The pre-Triassic basin floor had relief of several thousand feet. Faults with most movement occurring before the end of deposition form only parts of the NW border, and sediments accumulated against the escarpment. Elsewhere sediments overlapped on the pre-Triassic. The pre-Triassic floor developed by erosion of weaker Paleozoic shales and carbonates (see R.T. Faill).

KEYWORDS: structure
sedimentation

GEOGRAPHIC AREA: Newark Basin, New Jersey, Pennsylvania

883 A : MCLAUGHLIN, DEAN B., 1957, Triassic alluvial fans in Pennsylvania: Geological Society of America, Bulletin, v. 68, p. 1765-1766.

SUMMARY: Between the Brunswick and Gettysburg shale units, coarse conglomerates and sandstones occur southeast of Reading and along Furnace Ridge south of Lebanon. These units are 5000 and 2300 feet thick respectively, and occur in the Upper and Lower Gettysburg Fm. within the narrow area of the Pennsylvania Triassic. These units were derived from the north and define local provenance reflecting erosion of adjacent Paleozoic rocks.

KEYWORDS: sedimentation

GEOGRAPHIC AREA: Newark Basin, Gettysburg Basin, Pennsylvania

884 P : MCLAUGHLIN, DEAN B., 1958, Triassic north border near South Mountain: Pennsylvania Academy of Science, Proceedings, v. 32, p. 151-155.

SUMMARY: A northern border fault at the base of the Precambrian South Mountain is suggested by the distribution and composition of conglomerate and the occurrence of slickensided and silicified Triassic rocks. Faulting extends from Kleinfeltersville, where the Martinsburg Formation is adjacent to the Triassic, to Fritztown, where Hardystown quartzite is adjacent. East of Fritztown, diabase may occupy a possible border fault. Elsewhere, evidence for faulting is lacking.

KEYWORDS: structure
faults

GEOGRAPHIC AREA: Gettysburg Basin, Pennsylvania, Lancaster Co., Berks Co., Lebanon Co.

MAPS: Geol: sketch

885 F : MCLAUGHLIN, DEAN B., 1960, Notes on the New Oxford Formation and the limestone conglomerate at Conoy Creek: 25th Annual Field Conference of Pennsylvania Geologists, Guidebook, p. 84-88.

SUMMARY: The New Oxford Formation consists chiefly of arkoses best seen in Lancaster County. Near Bainbridge (Lancaster Co.) and Mount Wolf (York Co.) several of the larger exposures of limestone conglomerates occur. These conglomerates often exhibit crude sorting and stratification and are associated with arkose and quartz conglomerate.

KEYWORDS: general geology

GEOGRAPHIC AREA: Gettysburg Basin, Pennsylvania, York Co., Lancaster Co., York Haven Quad.

MAPS: Geol: sketch

886 P : MCLAUGHLIN, DEAN B., 1961, Some features of the Triassic north border in Pennsylvania: Pennsylvania Academy of Science, Proceedings, v. 35, p. 124-128.

SUMMARY: This report describes exposures at the Greshville Quarry (Berks County), the Big Dam Quarry southeast of Reading, the Harrisburg West Shore interchange of the Pa. Turnpike in eastern Cumberland County, and the York Springs Quarry in NE Adams County. All show no evidence of border faulting at the contact between the Triassic and the Paleozoic. "New" areas of limestone conglomerate are described from Yellow Breeches Creek area, York County.

KEYWORDS: structure
faults
general geology

GEOGRAPHIC AREA: Newark Basin, Gettysburg Basin, Pennsylvania

887 P : MCLAUGHLIN, DEAN B., 1963, Newly recognized folding in the Triassic of Pennsylvania: Pennsylvania Academy of Science, Proceedings, v. 37, p. 156-159.

SUMMARY: A syncline and corresponding anticline transected by a branching fault occur near Vinemont and within conglomerates and sandstones of the Gettysburg Formation. Folding may have been caused by diabase intrusion or regional tilting against the northern border fault.

KEYWORDS: structure

GEOGRAPHIC AREA: Newark Basin, Pennsylvania, Berks Co., Sinking Spring Quad.

MAPS: Geol: local geology and structure

888 P : MCLAUGHLIN, DEAN B., AND GERHARD, ROBERT C., 1953, Stratigraphy and origin of Triassic fluviatile sediments, Lebanon and Lancaster Counties: Pennsylvania Academy of Science, Proceedings, v. 27, p. 136-142.

SUMMARY: The narrow region between the Newark and Gettysburg basins is characterized by steep dips (50°) to the north, and is composed of the lower New Oxford subarkoses and the upper Gettysburg sandstones. Studies of sedimentary structures and mineralogy indicate the former was derived from southern igneous and metamorphic (feldspathic) rocks, while the latter was derived from northern sedimentary rocks.

KEYWORDS: sedimentation
stratigraphy
general geology

GEOGRAPHIC AREA: Newark Basin, Gettysburg Basin, Pennnsylvania, Lebanon Co., Lancaster Co.

MAPS: Geol: sketch
Section: stratigraphic (Hammer Creek section)

889 P : MCLAUGHLIN, DEAN B., AND WILLARD, BRADFORD, 1949, Triassic facies in the Delaware Valley: Pennsylvania Academy of Science, Proceedings, v. 23, p. 34-44.

SUMMARY: Studies of the Stockton, Lockatong, and Brunswick Formations indicate that the three do not represent distinct formations deposited successively, but are in part contemporaneous.

KEYWORDS: sedimentation
stratigraphy
general geology

GEOGRAPHIC AREA: Newark Basin

MAPS: Geol: sketch of Hunterdon area, N.J.

890 P : MEDICI, JOHN C., 1972, Minerals of the Fairfax Quarry, Centerville, Virginia: Mineralogical Record, v. 3, p. 173-179.

SUMMARY: A description is given of a prehnite tube or tunnel associated with a fault in the diabase. Prehnite, apophyllite, as well as rare copper-bismuth sulfides, native silver, and other zeolites were found in this occurrence.

KEYWORDS: diabase
mineralogy
zeolites

GEOGRAPHIC AREA: Culpeper Basin, Virginia, Fairfax Co., Manassas Quad.

DATA: Photos: mineral specimens

891 M : MEUSCHKE, J.L., AND ZANDLE, G.L., 1963, Aeromagnetic map of the Greenfield Quadrangle, Franklin County, Massachusetts: U.S. Geological Survey, Map GP-432.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Deerfield Basin, Massachusetts

MAPS: Geophys: aeromagnetism [1:24,000]

892 M : MEUSCHKE, J.L., AND ZANDLE, G.L., 1963, Aeromagnetic map of the Shelburne Falls Quadrangle, Franklin County, Massachusetts: U.S. Geological Survey, Map GP-438.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Deerfield Basin, Massachusetts

MAPS: Geophys: aeromagnetism [1:24,000]

893 P : MEYER, GERALD, 1958, The water resources of Carroll and Frederick Counties: Maryland Department of Geology, Mines, and Water Resources, Bulletin 22, 355 p.

SUMMARY: The water-bearing properties of the lower-eastern, arkosic New Oxford Formation and the upper-western Gettysburg shale are outlined. Data from 169 wells are presented and indicate that average yield is 11 gallons per minute and increases with depth. The New Oxford water is softer (58 ppm) than the Gettysburg (230 ppm). Both waters are of the calcium magnesium bicarbonate type.

KEYWORDS: hydrology
general geology

GEOGRAPHIC AREA: Gettysburg Basin, Maryland, Frederick Co., Carroll Co.

MAPS: Geol: sketch (no topography)
Misc: well locations [1:62,500]

DATA: Chem. (type of data): water

894 T : MEYERTONS, C.T., 1959, The geology of the Danville Triassic Basin of Virginia: Ph.D. Thesis, Virginia Polytechnic Institute, 188 p.

KEYWORDS: general geology

GEOGRAPHIC AREA: Danville Basin, Virginia

895 PM: MEYERTONS, CARL THEILE, 1963, Triassic formations of the Danville Basin: Virginia Division of Mineral Resources, Report of Investigations 6, 65 p.

SUMMARY: The basin's stratigraphy and general geology are described. A lower Leakesville Formation consists of intertongueing black to gray shales (Cow Branch mb.) and red shales and conglomerates (Cascade Station mb.). A middle Dry Fork Formation consists of arkoses and graywackes; and the uppermost Cedar Forest Formation of red shale and conglomerate. The normal Chatham fault borders the basin to the west with beds dipping west.

KEYWORDS: general geology
stratigraphy
structure
faults
sedimentation

GEOGRAPHIC AREA: Danville Basin, Virginia

MAPS: Geol: [1:62,500]
Section: formation type sections

DATA: Photos: photomicrographs, outcrops
Plots: sediment mineralogy

896 PM: MIKAMI, H.M., AND DIGMAN, R.E., 1957, Bedrock geology of the Guilford 15-minute Quadrangle and a portion of the New Haven Quadrangle: Connecticut Geological and Natural History Survey, Bulletin 86, 99 p.

SUMMARY: This area covers the SE corner of the basin and contains the Meriden Formation (red shales and limestone) and the Portland Arkose. Fanglomerates occur adjacent to the border fault. Exposures of the Holyoke and Hampden Basalts as well as the Talcott Basaltic tuff are present in the area. The structure of the area is outlined, and dips increase toward the border fault. Basalts are considered to have overlapped onto pre-Triassic rocks.

KEYWORDS: general geology
structure

GEOGRAPHIC AREA: Hartford Basin, Connecticut, New Haven Co., Middlesex Co., Branford Quad., Guilford Quad., Durham Quad.

MAPS: Geol: [1:63,360]
Section: structure sections
Misc: [1:126,720] structure; cobble size in fanglomerate; joints

897 P : MILLER, B.L., 1924, Lead and zinc ores of Pennsylvania: Pennsylvania Geological Survey, Fourth Series, Bulletin M5, 91 p.

SUMMARY: The lead-zinc veins along the southern edge of the basin in Chester and Bucks Counties are described. The veins consist of argentiferous galena, sphalerite and secondary lead-zinc minerals within a gangue of quartz, carbonate, and barite. The veins are considered Triassic or post-Triassic in age, as they transect Triassic and Paleozoic rocks.

KEYWORDS: economic geology
lead
zinc
silver

GEOGRAPHIC AREA: Newark Basin, Pennsylvania

898 PM: MILLER, BENJAMIN LEROY, 1939, Northampton County, Pennsylvania: Pennsylvania Geological Survey, Fourth Series, Bulletin C 48, 496 p.

SUMMARY: The Brunswick Formation occurs along the northern edge of the basin in the extreme southern area of the county and consists of a coarse, quartzite and limestone conglomerate that is considered to rest unconformably on Paleozoic rocks to the north. Malachite staining of the conglomerate occurs at two localities that are not immediately adjacent to diabase.

KEYWORDS: general geology
economic geology
copper

GEOGRAPHIC AREA: Newark Basin, Pennsylvania, Northampton County, Hellertown Quad.

MAPS: Geol: [1:62,500]

899 PM: MILLER, BENJAMIN LEROY, 1941, Lehigh County, Pennsylvania: Pennsylvania Geological Survey, 4th Series, Bulletin C39, 492 p.

SUMMARY: The Brunswick Formation of the Newark group forms the north edge of the Newark Basin in southernmost Lehigh County. Conglomerates, composed of limestone and sandstone fragments in red clay matrix, dominate with only local shale present at Coopersburg. There is no evidence for border faulting. Several diabase dikes occur and, enigmatically, do not alter the adjacent calcareous conglomerate.

KEYWORDS: general geology

GEOGRAPHIC AREA: Newark Basin, Pennsylvania, Lehigh Co.

MAPS: Geol: [1:62,500]

900 P : MILLER, W.J., 1921, The geological history of the Connecticut Valley of Massachusetts; a popular account of its rocks and origin: Northampton, Massachusetts, The Hampshire Bookshop, 74 p.

KEYWORDS: general geology

GEOGRAPHIC AREA: Hartford Basin, Massachusetts

901 P : MILTON, CHARLES, 1947, Diabase dikes of the Franklin Furnace, New Jersey, Quadrangle: Journal of Geology, v. 55, p. 522-526.

SUMMARY: Four dikes intruding Paleozoic gneiss are shown by petrography and chemistry to be diabase dikes, unlike the other dike rocks of the quadrangle. They are considered Triassic in age. Three of the dikes are quartz-normative, and one is olivine-normative. Field relations are discussed.

KEYWORDS: general geology
diabase

GEOGRAPHIC AREA: New Jersey, Sussex County

MAPS: Geol: sketch

DATA: Chem. (type of data): major oxides

902 P : MILTON, CHARLES, AND HURST, VERNON J., 1965, Subsurface basement rocks of Georgia: Georgia Geological Survey, Bulletin 76, 56 p.

SUMMARY: A review is presented of the known wells that have penetrated basement rocks beneath the Coastal Plain. Many of these are apparently intersecting Triassic rocks. (This is primarily a review of previous literature, and presents no new well data.)

KEYWORDS: buried basins

GEOGRAPHIC AREA: Georgia

903 F : MILTON, DANIEL J., 1980, A cataclastic zone associated with the Davie County Triassic Basin: in, Price, V., Jr., and others, eds., Carolina Geological Society Field Trip Guidebook, 1980, Trip IX, 10 p.

SUMMARY: The petrographic characteristics of the cataclastic zone, which occurs NE and SW of the basin and marks the boundary between the Charlotte and Inner Piedmont Belts as well as the Charlotte and Sauratown Mtns. anticlinorium, are outlined. This greenschist facies mylonitic zone passes generally beneath the basin and contrasts with the higher regional metamorphic grade of the pre-Triassic rocks. Gold deposits may occur along this zone of cataclasis.

KEYWORDS: structure
faults
economic geology
gold

GEOGRAPHIC AREA: Davie County Basin, Dan River Basin, North Carolina

MAPS: Geol: sketch

DATA: Photos: photomicrographs

904 A : MOLNAR, PETER H., AND PAGE, ROBERT A., 1968, Seismicity in the vicinity of the Ramapo Fault, New Jersey-New York: Earthquake Notes, v. 39, p. 8.

SUMMARY: Since 1962, 4 small earthquakes have occurred along this border fault of the Newark Basin near the New York-New Jersey border. The seismograph recording was conducted by the Lamont Geological Observatory.

KEYWORDS: geophysics
seismic profiles
structure
faults

GEOGRAPHIC AREA: Newark Basin, New Jersey, New York

905 P : MOODY, C.L., 1949, Mesozoic igneous rocks of Northern Gulf Coastal Plain: American Association of Petroleum Geologists, v. 33, p. 1410-1428.

SUMMARY: Studies of igneous rocks from wells in Louisiana, Arkansas, and Mississippi reveal a variety of magma types characterized by both basaltic (Triassic) and alkalic and basaltic (Cretaceous) episodes. Descriptions of the rock types and well locations are given.

KEYWORDS: buried basins
basalt
geochemistry
petrology

GEOGRAPHIC AREA: Mississippi embayment

MAPS: Misc: well locations w/rock type

DATA: Chem. (type of data): major oxide

906 T : MOONEY, JOHN, 1980, The origin and diagenetic history of a Mesozoic carbonate hot spring deposit, Coe's Quarry, North Branford, Connecticut: M.S. Thesis, University of Connecticut.

KEYWORDS: general geology
sedimentation

GEOGRAPHIC AREA: Hartford Basin, Connecticut, New Haven Co.

907 A : MOONEY, JOHN, STEINEN, RANDOLPH, AND GRAY, NORMAN, 1984, A Mesozoic carbonate hot spring deposit, Coe's Quarry, North Branford, Connecticut: Geological Society of America, Abstracts with Programs, v. 16, no. 1, p. 52.

SUMMARY: A Mesozoic carbonate deposit in the Hartford Basin, Connecticut, containing tufa, travertine, and chalcedony, is interpreted as a hot spring deposit.

KEYWORDS: sedimentation

GEOGRAPHIC AREA: Hartford Basin, Connecticut

908 P : MORGAN, FRENCH, 1951, Minerals of the Arlington trap rock quarry in Goose Creek, Loudoun County, Virginia: Rocks and Minerals, v. 26, p. 339-343.

SUMMARY: A list and brief descriptions of the minerals are given. They occur primarily in joints within the diabase. Minerals include: apophyllite, babingtonite, byssolite, chabazite, prehnite, and laumontite.

KEYWORDS: diabase
mineralogy
zeolites

GEOGRAPHIC AREA: Culpeper Basin, Virginia, Loudoun Co., Leesburg Quad.

MAPS: Misc: sketch of quarry location

909 P : MORGAN, PAUL, AND BAKER, BRIAN H., ED., 1983, Processes of continental rifting: Tectonophysics, v. 94, no. 1-4, 680 p.

SUMMARY: This special issue presents articles concerning the mechanics, geophysical and geochemical constraints, mineral resources, and tectonic evolution of ancient and modern continental rift systems.

KEYWORDS: tectonics
geophysics

GEOGRAPHIC AREA: Regional

910 A : MORNINGSTAR, HELEN, 1916, The origin of the Newark Series in the Philadelphia District: Science, v. 43, p. 395-396.

SUMMARY: A railroad exposure at Bridgeport reveals the Stockton Formation. It consists of lens-shaped masses of conglomerate within beds of red and gray sandstone. A thin (few inches) carbonaceous black shale occurs. Decomposed feldspar is abundant. A semi-arid, terrestrial, fluviatile origin is attributed to these sediments and is considered similar to current sedimentation in the Valley of California.

KEYWORDS: general geology
sedimentation

GEOGRAPHIC AREA: Newark Basin, Pennsylvania, Montgomery Co., Norristown Quad.

911 P : MUNDORFF, M.J., 1948, Geology and ground water in the Greensboro area, North Carolina: North Carolina Department of Conservation and Development, Bulletin 55, 108 p.

SUMMARY: The general geology (stratigraphy and structure) of the Dan River Basin is outlined, and hydrologic properties and well information are provided. Water is moderately hard, but the Triassic rocks are "one of the better acquifers" in the Greensboro area.

KEYWORDS: hydrology

GEOGRAPHIC AREA: Dan River Basin, North Carolina

MAPS: Misc: well locations

912 P : MURRAY, GROVER, 1937, Durham Triassic Basin: Compass, v. 17, p. 214-223.

SUMMARY: The general geology of the basin is outlined. Arkosic sandstone, conglomerate, and red to gray sandstone and shale dominate. Conglomerates occur near the basin edges, deposits become more calcareous with depth, and carbonaceous shales occur and contain fossils (listed). The southeast border is represented by a series of step-faults.

KEYWORDS: general geology
structure

GEOGRAPHIC AREA: Durham Basin, North Carolina

DATA: Photos: outcrops

N

913 M : NELSON, A.E., AND FORCE, L.M., 1976, Preliminary geologic map of the Coastal Plain and the Triassic lowland of Fairfax County, Virginia: U.S. Geological Survey Open-File Report 76-312.

KEYWORDS: general geology

GEOGRAPHIC AREA: Culpeper Basin, Virginia

MAPS: Geol: [1:48,000]

914 A : NELSON, BRUCE W., 1956, Mineralogy of sediments from the Virginia Triassic: Virginia Journal of Science, v. 7, p. 325.

SUMMARY: The sediments of the Culpeper Basin are considered arkosic with calcite cement and a hematitic clay fraction. No kaolinite is found, but illite and chlorite occur with quartz, feldspar, and mica as major constituents.

KEYWORDS: sediments
mineralogy

GEOGRAPHIC AREA: Culpeper Basin, Virginia

915 P : NELSON, ROBERT H., 1964, Coal in basalt at Rocky Hill, Connecticut: Rocks and Minerals, v. 39, p. 461.

SUMMARY: At the Wethersfield-Rocky Hill exit of Route 9, coal occurs in a limestone block within a basalt flow. Calcite and pyrite also occur as veins in the limestone. The coal is thought to have formed through thermal metamorphism of a swamp by the engulfing lava.

KEYWORDS: general geology
basalt
economic geology
coal

GEOGRAPHIC AREA: Hartford Basin, Connecticut, Hartford Co., Hartford South Quad.

916 P : NELSON, ROBERT H., 1965, New locality for dinosaur tracks in Connecticut: Rocks and Minerals, v. 40, p. 5-7.

SUMMARY: Dinosaur species are recognized from footprints in a micaceous red sandstone interbeded with shale southeast of a NE-trending fault at the intersection of Routes 3 and 160 at Rocky Hill.

KEYWORDS: paleontology

GEOGRAPHIC AREA: Hartford Basin, Connecticut, Hartford Co., Hartford South Quad.

DATA: Photos: outcrops

917 PM: NELSON, WILBUR A., 1962, Geology and mineral resources of Albemarle County: Virginia Division of Mineral Resources, Bulletin 77, 92 p.

SUMMARY: The northern area of the Scottsville Basin and the southern tip of the Barboursville Basin are mapped. The Scottsville Basin is bordered by normal faults to the east, west, and northwest. Sediments consist of (from lowest): poorly sorted red sandstone (eastern), a boulder fanglomerate composed of Catoctin Formation fragments (western), and a western red, gray, and green siltstone. Diabase dikes are present throughout the county.

KEYWORDS: general geology

GEOGRAPHIC AREA: Scottsville Basin, Barboursville Basin, Virginia, Albemarle County

MAPS: Geol: [1:62,500]

918 P : NEUMANN, G.L., 1947, Investigation of the Dillsburg magnetite deposits, York County, Pennsylvania: U.S. Bureau of Mines, Report of Investigations 4145, 7 p.

SUMMARY: Magnetite deposits occur in limestone conglomerate between two diabase sheets. Pyrite and chalcopyrite as well as cobalt are present in the ore. Mine descriptions are given. A magnetic survey of the area is conducted. Iron content in cores is presented.

KEYWORDS: economic geology
iron

GEOGRAPHIC AREA: Gettysburg Basin, Pennsylvania, York Co., Dillsburg Quad.

DATA: Chem. (type of data): ore

919 M : NEUSCHEL, S.K., 1965, Natural gamma aeroradioactivity of the District of Columbia and parts of Maryland, Virginia, and West Virginia: U.S. Geological Survey, Geophysical Investigations Map GP-475.

KEYWORDS: geophysics
aeroradioactivity

GEOGRAPHIC AREA: Culpeper Basin, Virginia, Maryland

MAPS: Geophys: aeroradioactivity [1:125,000]

920 P : NEWBURRY, JOHN S., 1888, Fossil fishes and fossil plants of the Triassic rocks of New Jersey and the Connecticut Valley: U.S. Geological Survey Memoir 14, 152 p.

SUMMARY: Photographs accompany detailed descriptions of the fossil fish and plant species. A brief introductory discussion considers the historical development of ideas concerning the correlation and age of the Triassic rocks.

KEYWORDS: paleontology

GEOGRAPHIC AREA: Hartford Basin, Connecticut, Newark Basin, New Jersey

921 P : NEWELL, F.H., 1889, Richmond coal field, Virginia: Geological Magazine, Decade III, v. 6, p. 138-140.

SUMMARY: It is suggested that, unlike other opinions, the coal beds of the basin were deposited uniformly and horizontally and were later tilted and folded. Deposition did not take place in a previously developed basin with irregularity of depth.

KEYWORDS: general geology
economic geology
coal

GEOGRAPHIC AREA: Richmond Basin, Virginia

922 P : NEWHOUSE, W.H., 1933, Mineral zoning in the New Jersey-Pennsylvania-New Jersey Triassic area: Economic Geology, v. 28, p. 613-633.

SUMMARY: The magnetite-copper sulfide Cornwall-type deposits of Pennsylvania are considered to be related to hydrothermal solutions associated with diabase along faults. The presence of limestone is not considered an important factor. Copper-rich deposits in N.J. and Va. formed at lower temperature, and had a primary, deep hydrothermal source that was of lower temperature, perhaps due to the Triassic erosional surface.

KEYWORDS: economic geology
iron
copper

GEOGRAPHIC AREA: Newark Basin, Gettysburg Basin, Culpeper Basin, New Jersey, Pennsylvania, Virginia

923 P : NICHOLS, WILLIAM D., 1968, Ground-water resources of Essex County, New Jersey: New Jersey Division of Water Policy and Supply, Special Report 28, 56 p.

SUMMARY: A description of the water-bearing properties of the Brunswick Fm. and the Watchung basalt is given. Wells in the former average 364 gpm yield, while the latter averages 116 gpm. The most productive zones in the Brunswick shale are between depths of 300 and 400 feet.

KEYWORDS: hydrology

GEOGRAPHIC AREA: Newark Basin, New Jersey, Essex Co.

MAPS: Geol: bedrock topography and geology
Misc: piezometric contours; well locations

DATA: Chem. (type of data): water (incl. pH)
Plots: specific capacity

924 P : NUTTER, L.J., 1975, Hydrogeology of the Triassic rocks of Maryland: Maryland Geological Survey, Report of Investigations No. 26, 20 p.

SUMMARY: Water chemistry and supply from numerous wells in the Triassic are presented. Limestone conglomerate yields the greatest supply of water. The geology and distribution of the New Oxford and Gettysburg Formations are outlined. Water is generally of good quality; however, iron, manganese, and especially nitrate are highly concentrated.

KEYWORDS: hydrology
general geology

GEOGRAPHIC AREA: Culpeper Basin, Gettysburg Basin, Maryland

MAPS: Geol: sketch
Misc: well locations

DATA: Chem. (type of data): water

O

925 P : OLDALE, ROBERT N., 1962, Sedimentary rocks of Triassic age in Northeastern Massachusetts: U.S. Geological Survey Professional Paper 450-C, p. C31-C32.

SUMMARY: Unmetamorphosed red arkose, conglomerate, and shale are found in the northwest area of the Salem Quadrangle and within the glacial till cover. Directions of glacial movement indicate that the fragments were derived from a nearby source just to the NW of the area. Petrographically, the rocks more closely resemble those of the Connecticut Valley.

KEYWORDS: general geology
buried basins

GEOGRAPHIC AREA: Massachusetts

MAPS: Misc: sample locations

926 T : OLSEN, P.E., 1984, Comparative paleolimnology of the Newark Supergroup: a study of ecosystem evolution: Ph.D. Thesis, Yale University, 726 p.

KEYWORDS: sedimentation
paleontology
stratigraphy
climate

GEOGRAPHIC AREA: Regional

927 P : OLSEN, P.E., 1984, Periodicity of lake-level cycles in the Late Triassic Lockatong Formation of the Newark Basin (Newark Supergroup, New Jersey and Pennsylvania): in, Berger, A., Imbrie, J., Hays, J., Kukla, G., and Saltzman, B., eds., Milankovitch and climate, NATO Symposium: Dordrecht, D. Reidel Publishing Co., Part 1, p. 129-146.

KEYWORDS: sedimentation
climate

GEOGRAPHIC AREA: Newark Basin, New Jersey, Newark Basin, Pennsylvania

928 P : OLSEN, PAUL E., 1980, A comparison of the vertebrate assemblages from the Newark and Hartford Basins (Early Mesozoic, Newark Supergroup) of eastern North America: in, Jacobs, L.L., ed., Aspects of Vertebrate History, Museum of Northern Arizona Press, Flagstaff, p. 35-53.

SUMMARY: Study of the vertebrate assemblages from the Stockton, Lockatong, and Passaic Fms. (Newark), the New Haven Arkose (Conn.), and the Early Jurassic Fms. indicates a general correlation between the major homotaxial lithologic divisions in the two basins. Details include: correlation of the New Haven and Passaic Fms., roughly contemporaneous basalt extrusion, and absence of Stockton and Lockatong time equivalents in the Hartford Basin.

KEYWORDS: paleontology

GEOGRAPHIC AREA: Hartford Basin, Connecticut, Newark Basin, New Jersey, Pennsylvania

MAPS: Section: stratigraphic columns

DATA: Photos: fossil sketches

929 F : OLSEN, PAUL E., 1980, Fossil Great Lakes of the Newark Supergroup in New Jersey: in, Manspeizer, W., ed., Field Studies of New Jersey Geology and Guide to Field Trips, New York State Geological Association, 52nd Annual Meeting, p. 352-398.

SUMMARY: The lacustrine cycles of the Lockatong, Feltville, and Towaco Formations are described. Fossil invertebrates are outlined and used as depositional indicators. Other topics include: lacustrine turbidites, fluvial and flood plain facies, climatic change, and comparative paleolimnology. Field stops are in the NE area of the basin in the vicinity of Rutgers, N.J.

KEYWORDS: paleontology
sedimentation
stratigraphy
general geology

GEOGRAPHIC AREA: Newark Basin, New Jersey

MAPS: Section: stratigraphic; cross sections

DATA: Photos: sedimentary cycles

930 F : OLSEN, PAUL E., 1980, Triassic and Jurassic formations of the Newark Basin: in, Manspeizer, W., ed., Field Studies of New Jersey Geology and Guide to Field Trips, New York State Geological Association, 52nd Annual Meeting, p. 2-39.

SUMMARY: A review is given of the Stockton, Lockatong, Passaic, Feltville, Towaco, and Boonton Formations. Type sections and fossil species are outlined. The former three formations are considered Middle and Late Carnian-Rhaetic, and the latter, Hettangian and Sinemurian. Field stops are along Route 80.

KEYWORDS: general geology
stratigraphy
paleontology

GEOGRAPHIC AREA: Newark Basin, New Jersey

MAPS: Section: stratigraphic

931 P : OLSEN, PAUL E., 1981, Comment and reply on "Eolian Dune Field of Late Triassic Age, Fundy Basin, Nova Scotia": Geology, v. 9, p. 557-559.

SUMMARY: A reinterpretation of the dunal stratigraphy in the NE Fundy Basin reveals that the Red Head and Clark Head sections are of different ages, the former Late Triassic, the latter Early Jurassic. This suggests that a trend in aridity from S to N existed not only in the Late Triassic, but in the Early Jurassic as well. (Based on the work of Hubert and Mertz, 1980.)

KEYWORDS: sedimentation

GEOGRAPHIC AREA: Maritime, Nova Scotia

MAPS: Section: stratigraphic

932 A : OLSEN, PAUL E., 1982, Lockatong Fm. detrital cycles (Late Triassic, Newark Basin, N.J. and Pa.), Great Lakes, and ecosystem efficiency: Geological Society of America, Abstracts with Programs, v. 14, p. 70.

SUMMARY: Black, microlaminated, deepest-lake siltstones have total organic carbonic (TOC) contents of (1.5-7.0%), while shallower red silt-stones have TOC values of 0-1.5%. This difference is attributed to ecosystem efficiency, being lowest in the black, non-bioturbated, high-TOC facies.

KEYWORDS: paleontology
sedimentation

GEOGRAPHIC AREA: Newark Basin, New Jersey, Pennsylvania

933 A : OLSEN, PAUL E., 1983, On the non-correlation of the Newark Supergroup by fossil fishes: biogeographic, structural and sedimentological implications: Geological Society of America, Abstracts with Programs, v. 15, p. 121.

SUMMARY: Discovery of the Semionotus tenuiceps group and the S. elegans group in the Culpeper Basin Waterfall Fm. suggests: a one-to-one correlation of the Jurassic Hartford and Newark Basin Fms., regional geographic barriers, and non-connection of the Newark and Hartford Basins. The similarity of the Feltville Fm. (Newark)-Shuttle Meadow Fm. (Hartford), and Towaco Fm. (Newark)-East Berlin Fm. (Hartford) is attributed to similar (regional) climatic and tectonic factors.

KEYWORDS: paleontology
stratigraphy
sedimentation
general geology

GEOGRAPHIC AREA: Regional

934 P : OLSEN, PAUL E., REMINGTON, CHARLES L., CORNET, BRUCE, AND THOMSON, KEITH S., 1978, Cyclic change in Late Triassic lacustrine communities: Science, v. 201, p. 729-733.

SUMMARY: Studies of the Dan River Group reveal the presence of abundant lacustrine aquatic reptiles, fishes, insects, crustaceans, and diverse flora. Cyclic changes in this flora and fauna correlate with sedimentary cycles affected by climatic fluctuation and tectonic activity, reflecting the development and extinction of meromictic lakes.

KEYWORDS: sedimentation
paleontology

GEOGRAPHIC AREA: Danville Basin, Virginia, Dan River Basin, North Carolina

935 P : OLSEN, PAUL ERIC, 1978, On the use of the term Newark for Triassic and Early Jurassic rocks of Eastern North America: Newsletters on Stratigraphy, v. 7, no. 2, p. 90-95.

SUMMARY: It is proposed that the rank of the term Newark be raised to supergroup to permit use of group names for individual basins and to conform better with the American Code of Stratigraphic Nomenclature (see Froelich and Olsen, 1984).

KEYWORDS: general geology
stratigraphy

GEOGRAPHIC AREA: Regional

936 P : OLSEN, PAUL ERIC, 1980, The latest Triassic and Early Jurassic formations of the Newark Basin (eastern North America, Newark Supergroup): stratigraphy, structure and correlation: New Jersey Academy of Science, Bulletin, v. 25, no. 2, p. 25-51.

SUMMARY: The Newark Basin stratigraphy is revised into nine formations (from base): Stockton, Lockatong, Passaic, Orange Mountain (basalt), Feltville, Preakness (basalt), Towaco, Hook Mountain (basalt), and Boonton. Lithologies, sedimentary cycles, and paleontology of these are discussed. Faulted and unconformable relationships occur along both basin margins, with greater fault movement on the NW border. Stockton, Lockatong, and lower Passaic Fms. are Late Triassic, while the upper Passaic Fm. is Early Jurassic.

KEYWORDS: general geology
stratigraphy
structure
paleontology

GEOGRAPHIC AREA: Newark Basin, Pennsylvania, New Jersey, New York

MAPS: Geol: sketches
Section: type sections, stratigraphic

937 A : OLSEN, PAUL ERIC, 1983, Relationship between biostratigraphic subdivisions and igneous activity in the Newark Supergroup: Geological Society of America, Abstracts with Programs, v. 15, p. 93.

SUMMARY: Study of the footprint and fish fossil zones and the igneous rocks that cut them reveal that basalts are interbedded with Early Jurassic sediments; sills intrude only Late Triassic sediments; apparent feeders to basalts and diabase dikes cut all zones. Further conclusions are: no evidence for pre-Early Jurassic igneous activity; in some basins, sedimentation continued after cessation of igneous activity; and some dikes post-date the extrusives.

KEYWORDS: paleontology
stratigraphy
general geology

GEOGRAPHIC AREA: Regional

938 A : OLSEN, PAUL ERIC, AND BAIRD, D., 1982, Early Jurassic vertebrate assemblages from the McCoy Brook Fm. of the Fundy Group (Newark Supergroup, Nova Scotia, Canada): Geological Society of America, Abstracts with Programs, v. 14, p. 70.

SUMMARY: Unlike previously recognized assemblages, vertebrates from the red eolian, fluvial, and lacustrine McCoy Brook Fm. are Early Jurassic in age and indicate that the Fm. is equivalent to the Scots Bay Fm. Further evidence: K/Ar ages of interfingering N. Mountain basalt, palynomorphs, footprints, and common reptile bones and hybodent teeth.

KEYWORDS: paleontology
stratigraphy

GEOGRAPHIC AREA: Maritime

939 P : OLSEN, PAUL ERIC, MCCUNE, AMY REED, AND THOMSON, KEITH STEWART, 1982, Correlation of the Early Mesozoic Newark Supergroup by vertebrates, principally fishes: American Journal of Science, v. 282, p. 1-44.

SUMMARY: Fossil fish, floral, and tetrapod evidence are used to develop five biostratigraphic zones that are related to Early Mesozoic sequences throughout the world. Basalt flows in the Newark rocks, while limited to the Hettangian and Sinemurian (Early Jurassic), cannot be correlated among the basins.

KEYWORDS: paleontology
stratigraphy
general geology

GEOGRAPHIC AREA: Regional

940 P : OPDYKE, N.D., 1961, The paleomagnetism of the New Jersey Triassic: a field study of the inclination error in red sediments: Journal of Geophysical Research, v. 66, no. 6, p. 1941-1949.

SUMMARY: Samples of red beds and basalt show no significant error in inclination of the bed beds as compared to the igneous rocks.

KEYWORDS: geophysics
paleomagnetism

GEOGRAPHIC AREA: Newark Basin, New Jersey

MAPS: Misc: sample locations

DATA: Plots: pole positions

941 T : ORLOWSKI, WAYNE, 1979, Paleogeomorphology and sedimentary analysis of the Brunswick Formation, New York Thruway, Rockland County, New York: M.S. Thesis, Rutgers University, 81 p.

KEYWORDS: sedimentation

GEOGRAPHIC AREA: Newark Basin, New York

942 T : OSBORNE, 1966, Portland Formation exposed in Broad Brook, north of Hartford: M.S. Thesis, University of Connecticut.

KEYWORDS: sediments
stratigraphy

GEOGRAPHIC AREA: Hartford Basin, Connecticut

943 F : OSTRUM, JOHN H., AND QUARRIER, SIDNEY S., 1968, The Rocky Hill dinosaurs: in, Orville, P.M., ed., Guidebook for Field Trips in Connecticut, New England Intercollegiate Geological Conference, 60th Meeting, Guidebook No. 2, Trip C-3, 12 p.

SUMMARY: An exposure of a bedding surface within the East Berlin Fm. arkose at Dinosaur State Park displays a great density of reptile footprints. A review of the species present and the nature of dinosaur life is outlined.

KEYWORDS: paleontology

GEOGRAPHIC AREA: Hartford Basin, Connecticut, Hartford, Hartford South

DATA: Photos: outcrops (tracks)

944 P : OTIS, L.D., 1952, Minerals and rocks of Springfield and vicinity: Springfield Museum of Natural History Bulletin, no. 9, 50 p.

KEYWORDS: diabase
basalt
mineralogy
zeolites

GEOGRAPHIC AREA: Hartford Basin, Massachusetts

945 M : OWENS, J.P., AND MINARD, J.P., 1964, Pre-quaternary geology of the Trenton East Quadrangle, New Jersey-Pennsylvania: U.S. Geological Survey, Geologic Quadrangle Map GQ-341.

KEYWORDS: general geology

GEOGRAPHIC AREA: Newark Basin, New Jersey, Mercer Co., Trenton East Quad.

MAPS: Geol: [1:24,000]

P

946 P : PAGE, ROBERT A., MOLNAR, PETER H., AND OLIVER, JACK, 1968, Seismicity in the vicinity of the Ramapo Fault, New Jersey-New York: Seismological Society of America, Bulletin, v. 58, p. 681-687.

SUMMARY: Four small earthquakes have occurred along the fault since 1962, and previous accounts of earthquakes indicate the zone has not been highly active since the Triassic. Published earthquake data are presented.

KEYWORDS: geophysics
seismic profiles
structure

GEOGRAPHIC AREA: Newark Basin, New Jersey, New York

MAPS: Geophys: epicenters

947 P : PALACHE, C., AND FRAPRIE, F.R., 1902, 1. Babingtonite from Somerville, Mass. 2. Babingtonite from Athol, Mass.: American Academy of Arts and Sciences, Proceedings, v. 38, p. 383-393.

SUMMARY: This is a brief description of the crystallography, chemistry and occurrence of babingtonite in association with prehnite in Mesozoic diabase at Somerville, Massachusetts.

KEYWORDS: diabase
mineralogy
zeolites

GEOGRAPHIC AREA: Massachusetts

948 P : PALACHE, CHARLES, 1936, Babingtonite and epidote from Westfield, Massachusetts: American Mineralogist, v. 21, p. 193, 652-655.

KEYWORDS: diabase
mineralogy

GEOGRAPHIC AREA: Hartford Basin, Massachusetts

949 P : PALACHE, CHARLES, AND GONYER, F.A., 1932, On babingtonite: American Mineralogist, v. 17, p. 295-303.

KEYWORDS: diabase
basalt
mineralogy

GEOGRAPHIC AREA: Hartford Basin, Massachusetts

950 T : PALMER, RICHARD B., 1949, Triassic tectonics in Maryland: Ph.D. Thesis, Johns Hopkins University, 50 p.

KEYWORDS: tectonics

GEOGRAPHIC AREA: Gettysburg Basin, Maryland

951 P : PAPENFUS, E.B., 1931, "Red bed" copper deposits in Nova Scotia and New Brunswick: Economic Geology, v. 26, p. 314-330.

SUMMARY: It is suggested that the copper sulfide deposits within Permian red beds in Cumberland County, Nova Scotia, owe their origin to copper emanated from the Triassic North Mountain basalt. Mineralization consists of pyrite and chalcocite nodules and replacements of carbonaceous and cementing material.

KEYWORDS: economic geology
copper

GEOGRAPHIC AREA: Maritime Province, Nova Scotia, New Brunswick, Canada

DATA: Photos: ore photomicrographs

952 A : PAPEZIK, V.S., 1983, Early Mesozoic basalt from the western part of the Bay of Fundy, Nova Scotia: chemistry, stratigraphy and origin: Geological Society of America, Abstracts with Programs, v. 15, p. 92.

SUMMARY: The SW part of the 190-200 m.y. old North Mountain basalt consists of, from base, a massive diabase (190 m); amygdaloidal, zeolite-rich basalt (50 m); and coarse diabase (160 m). The diabase units contain mafic pegmatite, are unaltered, and consist of bronzite, Mg-augite, and zoned plagioclase (An 57-75). The rock is a low-Ti quartz-normative tholeiite with relatively high MgO (9%) and Cr (370 ppm) indicating oceanic basalt affinity. Emplacement in the rift zone occurred with only minor crustal contamination.

KEYWORDS: petrology
diabase
basalt

GEOGRAPHIC AREA: Maritime Province, Nova Scotia, Canada

953 P : PAPEZIK, V.S., AND BARR, S.M., 1981, The Shelburne dike, an Early Mesozoic diabase dike in Nova Scotia: mineralogy, chemistry, and regional significance: Canadian Journal of Earth Sciences, v. 18, no. 8, p. 1341-1355.

SUMMARY: The petrography and mineral and bulk chemistry of the 140-km diabase dike in SW Nova Scotia are presented and indicate that it is a quartz-normative tholeiite characterized by a more advanced differentiation than the Avalon Peninsula dike.

KEYWORDS: geochemistry
petrology
mineralogy
petrology
diabase

GEOGRAPHIC AREA: Maritime Province, Nova Scotia, Canada

MAPS: Misc: sample locations

DATA: Chem. (type of data): major oxide, trace (bulk, pyroxene, plagioclase)
Plots: pyroxene composition; Ti-Zr-Y

954 P : PAPEZIK, V.S., AND HODYCH, J.P., 1980, Early Mesozoic diabase dikes of the Avalon Peninsula, Newfoundland: petrochemistry, mineralogy and origin: Canadian Journal of Earth Sciences, v. 17, no. 10, p. 1417-1430.

SUMMARY: The 110-km long diabase dike dated at 201 and 191 m.y. is a quartz-normative, high-Ti dolerite equivalent to the York Haven type (Smith et al., 1975) with a high-MgO content. Petrography and chemistry are outlined. The regional synthesis of the Early Mesozoic diabase dike swarms of the Appalachians is considered more complex than first postulated.

KEYWORDS: geochemistry
petrology
mineralogy
petrology
diabase

GEOGRAPHIC AREA: Maritime Province, Newfoundland, Canada

DATA: Chem. (type of data): major oxide, trace (bulk, pyroxene, olivine, palgioclase, talc, Fe-Ti oxides)
Plots: Ti-Zr-Y

955 P : PAPEZIK, V.S., HODYCH, J.P., AND GOODACRE, A.K., 1975, The Avalon magnetic lineament - a possible continuation of the Triassic dike system of New Brunswick and Nova Scotia: Canadian Journal of Earth Sciences, v. 12, p. 332-335.

SUMMARY: A magnetic lineament that cuts the Avalon Peninsula of Newfoundland is considered to represent the extension of the Early Mesozoic diabase dike system of the Appalachians, and, in particular, the Shelburne dike of Nova Scotia.

KEYWORDS: geophysics
aeromagnetism
general geology

GEOGRAPHIC AREA: Maritime Province, Nova Scotia, New Brunswick, Canada

MAPS: Geophys: aeromagnetic

956 P : PARK, YONG AHN, 1967, Petrography and depositional environments of the Triassic border conglomerates in New Jersey: Geological Society of Korea, Journal, v. 3, p. 36-50.

SUMMARY: Fanglomerates along the western margin of the Newark Basin are studied and shown to be derived from the Silurian Green Pond and Decker Formation, the Cambro-Ordovician Kittatinny Formation, and Precambrian crystalline rocks.

KEYWORDS: sedimentation

GEOGRAPHIC AREA: Newark Basin, New Jersey

MAPS: Misc: sample locations

DATA: Plots: petrographic data (sphericity, grain size)

957 A : PARKER, JOHN M., 1966, Triassic reptilian fossil from Wake County, North Carolina: Elisha Mitchell Scientific Society, Journal, v. 82, p. 92.

SUMMARY: A part of a pseudosuchian reptile was found in a quarry 2.5 miles south of Lowe's Grove in the western part of the County. The specimen came from a red to green arkosic sandstone that is interbedded in red mudstone.

KEYWORDS: paleontology

GEOGRAPHIC AREA: Durham Basin, North Carolina, Wake Co.

958 PM: PARKER, JOHN M., III, 1977, Geology and mineral resources of Wake County: North Carolina Geological Survey, Bulletin 86, 122 p.

SUMMARY: This eastern area of the basin is bounded by the Jonesboro fault (discussed in detail) and contains coarse fanglomerate against the fault, mudstone and sandstone further west, and a limestone, chert, and mudstone unit. The field relations, structure, and petrography of these units are discussed. A depositional model is developed based upon syndepositional faulting in which the western (Pekin), central (Cumnock), and eastern (Sanford) facies are time-stratigraphic equivalents filling a wedge-shaped half graben.

KEYWORDS: general geology
structure
faults
paleontology
sedimentation

GEOGRAPHIC AREA: Deep River Basin, North Carolina, Wake Co.

MAPS: Geol: [1:100,000]
Misc: diabase dikes (trend and thickness); Coastal Plain cover; Jonesboro Fault

959 PM: PARKER, P.E., 1968, Geologic investigation of the Lincoln and Bluemont Quadrangles, Virginia: Virginia Division of Mineral Resources, Report of Investigations 14, 23 p.

SUMMARY: The western, faulted-bounded edge of the basin occurs in the SE corner of the Lincoln quadrangle and is adjacent to the Weverton quartzite. Sandstones and conglomerates occur but are not described. Diabase dikes cut pre-Triassic rocks to the west.

KEYWORDS: general geology

GEOGRAPHIC AREA: Culpeper Basin, Virginia, Loudoun County, Lincoln Quad.

MAPS: Geol: [1:31,680]

960 P : PARNELL, J., 1983, Skeletal halites from the Jurassic of Massachusetts and their significance: Sedimentology, v. 30, p. 711-715.

SUMMARY: The presence of skeletal pseudomorphs after halite that occur within a black shale horizon of the Chicopee shale at the Holyoke Dam indicates that evaporation to dryness is not essential to the genesis of skeletal halite and that it may form in a subaqueous brine-saturated sediment.

KEYWORDS: sedimentation

GEOGRAPHIC AREA: Hartford Basin, Massachusetts

DATA: Photos: photomicrographs

961 A : PARROTT, WILLIAM T., 1949, An occurrence of natural asphalt in Prince William County, Virginia: Virginia Academy of Science, Proceedings for the Year 1948-1949, p. 134-135.

SUMMARY: A small occurrence of natural asphalt in Triassic conglomerate is found in a quarry at Routes 55 and 600. The asphalt occurs in cracks in the conglomerate, and may have been remobilized from overlying shales during faulting. Post-Triassic faulting may have volatilized the oil, leaving the asphalt.

KEYWORDS: economic geology
oil

GEOGRAPHIC AREA: Culpeper Basin, Virgina, Prince William Co.

962 A : PARROTT, WILLIAM T., 1954, An occurrence of zeolites in Fairfax County, Virginia: Virginia Journal of Science, v. 5, p. 308.

SUMMARY: A diabase quarry 1.5 miles south of Centreville revealed specimens of fibrous natrolite and crystalline thaumasite on massive prehnite.

KEYWORDS: diabase
mineralogy
zeolites

GEOGRAPHIC AREA: Culpeper Basin, Virginia, Fairfax Co., Manassas Quad.

963 T : PATTERSON, O.F., 1969, The depositional environment and paleoecology of the Pekin Formation of the Sanford Triassic Basin, North Carolina: M.S. Thesis, North Carolina State University.

KEYWORDS: sedimentation

GEOGRAPHIC AREA: Sanford Basin, North Carolina

964 P : PEARCE, T.H., 1970, Chemical variations in the Palisade Sill: Journal of Petrology, v. 11, p. 15-32.

SUMMARY: Variation diagrams and major element chemistry suggest crystal fractionation of olivine and pyroxene from a single, parent magma. Two trends may be present, one for the olivine-diabase, the other for the quartz-diabase. Al_2O_3, K_2O, TiO_2, and Na_2O are shown to be relatively constant through the differentiation.

KEYWORDS: geochemistry
petrology
mineralogy
diabase

GEOGRAPHIC AREA: Newark Basin, New Jersey

DATA: Chem. (type of data): major oxide
Plots: MgO vs. SiO_2, FeO vs. SiO_2, CaO vs. SiO_2, Na_2O vs. SiO_2, K_2O vs. SiO_2, TiO_2 vs. SiO_2

965 M : PEARRE, NANCY C., 1956, Mineral deposits and occurrences in Massachusetts and Rhode Island, exclusive of clay, sand, gravel, and peat: U.S. Geological Survey, Mineral Investigations Resource Map MR-4.

KEYWORDS: economic geology
copper
barite
zinc
lead

GEOGRAPHIC AREA: Massachusetts

MAPS: Misc: [1:500,000]

966 P : PEGAU, A.A., 1937, Mineralogy of the Virginia diabase: American Mineralogist, v. 22, p. 872-874.

SUMMARY: Diabase dikes intruding Triassic rocks contain the greatest number of minerals (38) attributed to proximity to the original source and hydrothermal action. Dikes intruding the Piedmont contain an intermediate number, while dikes in the Valley and Ridge Province contain the fewest minerals (18) attributed to fewer dikes in this group and greater distance from the "source." Minerals are listed. It is noted that, near the Roseland rutile area, diabase dikes there contain rutile, graphite, and pyrrhotite.

KEYWORDS: diabase
mineralogy

GEOGRAPHIC AREA: Virginia

967 A : PEGRAM, W.J., 1982, Pb and Nd isotopic variations in the Mesozoic Appalachian tholeiite province: Geological Society of America, Abstracts with Programs, v. 14, no. 7, p. 585.

SUMMARY: An isotopic model is developed which precludes a simple two-component mixing model relating all the tholeiites. Two sources are suggested. North Carolina olivine tholeiites reflect an old U/Pb enrichment followed by later U/Pb depletion (w.r.t. MORB). The rest of the early Mesozoic province was derived from a source which had a higher time-averaged U/Pb and Sm/Nd.

KEYWORDS: diabase
geochemistry
isotopes

GEOGRAPHIC AREA: Regional

968 A : PEGRAM, W.J., 1983, Isotopic characteristics of the Mesozoic Appalachian tholeiites: Geological Society of America, Abstracts with Programs, v. 15, no. 6, p. 660.

SUMMARY: A reinterpretation of magma types is presented, and five types are recognized: (1) low-LIL olivine tholeiites, (2) high-LIL olivine tholeiites, (3) high-Ti quartz tholeiites, (4) low-Ti quartz tholeiites, and (5) alkalai olivine diabases. The latter are present in New England. Petrogenetic trends, geographic distribution, and ages of these groups are outlined.

KEYWORDS: diabase
geochemistry
isotopes

GEOGRAPHIC AREA: Regional

969 M : PEPER, JOHN D., 1977, Bedrock geology of the Hampden Quadrangle: U.S. Geological Survey, Geologic Quadrangle Map GQ-1368.

KEYWORDS: general geology
economic geology
copper

GEOGRAPHIC AREA: Hartford Basin, Connecticut, Massachusetts, Tolland Co. (Conn.), Hampden Co. (Mass.)

MAPS: Geol: [1:24,000]

970 P : PERCIVAL, J.G., 1822, Notice of the locality of sulphate of barytes: American Journal of Science, v. 5, p. 42-45.

SUMMARY: A description is given of a two- to three-foot wide barite vein within basalt near its contact with red sandstone. Galena and sphalerite occur in veins just to the north of the barite. Veins containing quartz and coal fragments also occur. The locality is given as "half a mile west of Kensington meeting-house" in Berlin. (Refer to Hanshaw, P.M., 1968, U.S.G.S. Geologic Quadrangle Map 738.)

KEYWORDS: economic geology
lead
zinc
barite
coal

GEOGRAPHIC AREA: Hartford Basin, Massachusetts, Hartford Co., Meriden Quad.

971 P : PERCIVAL, J.G., 1842, Report on the geology of the State of Connecticut: New Haven, Connecticut, Published by the State, 495 p.

KEYWORDS: general geology

GEOGRAPHIC AREA: Hartford Basin, Connecticut

972 T : PERKINS, R.E., 1981, Sedimentology of the Upper Triassic redbeds of King's County, Nova Scotia: M.S. Thesis, University of Massachusetts.

KEYWORDS: sedimentation

GEOGRAPHIC AREA: Maritime

973 PM: PERLMUTTER, NATHANIEL M., 1959, Geology and ground-water resources of Rockland County, New York: New York State Department of Conservation, Water Power and Control Commission, Bulletin GW-42, 133 p.

SUMMARY: The northern Newark Basin area consists chiefly of west-dipping, red and brown shale, sandstone, and conglomerate of the Brunswick Fm. and arkose of the Stockton Fm. in the SE area of the county. These units are the principal aquifers with median yields of 300 gpm with water moderately hard. The Palisade and Ladentown diabase sills yield a median of 5 gpm. Water-bearing properties, chemistry, and well logs are presented.

KEYWORDS: general geology
hydrology

EOGRAPHIC AREA: Newark Basin, New York, Rockland County

MAPS: Geol: (bar scale only)
Misc: well locations

DATA: Chem. (type of data): water

974 T : PERRIN, JOHN D., 1976, Geology of the Newgate Prison Mine, East Granby, Connecticut: M.S. Thesis, University of Connecticut.

KEYWORDS: economic geology
copper
lead

GEOGRAPHIC AREA: Hartford Basin, Connecticut, Hartford Co.

975 M : PESSL, FRED, JR., AND LANGER, W.H., 1972, Bedrock geology, Hartford North quadrangle, Connecticut: U.S. Geological Survey Miscellaneous Geological Investigations Map, I-784-B.

KEYWORDS: bedrock geology
structure

GEOGRAPHIC AREA: Hartford Basin, Connecticut

MAPS: Geol: [1:24,000]

976 F : PETERS, T.A., PETERS, J.J., AND WEBER, J., 1978, Paterson, New Jersey: Mineralogical Record, v. 9, p. 157-179.

SUMMARY: Mineral collecting localities described include: New Street Quarries, Prospect Park, and the McKiernan and Bergin Quarry. Zeolites and sulfides are described and outlined paragenetically according to W.T. Schaller, 1932.

KEYWORDS: basalt
mineralogy
zeolites

GEOGRAPHIC AREA: Newark Basin, New Jersey

DATA: Photos: quarries, mineral specimens

977 P : PETERSON, TODD A., BROWN, L.D., COOK, F.A., KAUFMAN, S., AND OLIVER, J.E., 1984, Structure of the Riddleville Basin from COCORP seismic data and implications for reactivation tectonics: Journal of Geology, v. 92, p. 261-271.

SUMMARY: Seismic reflection data delineate the basin buried beneath the Coastal Plain 200 km NW of Savannah. The east-trending basin contains north-dipping strata in a lower section and more horizontal strata in an upper section of the 3-km deep basin. The lower section may represent lacustrine units or clastics interlayered with basalt. A south-dipping normal fault along the basin's northern edge truncates the strata and merges at depth with a major Paleozoic thrust - the Augusta fault. This implies Early Mesozoic reactivation of the thrust and a pre-existing structural control governing basin location.

KEYWORDS: buried basins
structure
faults
geophysics
seismic profiles

GEOGRAPHIC AREA: Georgia

MAPS: Geol: basin location
Geophys: seismic profiles

978 M : PHILBIN, P.W., AND GILBERT, F.P., 1968, Aeromagnetic map of the Springfield North Quadrangle, Hampden and Hampshire Counties, Massachusetts: U.S. Geological Survey, Map GP-618.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Hartford Basin, Massachusetts

MAPS: Geophys: aeromagnetism [1:24,000]

979 M : PHILBIN, P.W., AND GILBERT, F.P., 1968, Aeromagnetic map of the West Springfield Quadrangle and part of the Southwick Quadrangle, Hampden County, Massachusetts, and Hartford County, Connecticut: U.S. Geological Survey, Map GP-635.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Hartford Basin, Massachusetts

MAPS: Geophys: aeromagnetism [1:24,000]

980 M : PHILBIN, P.W., AND KIRBY, J.R., 1964, Aeromagnetic map of parts of the Hackensack and Paterson Quadrangles, Bergen and Passaic Counties, New Jersey: U.S. Geological Survey, Map GP-492.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Newark Basin, New Jersey

MAPS: Geophys: aeromagnetism [1:31,680]

981 M : PHILBIN, P.W., AND KIRBY, J.R., 1964, Aeromagnetic map of the Nyack Quadrangle and part of the White Plains Quadrangle, Bergen County, New Jersey, and Rockland and Westchester Counties, New York: U.S. Geological Survey, Map GP-493.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Newark Basin, New Jersey, New York

MAPS: Geophys: aeromagnetism [1:31,680]

982 M : PHILBIN, P.W., AND KIRBY, J.R., 1964, Aeromagnetic map of the Park Ridge Quadrangle, Bergen County, New Jersey and Rockland County, New York: U.S. Geological Survey, Map GP-494.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Newark Basin, New Jersey, New York

MAPS: Geophys: aeromagnetism [1:31,680]

983 M : PHILBIN, P.W., AND KIRBY, J.R., 1964, Aeromagnetic map of parts of the Yonkers and Mount Vernon Quadrangles, Bergen County, New Jersey, and Bronx, Rockland, and Westchester Counties, New York: U.S. Geological Survey, Map GP-495.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Newark Basin, New Jersey, New York

MAPS: Geophys: aeromagnetism [1:31,680]

984 M : PHILBIN, P.W., AND SMITH, C.W., 1966, Aeromagnetic map of the Avon Quadrangle, Hartford County, Connecticut: U.S. Geological Survey, Geophysical Investigations Map GP-594.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Hartford Basin, Connecticut

MAPS: Geophys: aeromagnetism [1:24,000]

985 M : PHILBIN, P.W., AND SMITH, C.W., 1966, Aeromagnetic map of the Collinsville Quadrangle, Litchfield and Hartford Counties, Connecticut: U.S. Geological Survey, Geophysical Investigations Map GP-588.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Hartford Basin, Connecticut

MAPS: Geophys: aeromagnetism [1:24,000]

986 M : PHILBIN, P.W., AND SMITH, C.W., 1966, Aeromagnetic map of the Hartford North Quadrangle, Hartford County, Connecticut: U.S. Geological Survey, Map GP-595.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Hartford Basin, Connecticut

MAPS: Geophys: aeromagnetism [1:24,000]

987 M : PHILBIN, P.W., AND SMITH, C.W., 1966, Aeromagnetic map of the Manchester Quadrangle, Hartford and Tollan Counties, Connecticut: U.S. Geological Survey, Map GP-596.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Hartford Basin, Connecticut

MAPS: Geophys: aeromagnetism [1:24,000]

988 M : PHILBIN, P.W., AND SMITH, C.W., 1966, Aeromagnetic map of the Rockville Quadrangle, Hartford and Tollan Counties, Connecticut: U.S. Geological Survey, Map GP-587.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Hartford Basin, Connecticut

MAPS: Geophys: aeromagnetism [1:24,000]

989 P : PHILLIPS, ALEXANDER HAMILTON, 1899, The mineralogical structure and chemical composition of the trap of Rocky Hill, New Jersey: American Journal of Science, 4th Series, v. 8, p. 267-285.

SUMMARY: A description of the mineralogy and chemistry of the dike is presented. It is considered an olivine diabase with acid feldspars concentrated in the younger portions. Field relations are outlined.

KEYWORDS: diabase
mineralogy
petrology
geochemistry

GEOGRAPHIC AREA: Newark Basin, New Jersey, Somerset Co., Rock Hill Quad.

DATA: Chem. (type of data): major oxide (bulk, augite, feldspar)

990 P : PHILLIPS, J.D., 1977, Magnetic basement near Charleston, South Carolina - a preliminary report: in, Rankin, D.W., ed., Studies Related to the Charleston, South Carolina Earthquake of 1886 - a preliminary report: U.S. Geological Survey Professional Paper 1028, p. 138-149.

SUMMARY: Depth to crystalline basement and a (Mesozoic) basalt horizon are delineated by aeromagnetic data in the Middleton place area. Other magnetic features are discussed and interpreted in conjunction with seismic and geologic data.

KEYWORDS: geophysics
magnetism
subsurface
buried basins

GEOGRAPHIC AREA: South Carolina

991 P : PHILLIPS, JEFFREY D., 1983, Paleomagnetic investigations of the Clubhouse Crossroads basalt: U.S. Geological Survey Professional Paper 1313-C, 18 p.

SUMMARY: A 256-m. thick basalt flow overlying Triassic red beds consists of 23 flow units. Six flows have reversed magnetic polarity. The mean thermal remanent magnetization for the 23 flows is $35.4 \pm 3.2°$. In one core, five reversed-polarity intervals are separated by four of normal polarity. The minimum age of the basalt is considered to be 170 m.y.

KEYWORDS: basalt
geophysics
paleomagnetism
buried basins

GEOGRAPHIC AREA: South Carolina

992 A : PHILPOTTS, A.R., 1973, Clinobronzite in the diabase of eastern Connecticut: American Geophysical Union, Transactions, v. 54, p. 492.

KEYWORDS: diabase
petrology
mineralogy

GEOGRAPHIC AREA: Hartford Basin, Connecticut

993 P : PHILPOTTS, A.R., 1978, Rift-associated igneous activity in eastern North America: in, Neumann, E.R., and Ramberg, I.B., (eds.), Petrology and geochemistry of continental rifts: D. Reidel Publishing Co., NATO Advanced Study Institute Proceedings, Paleorift Systems, Boston, Massachusetts, Vol. 1, p. 133-154.

KEYWORDS: diabase
basalt
geochemistry
petrology

GEOGRAPHIC AREA: Regional

994 P : PHILPOTTS, A.R., 1979, Silicate liquid immiscibility in tholeiitic basalts: Journal of Petrology, v. 20, p. 99-118.

SUMMARY: Petrographic study of immiscible silicate liquids (i.e., fresh glare) in basalt of the Pomperaug Basin in conjunction with experimental work, indicates that tholeiitic magmas may commonly develop immiscible silicate liquids. Implications for differentiation are outlined.

KEYWORDS: basalt
petrology

GEOGRAPHIC AREA: Hartford Basin, Connecticut

DATA: Chem. (type of data): major oxides
Photos: thin sections

995 P : PHILPOTTS, A.R., AND DOYLE, C.D., 1980, Immiscibility in tholeiites: a discussion: Mineralogical Magazine, v. 43, p. 939-940.

KEYWORDS: basalt
petrology

GEOGRAPHIC AREA: Hartford Basin, Connecticut

996 P : PHILPOTTS, A.R., AND DOYLE, C.D., 1983, Effect of magma oxidation state on the extent of silicate liquid immiscibility in a tholeiitic basalt: American Journal of Science, v. 283, p. 967-986.

KEYWORDS: basalt
geochemistry
petrology

GEOGRAPHIC AREA: Hartford Basin, Connecticut

997 A : PHILPOTTS, A.R., AND REICHENBACK, I., 1983, Liquidus relations and differentiation of Mesozoic basalts of the Hartford basin, Connecticut: Geological Society of America, Abstacts with Programs, v. 15, p. 122.

SUMMARY: Oxygen fugacity studies indicate that the Holyoke Basalt fractionated from the Talcott at considerable depth (lower crust), and that the Hampden Basalt differentiated from the Talcott at a higher level, possibly within the Triassic red beds (see Reichenback, et al., 1983).

KEYWORDS: basalt
geochemistry

GEOGRAPHIC AREA: Hartford Basin, Connecticut

998 A : PHILPOTTS, A.R., DOYLE, C.D., AND THOMAS, M.A., 1980, Effect of magma oxidation state on the extent of liquid immiscibility in a tholeiitic basalt: Geological Society of America, Abstracts with Programs, v. 12, no. 7, p. 499.

KEYWORDS: basalt
geochemistry
petrology

GEOGRAPHIC AREA: Hartford Basin, Connecituct

999 P : PHILPOTTS, ANTHONY R., AND GRAY, NORMAN H., 1974, Inverted clinobronzite in Eastern Connecticut diabase: American Mineralogist, v. 59, p. 374-377.

SUMMARY: Morphology of bronzite phenocrysts from the chilled margins of a diabase dike indicates the mineral crystallized monoclinically (2/m) and later inverted to orthorhombic form.

KEYWORDS: diabase
mineralogy

GEOGRAPHIC AREA: Hartford Basin, Connecticut, Middlesex Co.

DATA: Photos: photomicrographs

1000 P : PICARD, M.D., AND HIGH, L.R., 1963, Rhythmic alternations in the Triassic Chugwater and Brunswick Formations, Wyoming and New Jersey: Wyoming University Contributions to Geology, v. 2, p. 87-99.

SUMMARY: The textural features of alternations exposed along the Delaware River at Milford, N.J., are described and consist of a resistant, poorly sorted siltstone with sandstone interbeds and a less resistant mudstone with poorly sorted siltstone interbeds.

KEYWORDS: sedimentation

GEOGRAPHIC AREA: Newark Basin, New Jersey, Hunterdon Co., Frenchtown Quad.

DATA: Photos: outcrop

1001 T : PICKETT, THOMAS ERNEST, 1962, Stratigraphy of the Dan River Triassic Basin in North Carolina: M.S. Thesis, University of North Carolina, 54 p.

KEYWORDS: general geology
stratigraphy

GEOGRAPHIC AREA: Dan River Basin, North Carolina

1002 T : PIEPUL, ROBERT G., 1975, Analysis of jointing and faulting at the southern end of the Eastern Border Fault, Connecticut: University of Massachusetts, Department of Geology, Contribution 23, 109 p.

SUMMARY: Computer-assisted analysis of joints and fractures at the southern end of the Hartford Basin and the adjacent pre-Triassic rocks indicates that many Triassic structures reflect or overprint the pre-existing tectonic fabric.

KEYWORDS: structure
faults

GEOGRAPHIC AREA: Hartford Basin, Connecticut

DATA: Plots: stereonet pole diagrams

1003 T : PIERCE, T.A., 1976, Petrology of dolerite-metadolerite dikes of southeastern New England: M.S. Thesis, University of Rhode Island.

KEYWORDS: diabase
petrology

GEOGRAPHIC AREA: New England

1004 A : PIERCE, THOMAS A., AND HERMES, O. DON, 1978, Petrology and geochemistry of diabase and metadiabase dikes in Southeastern New England: Geological Society of America, Abstracts with Programs, v. 10, p. 80.

SUMMARY: Of the two types, the diabase dikes are Triassic and strike NE, as opposed to the E-W trending Paleozoic metadiabases. The diabases are not quartz normative but olivine and nepheline normative, transitional betwen alkali basalts and olivine tholeiites. The dikes occur east of the Avalonian-Appalachian suture.

KEYWORDS: geochemistry
petrology
diabase

GEOGRAPHIC AREA: Regional, New England

1005 P : PILGER, REX H., JR., 1978, A closed Gulf of Mexico, Pre-Atlantic Ocean plate reconstruction and the early rift history of the Gulf and North Atlantic: Gulf Coast Association of Geological Societies, Transactions, v. 28, p. 385-393.

SUMMARY: Prior to the opening of the Gulf, South America is shown to have been adjacent to the Gulf coast. In the early Mesozoic, opening of the Gulf and the Atlantic coast was in a N-S direction and by right-lateral movement, respectively. The Gulf oceanic floor is older than that of the Atlantic, and initial Pangaea break-up was concentrated along axes of Appalachian-Hercynian mountain belts.

KEYWORDS: tectonics

GEOGRAPHIC AREA: Regional, Gulf Coast

1006 P : PILGER, REX H., JR., 1981, The opening of the Gulf of Mexico: implications for the tectonic evolution of the Northern Gulf Coast: Gulf Coast Association of Geological Societies, Transactions, 31st Annual Meeting, v. 31, p. 377-381.

SUMMARY: The Gulf is shown to have opened synchronously with the N. Atlantic (180-130 Ma.) in a NW-SE direction. Atlantic and Gulf spreading centers were linked by transform faults. Basin formation in the Gulf Coast involved shallow grabens and crustal thinning with an exponential basin subsidence.

KEYWORDS: tectonics

GEOGRAPHIC AREA: Gulf Coast

1007 M : PITKIN, J.A., AND PHILBIN, P.W., 1969, Aeromagnetic map of the Belchertown Quadrangle, Hampshire County, Massachusetts: U.S. Geological Survey, Map GP-663.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Hartford Basin, Massachusetts

MAPS: Geophys: aeromagnetism [1:24,000]

1008 M : PITKIN, J.A., AND PHILBIN, P.W., 1969, Aeromagnetic map of the Mt. Holyoke Quadrangle, Hampshire and Hampden Counties, Massachusetts: U.S. Geological Survey, Map GP-662.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Hartford Basin, Massachusetts

MAPS: Geophys: aeromagnetism [1:24,000]

1009 M : PITKIN, J.A., AND PHILBIN, P.W., 1969, Aeromagnetic map of the Mt. Toby Quadrangle and part of the Greenfield Quadrangle, Franklin and Hampshire Counties, Massachusetts: U.S. Geological Survey, Map GP-660.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Deerfield Basin, Massachusetts

MAPS: Geophys: aeromagnetism [1:24,000]

1010 PM: PLATT, JAMES N., JR., 1957, Sedimentary rocks of the Newark Group in the Cherry Brook Valley, Canton Center, Connecticut: American Journal of Science, v. 255, p. 517-522.

SUMMARY: A small Triassic basin outlier is described and occurs 1.25 miles west of the Hartford Basin. A lower conglomerate is in "contact" with the Hoosac schist and grades upward in section into red arkoses, shale, and sandstone. Beds dip 15 degrees to the southeast and terminate against a probable eastern border fault. No basalt or diabase occurs.

KEYWORDS: general geology

GEOGRAPHIC AREA: Cherry Brook Basin, Connecticut, Hartford Co., New Hartford Quad., Collinsville Quad.

MAPS: Geol: [1:15,840]

1011 A : POLIVKA, DAVID R., 1979, The thermal metamorphic effects of a diabase sill: North Bergen, New Jersey: Ohio Journal of Science, v. 79, April Program Abstracts, p. 24.

SUMMARY: (No specific data are presented.) Samples from the Lockatong Formation exposed below its contact with a Palisades diabase apophyse were analyzed by x-ray diffraction and x-ray fluorescence to study the mineralogic and petrologic changes across the contact zone.

KEYWORDS: diabase
mineralogy
geochemistry
metamorphism
hornfels

GEOGRAPHIC AREA: Newark Basin, New Jersey, Bergen County

1012 M : POPENOE, P., AND SMITH, E.P., 1969, Aeromagnetic map of the Easthampton Quadrangle, Hampshire and Hampden Counties, Massachusetts: U.S. Geological Survey, Map GP-661.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Hartford Basin, Massachusetts

MAPS: Geophys: aeromagnetism [1:24,000]

1013 M : POPENOE, P., AND SMITH, E.P., 1969, Aeromagnetic map of the Williamsburg Quadrangle and part of the Shelburne Falls Quadrangle, Franklin and Hampshire Counties, Massachusetts: U.S. Geological Survey, Map GP-659.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Deerfield Basin, Massachusetts

MAPS: Geophys: aeromagnetism [1:24,000]

1014 M : POPENOE, P., AND ZANDLE, G.L., 1963, Aeromagnetic map of the Millers Falls Quadrangle, Franklin County, Massachusetts: U.S. Geological Survey, Map GP-434.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Deerfield Basin, Massachusetts

MAPS: Geophys: aeromagnetism [1:24,000]

1015 M : POPENOE, P., BROMERY, R.W., AND KIRBY, J.R., 1962, Aeromagnetic map of the Newtown Quadrangle, Fairfield, Litchfield, and New Haven Counties, Connecticut: U.S. Geological Survey, Map GP-366.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Pomperaug Basin, Connecticut

MAPS: Geophys: aeromagnetism [1:24,000]

1016 M : POPENOE, P., PHILBIN, P.W., AND GILBERT, F.P., 1968, Aeromagnetic map of the Hampden Quadrangle, Hampden County, Massachusetts, and Tolland County, Connecticut: U.S. Geological Survey, Map GP-629.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Hartford Basin, Massachusetts, Connecticut

MAPS: Geophys: aeromagnetism [1:24,000]

1017 M : POPENOE, P., PHILBIN, P.W., AND GILBERT, F.P., 1968, Aeromagnetic map of the Ludlow Quadrangle, Hampden and Hampshire Counties, Massachusetts: U.S. Geological Survey, Map GP-619.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Hartford Basin, Massachusetts

MAPS: Geophys: aeromagnetism [1:24,000]

1018 M : POPENOE, P., PHILBIN, P.W., AND GILBERT, F.P., 1968, Aeromagnetic map of the Mount Tom Quadrangle and part of the Woronoco Quadrangle, Hampden and Hampshire Counties, Massachusetts: U.S. Geological Survey, Map GP-622.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Hartford Basin, Massachusetts

MAPS: Geophys: aeromagnetism [1:24,000]

1019 M : POPENOE, P., PHILBIN, P.W., AND GILBERT, F.P., 1968, Aeromagnetic map of the Springfield South Quadrangle, Hampden County, Massachusetts, and Hartford and Tolland Counties, Connecticut: U.S. Geological Survey, Map GP-632.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Hartford Basin, Massachusetts, Connecticut

MAPS: Geophys: aeromagnetism [1:24,000]

1020 P : POPENOE, PETER, AND ZIETZ, ISIDORE, 1977, The nature of the geophysical basement beneath the Coastal Plain of South Carolina and northeastern Georgia: U.S. Geological Survey Professional Paper 1028, p. 119-137.

SUMMARY: Aeromagnetic and gravity surveys suggest that a large part of the area in eastern Georgia and South Carolina is underlain by a Triassic basin containing basaltic sills and dikes.

KEYWORDS: geophysics
aeromagnetism
gravity
buried basins

GEOGRAPHIC AREA: South Carolina, Georgia

MAPS: Geophys: gravity, aeromagnetic (bar scales)

1021 T : POPOVICH, D.E., 1965, Distribution of certain elements in the major rock units of Cornwall and Morgantown Mines, Pennsylvania: M.S. Thesis, Pennsylvania State University, 73 p.

KEYWORDS: economic geology
iron

GEOGRAPHIC AREA: Gettysburg Basin, Newark Basin, Pennsylvania

1022 PM: POTH, CHARLES W., 1977, Summary ground-water resources of Lancaster County, Pennsylvania: Pennsylvania Geological Survey, Water Resources Report 43 (Bulletin W 43), 80 p.

SUMMARY: Data from wells include water chemistry, hardness, depth of wells, lithology, yield, and pH. Data include diabase (9 wells, hardness of 100 mg/l, 10 gpm yield), Gettysburg and Hammer Creek Formations (10 wells, 16 gpm yield, 50 mg/l hardness), New Oxford and Stockton Formations (400 wells, 12 gpm yield, 100 mg/l hardness).

KEYWORDS: hydrology

GEOGRAPHIC AREA: Newark Basin, Pennsylvania, Lancaster County

MAPS: Geol: [1:125,000]
Misc: well locations

1023 T : POTISAT, SOMSAK, 1978, Copper and uranium deposits in red beds of the Connecticut Valley: M.S. Thesis, Wesleyan University, 123 p.

KEYWORDS: economic geology
copper
uranium

GEOGRAPHIC AREA: Hartford Basin, Connecticut

1024 F : POTTER, R.R., BINGLEY, J.M., AND SMITH, J.C., 1972, Appalachian stratigraphy and structure of the Maritime Provinces: 24th International Geological Congress, Guide to Excursion A57-C57, 48 p.

SUMMARY: A field stop at Glenholme occurs in the red conglomerate and sandstone of the Annapolis Formation along the Bay of Fundy. A semi-arid depositional environment is suggested. A second field stop is at the McKay Head basalt of Economy Mountain. This basalt is considered younger than the North Mountain basalt. Only these two of the 41 field stops are Triassic locations.

KEYWORDS: general geology

GEOGRAPHIC AREA: Maritime Province, Canada

1025 P : POWERS, SIDNEY, 1916, The Acadian Triassic (Part I): Journal of Geology, v. 24, p. 1-26.

SUMMARY: Descriptive geology of a number of localities within the Bay of Fundy area of Nova Scotia is presented. The general stratigraphy consists of (from lower to upper) the Annapolis Formation (red shale and sandstone, often calcareous), the North Mountain basalt flows, and the white, calcareous sandstone of the Scots Bay Formation.

KEYWORDS: general geology
stratigraphy
basalt

GEOGRAPHIC AREA: Maritime Province, Nova Scotia, Canada

MAPS: Geol: sketches

1026 P : POWERS, SIDNEY, 1916, The Acadian Triassic (Part II): Journal of Geology, v. 24, p. 105-122.

SUMMARY: This is a continuation of the descriptive geology and stratigraphy of the Bay of Fundy area and includes: Gerrish Mtn., Scots Bay, Bennetts Bay, Digby Gut, and Brier Island. Fossil fish, plant, and bivalve remains indicate the Acadian area is part of the Newark System and also correlates with the German Lettenkohle.

KEYWORDS: general geology
paleontology
stratigraphy

GEOGRAPHIC AREA: Maritime Province, Canada

DATA: Photos: outcrops

1027 P : POWERS, SIDNEY, 1916, The Acadian Triassic (Part III): Journal of Geology, v. 24, p. 254-268.

SUMMARY: The structure of the Acadian area is outlined and consists of small, gentle folds within a monoclinal sequence that dips to the west and terminates against a western and northern margin normal fault system. Faulting occurred after sedimentation. The nature of the basalt flows is discussed for the Five Island volcanics, which include tuff and agglomerate, and the North Mountain basalt, which consists of several 150- to 300-foot flows. General depositional environments of the Acadian area are briefly outlined.

KEYWORDS: general geology
structure

GEOGRAPHIC AREA: Maritime Province, Canada

1028 M : PRICE, VAN, CONLEY, J.F., PIEPUL, R.G., ROBINSON, G.R., AND THAYER, P.A., 1980, Geology of the Axton and Northeast Eden Quadrangles, Virginia: Virginia Division of Mineral Resources, Publication 22.

KEYWORDS: general geology

GEOGRAPHIC AREA: Danville Basin, Virginia, Pittsylvania Co., Northeast Eden Quad.

MAPS: Geol: [1:24,000]

1029 M : PRICE, VAN, AND OTHERS, 1980, Geology of the Whitmell and Brosville Quadrangles, Virginia: Virginia Division of Mineral Resources, Publication 21.

KEYWORDS: general geology

GEOGRAPHIC AREA: Danville Basin, Virginia, Pittsylvania Co., Whitmell Quad., Brosville Quad.

MAPS: Geol: [1:24,000]

1030 P : PRIVETT, D.R., 1977, An unusual octahedral fluorite, stilbite, laumontite, calcite, and quartz assemblage in Danville, Virginia: Virginia Minerals, v. 23, no. 1, p. 7-9.

SUMMARY: Stilbite, fluorite, and laumontite occur associated with quartz in veins within granite and hornblende gneiss. The location is given as "behind the Riverside Shopping Center off U.S. Highway 58W" in Danville. The gneiss and granite are altered (chloritized) and brecciated. (The occurrence may be of early Mesozoic age.)

KEYWORDS: faults
mineralogy
zeolites

GEOGRAPHIC AREA: Danville Basin, Virginia, Pittsylvania County

DATA: Photos: stilbite

1031 A : PRIVETT, DONALD R., 1966, Structure and petrography of some diabase dikes in Central South Carolina: Geological Society of America, Special Paper 87, p. 260.

SUMMARY: Olivine diabase dikes trending 20-40° NW occur N and W of Columbia, S.C., and contain unaltered plagioclase, partly altered augite (to uralite), and partly altered olivine (to serpentine and magnetite). Plagioclase increases, while olivine plus pyroxene decrease from the dike edges to the centers. The dikes, which intrude metamorphics and granite, are of "questionable" Triassic age.

KEYWORDS: diabase
mineralogy

GEOGRAPHIC AREA: South Carolina

1032 A : PROUTY, WILLIAM F., 1926, The Triassic of the Durham Basin: Elisha Mitchell Scientific Society, Journal, v. 42, p. 22-24.

SUMMARY: The Durham Basin differs from the Sanford Basin in having no coal and black shale. The general geology and structure of the former is briefly outlined. Coarse gneiss, schist, and granite-bearing conglomerates (with some clasts several feet across) occur against the eastern border fault. Origin of the basins of the East Coast is attributed to erosional collapse of a graben-horst segmented anticlinorium, and assumes sedimentation in one large basin system now represented by erosional remnants.

KEYWORDS: general geology

GEOGRAPHIC AREA: Durham Basin, North Carolina

1033 A : PROUTY, WILLIAM F., 1928, Triassic deposits of Durham Basin, North Carolina, and structural relations to other Triassic basins of Eastern North America: Geological Society of America, Bulletin, v. 39, p. 210-211.

SUMMARY: The sediments are considered to have accumulated under an arid, terrestrial climate. 10,000 feet of section is estimated. Basic dikes and sills occur along the basin periphery and center, respectively. Beds dip monoclinally east and terminate against the eastern border fault, active after and during late stages of sedimentation. A broad-terrain origin is favored whereby the basins represent remnants of a collapsed, broader, anticlinorium.

KEYWORDS: general geology
structure

GEOGRAPHIC AREA: Durham Basin, North Carolina

1034 P : PROUTY, WILLIAM F., 1931, Triassic deposits of the Durham Basin and their relation to other Triassic areas of Eastern United States: American Journal of Science, v. 21, p. 473-490.

SUMMARY: The general geology, structure, and origin of the basin is outlined. Sediments consist of gray and red arkosic sandstones, carbonaceous shales, conglomerates, and border fanglomerates. Beds dip southeast and terminate against the 70° dipping, eastern, normal border fault. Basin development is attributed to crustal buckling due to melting at depth, with Triassic sediment accumulating in grabens.

KEYWORDS: general geology
structure

GEOGRAPHIC AREA: Durham Basin, North Carolina

1035 A : PUFFER, J.H., AND HURTUBISE, D.O., 1983, Eastern North American Jurassic basalts: an interbasin petrologic model: Geological Society of America, Abstracts with Programs, v. 15, no. 6, p. 665.

SUMMARY: High-TiO_2 magmatism throughout the basins reflects a nearly synchronous event and not hot-spot activity. Augite compositional homogeneity among these areas is cited for both the TiO_2-rich basalts and the overlying high-Fe basalts. Upper mantle fractionation is suggested.

KEYWORDS: basalt
geochemistry

GEOGRAPHIC AREA: Regional

1036 P : PUFFER, J.H., AND LECHLER, P., 1980, Geochemical cross section through the Watchung basalt of New Jersey: Geological Society of America, Bulletin, Part II, v. 91, p. 156-191.

SUMMARY: Interpretation of the chemistry of the three basalt flows reveals that the First Watchung is a high-TiO2 type (Weigand and Ragland, 1970); the Second is a fractionation product of the First and resembles the Holyoke Basalt; and the Third is the product of an independent magma genetically unrelated to the First. Evidence for the latter is provided by flow evidence as well. Comparisons are made to the Palisades Sill. Early Mesozoic magmatic evolution is outlined.

KEYWORDS: basalt
petrology
geochemistry

GEOGRAPHIC AREA: Newark Basin, New Jersey

MAPS: Misc: sample locations

DATA: Chem. (type of data): basalt (major oxide and trace elements)
Plots: MgO variation

1037 P : PUFFER, J.H., HURTUBISE, D.O., GEIGER, F.J., AND LECHLER, P., 1981, Chemical composition and stratigraphic correlation of Mesozoic basalt units of the Newark Basin, New Jersey, and the Hartford Basin, Connecticut: summary: Geological Society of America, Bulletin, v. 92, p. 155-159.

SUMMARY: The First Watchung and Talcott basalts are similar chemically and are placed stratigraphically at the base of the Hettangian. Rates of fractionation and similarity of the Second Watchung and Holyoke basalts indicate these two flows may be correlated and genetically tied to the earlier flows. The Third Watchung and Hampden flows eruped from a new, second magma source that had reached advanced fractionation.

KEYWORDS: basalt
geochemistry

GEOGRAPHIC AREA: Newark Basin, New Jersey, Hartford Basin, Connecticut

MAPS: Section: stratigraphic

DATA: Chem. (type of data): major oxide and trace

1038 A : PUFFER, J.H., PESTANA, E.M., AND THEOKRITOFF, G., 1983, Geochemical characteristics of rift related volcanic rocks in the Appalachian orogen: Geological Society of America, Abstracts with Programs, v. 15, p. 184.

SUMMARY: Early Mesozoic basalts of the Atlantic margin are tholeiitic instead of the expected alkalic basalts associated with plume-generated triple junctions. The Hadrynian basalts near Chatham, N.Y., associated with Iapetus ocean rifting are iron- and titanium-enriched tholeiites that differ from the early Mesozoic basalts.

KEYWORDS: basalt
petrology

GEOGRAPHIC AREA: Regional

1039 A : PUFFER, JOHN H., AND HURTUBISE, DONLON O., 1982, Early Jurassic basalt of Fundy Basin, Nova Scotia: Geological Society of America, Abstracts with Programs, v. 14, p. 74.

SUMMARY: The McKay Head and North Mountain basalts are geochemically similar and suggest that the former is a continuation of the latter. This high TiO_2-type basalt resembles the Talcott (Conn.), Orange Mountain (N.J.), York Haven (Pa.), and Mt. Zion Church (Va.) basalts. Major oxides: 52.65 Si, 1.01 Ti, 14.29 Al, 10.38 FeO, 7.01 Mg, 10.39 Ca, 2.37 Na, and 0.78 K.

KEYWORDS: basalt
geochemistry
petrology

GEOGRAPHIC AREA: Maritime Province, Nova Scotia, Canada

DATA: Chem. (type of data): major oxide

1040 P : PUFFER, JOHN H., AND LECHLER, PAUL, 1979, The geochemistry of Cushetunk Mountain, New Jersey: New Jersey Academy of Science, Bulletin, v. 24, p. 1-5.

SUMMARY: This horseshoe-shaped diabase intrusion lies along the east side of the Flemington Fault and grades from a fine-grained, quartz-normative tholeiite at both contacts to a coarser, iron-rich granophyre in its interior. Petrography is outlined. Chemically, the diabase correlates with the high-Fe, quartz-normative type (Weigand and Ragland, 1970) and resembles the Second Watchung basalt more closely than the First or Third Watchung.

KEYWORDS: diabase
petrology
geochemistry

GEOGRAPHIC AREA: Newark Basin, New Jersey

DATA: Chem. (type of data): diabase (major oxide and trace)
Plots: mafic index vs. TiO_2

1041 P : PUFFER, JOHN H., AND LECHLER, PAUL, 1980, Geochemical cross sections through the Watchung basalt of New Jersey: summary: Geological Society of America, Bulletin, Part 1, v. 91, p. 7-10.

SUMMARY: The petrogenesis of the three basalt flows is summarized in detail. Conclusions include: genesis of the second flow through fractionation of the first (a similar model may be applied to the second basalt flow in the Hartford Basin - the Holyoke flow), and the genesis of the third flow from a "normal" mid-Atlantic ridge basalt that was contaminated on ascension through the crust.

KEYWORDS: basalt
geochemistry
petrology

GEOGRAPHIC AREA: Newark Basin, New Jersey

DATA: Plots: MgO variations

1042 P : PUFFER, JOHN H., AND PETERS, J.J., 1974, Magnetite veins in diabase of Laurel Hill, New Jersey: Economic Geology, v. 69, p. 1294-1299.

SUMMARY: Magnetite veins, less than 3-cm thick, occupy joints within the diabase. Diabase adjacent to the veins is leached of iron originally present in pyroxene and Fe-Ti oxides. Origin of the magnetite is attributed to deuteric fluids transfering iron, and such an origin may be attributed to larger Cornwall-type ore bodies.

KEYWORDS: diabase
economic geology
iron

GEOGRAPHIC AREA: Newark Basin, New Jersey, Hudson Co., Jersey City Quad.

DATA: Chem. (type of data): magnetite vein (major oxide)

1043 P : PYNCHON, W.H.C., 1896, The ancient lavas of Connecticut: Connecticut Quarterly, v. 2, p. 308-319.

KEYWORDS: basalt

GEOGRAPHIC AREA: Hartford Basin, Connecticut

R

1044 P : RAGLAND, P.C., BRUNFELT, A.O., AND WEIGAND, P.W., 1971, Rare-earth abundances in Mesozoic dolerite dikes from Eastern United States: in, Brunfelt, A.O., and Steinnes, E., eds., Activation Analysis in Geochemistry and Cosmochemistry, Universitet Sforlaget, Oslo, p. 227-235.

SUMMARY: Three distinct REE patterns are evident: moderately fractionated pattern w.r.t. chondrites and highest REE abundance (high-Ti quartz tholeiite), unfractionated and lowest abundance (olivine tholeiite), and an intermediate member (low-Ti quartz tholeiite). Selective diffusion from crustal country rocks may explain the patterns.

KEYWORDS: diabase
geochemistry

GEOGRAPHIC AREA: Regional

DATA: Chem. (type of data): major oxide, trace, REE

1045 A : RAGLAND, P.C., AND HATCHER, R.D., JR., 1980, Mesozoic olivine-normative diabase in North Carolina: multiple compositional types and orientations: Geological Society of America, Abstracts with Programs, v. 12, p. 205.

SUMMARY: Four dike domains are recognized from SW to NE: (1) NW-trending, (2) N-trending, (3) NW-trending, (4) composite domain. Dikes (1) are less evolved (more primitive) than dikes (2). Dikes (3) are chemically "enigmatic," and two or three olivine-normative magma types existed in this area. Relative age data are not avilable.

KEYWORDS: diabase
geochemistry
petrology

GEOGRAPHIC AREA: North Carolina

1046 A : RAGLAND, P.C., AND WHITTINGTON, DAVID, 1983, Early Mesozoic diabase dikes of eastern North America: magma types: Geological Society of America, Abstracts with Programs, v. 15, no. 6, p. 666.

KEYWORDS: diabase
geochemistry

GEOGRAPHIC AREA: Regional

1047 A : RAGLAND, PAUL C., 1983, "Primitive" Mesozoic diabase dikes of eastern North America: primary or derivative?: Geological Society of America, Abstracts with Programs, v. 15, p. 92.

SUMMARY: The olivine-tholeiite suite of intrusives does not represent primary melts from the mantle in part because of LIL element discrepancy. Data from fine-grained, non-porphyritic diabases indicate that all intrusive types can be derived from the partial melting of olivine- or quartz-normative magma parents, the least fractionated of these having a mafic index of 0.7 and 0.6, respectively. The olivine-type magma fractionated by the "Fenner Trend" or by iron plus silica enrichment.

KEYWORDS: diabase
petrology

GEOGRAPHIC AREA: Regional

1048 P : RAGLAND, PAUL C., HATCHER, ROBERT D., JR., AND WHITTINGTON, DAVID, 1983, Juxtaposed Mesozoic diabase dike sets from the Carolinas: a preliminary assessment: Geology, v. 11, p. 394-399.

SUMMARY: Dike orientations are studied, and a systematic correlation of chemical type with orientation and age is suggested. Two dike trends are evident: diverging N-S trending system that converges near Charleston, and a more abundant NW trending group. The former group may have developed by crustal deformation above a mantle plume. Other tectonic implications are noted.

KEYWORDS: diabase
structure

GEOGRAPHIC AREA: North Carolina, South Carolina

MAPS: Misc: dike patterns

DATA: Plots: MgO variation diagrams

1049 P : RAGLAND, PAUL C., ROGERS, JOHN J.W., AND JUSTUS, PHILIP S., 1968, Origin and differentiation of Triassic dolerite magmas, North Carolina, USA: Contributions to Mineralogy and Petrology, v. 20, p. 57-80.

SUMMARY: The average bulk composition of the dolerite dikes is presented. Of the ten dikes studied, one exhibits crystal settling of olivine, one exhibits a central micropegmatite, and all but three indicate decreasing oxygen pressure during crystallization. Comparisons are made to other igneous provinces, and the N.C. dolerite is considered an oceanic tholeiite. Continental mantle and crust may not have existed beneath the Piedmont in the Early Mesozoic.

KEYWORDS: diabase
geochemistry
petrology

GEOGRAPHIC AREA: North Carolina

DATA: Chem. (type of data): major oxide, trace elements
Plots: mineral and chemical traverses across dikes; SiO_2 vs. Fe/Mg+Fe; MgO-FeO-K_2O + Na_2O

1050 P : RANDAZZO, A.F., AND COPELAND, R.E., 1976, The geology of the northern portion of the Wadesboro Triassic Basin, North Carolina: Southeastern Geology, v. 17, p. 115-138.

SUMMARY: Fanglomerates occur along the NW border, where complex faulting occurs. Post-depositional movement along the SE Jonesboro border fault has tilted the beds to the SE. Fanglomerate-filled outliers further to the east indicate the basin was once exposed wider than it is now. Cross faulting along the Pekin cross structure may have uplifted the basin with respect to the Durham Basin, thus eroding perhaps 5000 feet of section including the Cumnock Fm. The sedimentary rocks and structure are further discussed.

KEYWORDS: general geology
structure

GEOGRAPHIC AREA: Wadesboro Basin, North Carolina

MAPS: Geol: sketches

DATA: Plots: sandstone composition

1051 T : RANDAZZO, ANTHONY F., 1965, The stratigraphy of the Wadesboro Triassic Basin in North and South Carolina: M.S. Thesis, University of North Carolina, 52 p.

KEYWORDS: general geology

GEOGRAPHIC AREA: Wadesboro Basin, North Carolina

1052 P : RANDAZZO, ANTHONY F., SWE, WIN, AND WHEELER, WALTER H., 1970, A study of tectonic influence on Triassic sedimentation - the Wadesboro Basin, Central Piedmont: Journal of Sedimentary Petrology, v. 40, no. 3, p. 998-1006.

SUMMARY: Structural splintering produced a complex series of parallel horsts and grabens on the western margin, resulting in fanglomerate deposition. Lack of such clastics along the eastern border may suggest that the eastern fault was active after deposition; but fanglomerates present as remnant outliers within the Coastal Plain further east suggest that faulting may have been syndepositional. A "local basin" origin is suggested.

KEYWORDS: sedimentation
structure
faults

GEOGRAPHIC AREA: Wadesboro Basin, North Carolina

MAPS: Geol: sketches

1053 T : RASTEGAR, I., 1972, A detailed study of the diabase dikes in the Middle Haddam Quadrangle, Connecticut: M.S. Thesis, Wesleyan University, 87 p.

KEYWORDS: mineralogy
diabase
petrology

GEOGRAPHIC AREA: Hartford Basin, Connecticut, Middlesex Co., Middle Haddam Quad.

1054 P : RATCLIFFE, NICHOLAS M., 1971, The Ramapo fault system in New York and adjacent northern New Jersey: a case of tectonic heredity: Geological Society of America, Bulletin, v. 82, p. 125-142.

SUMMARY: Studies of the cataclastic zones indicate a fault history beginning in the Precambrian and continuing in the Ordovician as right-lateral-transcurrent faulting. Syndepositional faulting in the Late Triassic produced the Hammer Creek Fm. fanglomerates. Current seismicity suggests that this 700 m.y. old fault zone represents a significant, deep crustal fracture system that trapped magmas which rose to the surface throughout its history.

KEYWORDS: tectonics
structure
faults

GEOGRAPHIC AREA: Newark Basin, New Jersey, New York

MAPS: Geol: sketches
Section: cross sections

1055 A : RATCLIFFE, NICHOLAS M., 1979, Cataclastic rocks from the Ramapo fault and evaluation of evidence of reactivation on the basis of new core data: Geological Society of America, Abstracts with Programs, v. 11, p. 50.

SUMMARY: Two cores intersected the fault zone at 83 and 141 meters, and the zone dips 60° southeast. The attitude of the cataclastic zone between Triassic lava flows and Precambrian gneiss agrees well with focal-plane solutions. Additional coring is in progress.

KEYWORDS: structure
faults

GEOGRAPHIC AREA: Newark Basin, New Jersey

1056 F : RATCLIFFE, NICHOLAS M., 1980, Brittle faults (Ramapo fault) and phyllonitic ductile shear zones in the basement rocks of the Ramapo seismic zones, New York and New Jersey, and their relationship to current seismicity: in, Manspeizer, W., ed., Field Studies of New Jersey Geology and Guide to Field Trips, 52nd New York State Geological Association Meeting, p. 278-313.

SUMMARY: This guide examines the cataclastic and mylonitic rocks constituting the Proterozoic to Mesozoic Ramapo seismic zone. The activation of the Mesozoic faulting is shown to parallel Grenvillian and Ordovician "grain." The magnitude, seismic history, attitude of the fault zone, and the evidence of syndepositional faulting are outlined.

KEYWORDS: tectonics
structure
faults

GEOGRAPHIC AREA: Newark Basin, New Jersey

MAPS: Geol: block diagrams, sketches
Section: cross sections

1057 A : RAYMOND, CAROL A., ELLWOOD, BROOKS B., AND CHAVES, LISA, 1982, Paleomagnetic analyses of Lower Mesozoic diabase and basalt from the Central and Southern Appalachians: Geological Society of America, Abstracts with Programs, v. 14, p. 76.

SUMMARY: Paleopoles calculated from 6 diabase sills, 4 dikes, and 3 flows in the Culpeper Basin are consistent and correlate with the accepted N. American 200 m.y. pole. However, correlating this pole result with K-Ar dates assigned to Hartford Basin dike and sill poles (175 and 190 m.y., respectively), a 180-185 m.y. age is derived for the Culpeper units. Similarly, an older 190 m.y. age is assigned to Georgia Piedmont dikes. This pattern suggests a progression of dike emplacement from south to north.

KEYWORDS: diabase
basalt
geophysics
paleomagnetism

GEOGRAPHIC AREA: Culpeper Basin, Maryland, Virginia, Georgia

1058 P : RAYMOND, PERCY E., 1927, The significance of red color in sediments: American Journal of Science, Fifth Series, v. 13, p. 234-251.

SUMMARY: A moist, humid climate during basin deposition is considered because of the abundance of fossil vegetation, including ginkgoes, cycads, and ferns, the preservation of red color, and the abundance of vertebrate life.

KEYWORDS: sedimentation
climate

GEOGRAPHIC AREA: Regional

1059 P : REDFIELD, W.C., 1856, On the relations of the fossil fishes of the sandstone of Connecticut and other Atlantic states to the Liassic and Oolitic Periods: American Journal of Science, 2nd series, v. 22, p. 357-363.

SUMMARY: This is a detailed discussion of the use of fish in assigning Early Mesozoic age to the Newark Group rocks. Fish species are outlined and attention is given to the work of Agassiz.

KEYWORDS: paleontology

GEOGRAPHIC AREA: Regional

1060 T : REED, ALAN A., 1976, Stratigraphy, depositional environments and sedimentary petrology of the Lower Jurassic East Berlin Formation, central Connecticut: M.S. Thesis, University of Massachusetts, 175 p.

KEYWORDS: sedimentation
general geology

GEOGRAPHIC AREA: Hartford Basin, Connecticut

1061 P : REED, DONALD F., 1949, Investigation of Pickering Creek lead-zinc deposits, Chester County, Pennsylvania: U.S. Bureau of Mines, Report of Investigations 4451, 11 p.

SUMMARY: A number of small lead-zinc veins occur in pre-Triassic gneiss and gabbro and extend into the Triassic Stockton Fm. with no change in mineralogy. Vein mineralogy consists of galena, sphalerite, chalcopyrite, pyrite, quartz, siderite, dolomite, fluorite, and barite. Vein and mine descriptions and descriptions of eight core holes are given. Diabase dikes also occur in the area.

KEYWORDS: economic geology
lead
zinc

GEOGRAPHIC AREA: Newark Basin, Pennsylvania, Chester Co., Phoenixville Quad.

MAPS: Misc: drillhole locations

1062 P : REED, JULIET C., 1976, Annotated bibliography of minerals new to the Pennsylvania list, 1965-1974: Mineralogical Society of Pennsylvania, 83 p.

SUMMARY: The cobalt minerals cobaltite and glaucodot are identified from hornfelsed Triassic sediments adjacent to diabase in the Kibblehouse Quarry in Perkiomenville; and cobaltite and arsenopyrite occur in the Dyer diabase quarry, Gickerville, associated with prehnite and babingtonite. (No other significant Triassic-hosted mineral occurrences are noted.)

KEYWORDS: hornfels
mineralogy

GEOGRAPHIC AREA: Newark Basin, Pennsylvania, Berks County, Montgomery County

1063 P : REESIDE, JOHN B., JR. (CHAIRMAN), AND OTHERS, 1957, Correlation of the Triassic formations of North America exclusive of Canada: Geological Society of America, Bulletin, v. 68, p. 1451-1514.

SUMMARY: A correlation chart is presented for Triassic rocks of N. America and includes the Eastern U.S. basins from Georgia to Massachusetts. An extensive annotation and bibliography is included. Units are Carnian to Norian with Rhaetian rocks present in Virginia and N. Carolina.

KEYWORDS: general geology
stratigraphy

GEOGRAPHIC AREA: Regional

1064 A : REESMAN, R.H., FILBERT, C.R., AND KRUEGER, H.W., 1973, Potassium-argon dating of the Upper Triassic lavas of the Connecticut Valley, New England: Geological Society of America, Abstracts with Programs, v. 5, p. 211.

SUMMARY: Potassium-argon dates on 14 samples of the Holyoke, Hampden, and Talcott basalts yield a consistent range of ages whose mean is 184 m.y. ± 8 m.y. No evidence for excess argon or argon loss is evident.

KEYWORDS: geophysics
paleomagnetism
radiometric age
K/Ar dating

GEOGRAPHIC AREA: Hartford Basin, Connecticut

1065 A : REICHENBACK, I., AND PHILPOTTS, A.R., 1983, Compositional relations between the Mesozoic basalts of the Hartford Basin, Connecticut: Geological Society of America, Abstracts with Programs, v. 15, p. 122.

SUMMARY: Geochemical study indicates that the Holyoke and Hampden basalts can be derived by a 48% and 31% (respectively) solidification of the Talcott basalt. Study of the olivine and augite within the Talcott indicate that Talcott fractionation involved orthopyroxene and not olivine.

KEYWORDS: basalt
petrology

GEOGRAPHIC AREA: Hartford Basin, Connecticut

1066 PM: REINEMUND, JOHN A., 1955, Geology of the Deep River Coal Field, North Carolina: U.S. Geological Survey Professional Paper 246, 159 p.

SUMMARY: This extensive work outlines the stratigraphy and petrography of the sedimentary rocks, the occurrence of igneous dikes and sills, the structure and geomorpology, and the economic geology of the Cumnock coal bed within the Deep River Basin. Emphasis is placed upon the properties of the coal, the structure of the beds, and the mine workings. Well logs are presented.

KEYWORDS: economic geology
coal
copper
general geology
stratigraphy

GEOGRAPHIC AREA: Deep River Basin, North Carolina

MAPS: Geol: [1:96,000]
Section: coal mine plans; measured sections; cross sections

DATA: Photos: outcrops, photomicrographs
Plots: sedimentary petrographic data

1067 M : REINHARDT, JUERGEN, 1974, Geologic map of the Frederick Valley, Maryland: Maryland Geological Survey, Report of Investigations 23.

KEYWORDS: general geology

GEOGRAPHIC AREA: Gettysburg Basin, Maryland, Frederick County

MAPS: Geol: [1:62,500]

1068 T : RESSETAR, R.M., 1976, Major and minor element geochemistry on the Holyoke Basalt, Connecticut Triassic Basin: M.S. Thesis, University of South Carolina, 62 p.

KEYWORDS: diabase
geochemistry

GEOGRAPHIC AREA: Hartford Basin, Connecticut

1069 A : RESSETAR, ROBERT M., 1976, Geochemistry of the Holyoke Basalt: Geological Society of America, Abstracts with Programs, v. 8, p. 254-255.

SUMMARY: This central of the three main flowsheets of the Connecticut Valley is an iron-rich, quartz-normative tholeiite consisting of at least three flows in the lower 120 feet that show little fractionation. Fractionation is similar to other N.J. and Pa. diabases. Results support the contention that the basalts were derived from a continental crust-trapped olivine tholeiite.

KEYWORDS: basalt
geochemistry

GEOGRAPHIC AREA: Hartford Basin, Massachusetts

1070 P : REYNOLDS, DONALD D., AND LEAVITT, DAVID H., 1927, A scree of Triassic age: American Journal of Science, Fifth Series, v. 13, p. 167-171.

SUMMARY: The Leverett breccia is described as a monolithic talus breccia of metamorphic rock fragments of varying size that occurs against the eastern border fault and grades westward into the Mt. Toby alluvial fan conglomerate - the latter being polymictic and cemented by red sand and silt.

KEYWORDS: sedimentation

GEOGRAPHIC AREA: Hartford Basin, Massachusetts

1071 P : RICE, W.N., AND GREGORY, H.E., 1906, Manual of the geology of Connecticut: Connecticut Geological Natural History Survey Bulletin, no. 6, 273 p.

KEYWORDS: general geology

GEOGRAPHIC AREA: Hartford Basin, Connecticut

1072 F : RICE, WILLIAM NORTH, 1886, On the trap and sandstone in the gorge of the Farmington River at Tariffville, Connecticut: American Journal of Science, 3rd series, v. 32, p. 430-433.

SUMMARY: A description of an exposure of the lower and upper basalt flows (Holyoke) and the sediments between them indicate that the basalts are contemporaneous and extrusive and not later intrusives. The exposure is along the Farmington River between Simsbury and Bloomfield.

KEYWORDS: general geology
basalt

GEOGRAPHIC AREA: Hartford Basin, Connecticut, Hartford County

1073 F : RICE, WILLIAM NORTH, AND FOYE, WILBUR GARLAND, 1927, Geology of Middletown, Connecticut, and vicinity: Connecticut Geological and Natural History Survey, Bulletin 41, 137 p.

SUMMARY: The Triassic sedimentary rocks are briefly described and an outline is given of the geomorphologic and depositional history of the Connecticut Valley. Field guides are presented for a number of Triassic and Triassic-Highland exposures in the area.

KEYWORDS: general geology

GEOGRAPHIC AREA: Hartford Basin, Connecticut, Middlesex County

MAPS: Geol: sketches

1074 P : RICHARDS, HORACE G., 1945, Deep oil test at Salisbury, Wicomico County, Maryland: American Association of Petroleum Geologists, Bulletin, v. 29, no. 8, p. 1196-1202.

SUMMARY: A well drilled in 1944, 6 miles east of Salisbury in the Coastal Plain, intersected Triassic rocks between depths of 5529 and 5563 feet. Rocks are described as "red and greenish shale, with alternating layers of coarse arkosic sandstone." Beneath 5563 feet are crystalline rocks interpreted as Precambrian basement.

KEYWORDS: buried basins

GEOGRAPHIC AREA: Maryland

1075 P : RICHARDS, HORACE G., 1945, Subsurface stratigraphy of Atlantic Coastal Plain between New Jersey and Georgia: American Association of Petroleum Geologists, Bulletin, V. 29, no. 7, p. 885-955.

SUMMARY: Well logs and locations are presented for wells in the Coastal Plain. Those that intersect Triassic rocks are: Salisbury, Md. (5529-5563 ft.); Bowling Green, Virginia (1160-1550 ft.); Florence, S. Carolina (1335-1750 ft.); Clayton, Alabama (5372-5572 ft.); Hillard, Florida (4795-4817 ft.).

KEYWORDS: buried basins

GEOGRAPHIC AREA: Regional

1076 P : RICHARDS, HORACE G., 1948, Studies on the subsurface geology and paleontology of the Atlantic Coastal Plain: Academy of Natural Sciences of Philadelphia, Proceedings, v. 100, p. 39-76.

SUMMARY: Brief descriptions of a number of wells drilled in the Coastal Plain are presented, many of which intersect Triassic rocks. Locations where Triassic rocks are encountered include: Runyon, N.J., at 307 to 310 feet; Salisbury and Berlin, Md., at 5529 to 5563 feet and 6486 to 7157 feet, respectively.

KEYWORDS: buried basins

GEOGRAPHIC AREA: Regional

1077 P : RICHARDS, HORACE G., 1949, The occurrence of Triassic rocks in the subsurface of the Atlantic Coastal Plain: Pennsylvania Academy of Science, Proceedings, v. 23, p. 45-48.

SUMMARY: A brief review is given of known data supporting the existence of buried Triassic basins in southeastern Maryland; in Caroline County, Virginia; at Florence and Summerville, South Carolina; and at Camilla, Georgia, and Hilliard, Florida. Data from wells in these areas are cited.

KEYWORDS: buried basins

GEOGRAPHIC AREA: Regional

1078 A : RICHARDS, HORACE G., 1954, Subsurface Triassic in Eastern North Carolina: American Association of Petroleum Geologists, Bulletin, v. 38, p. 2564-2565.

SUMMARY: A well drilled 10 miles northeast of Elizabeth City encountered Triassic shale, diabase, and calcareous chert at a depth of 4910 feet to the bottom of the well at 5500 feet. Samples are on file at the Academy of Natural Sciences of Philadelphia.

KEYWORDS: buried basins

GEOGRAPHIC AREA: North Carolina

1079 F : RICHARDS, HORACE G., 1956, Geology of the Delaware River: Mineralogical Society of Pennsylvania, Philadelphia, 106 p.

SUMMARY: Descriptions are given for twenty-five localities within the Stockton, Lockatong, and Brunswick Formations in Bucks, Montgomery, and Chester Counties (Pa.) and Hunterdon and Mercer Counties (N.J.).

KEYWORDS: general geology

GEOGRAPHIC AREA: Newark Basin, Pennsylvania, New Jersey

1080 P : RICHARDSON, CHARLES SAMUEL, 1854, The Old Bristol Copper Mine, Connecticut: Mining Magazine, v. 3, p. 251-255.

SUMMARY: The history and mine workings are discussed. Ore occurs in an 80-foot thick zone of micaceous and feldspathic "flookan," gneiss, and slate along the margin of the basin between Triassic and pre-Triassic rocks. Details of some of the underground ore relations are given.

KEYWORDS: economic geology
copper

GEOGRAPHIC AREA: Hartford Basin, Connecticut, Hartford Co., Bristol Quad.

1081 T : RICHARDSON, CREEL, 1928, A history of the Simsbury copper mines: M.A. Thesis, Trinity College.

KEYWORDS: economic geology
copper

GEOGRAPHIC AREA: Hartford Basin, Connecticut

1082 F : RIDLEY, ROBERT W., AND O'CONNER, JAMES V., 1979, The Culpeper Basin of the Triassic lowlands of northern Virginia: in, Exline, J.D., ed., Guidebook for Field Trips in Virginia, National Association of Geology Teachers, Eastern Section, April 1979, p. 49-59.

SUMMARY: Field trip stops include: Balls Bluff Formation, Centreville diabase quarry, Manassas Sandstone, eastern contact (unconformable and faulted), hornfels zone at Goose Creek, Leesburg conglomerate, and the Mount Zion Church basalt. Discussions and road log are included.

KEYWORDS: general geology

GEOGRAPHIC AREA: Culpeper Basin, Virginia

1083 A : RIGOTTI, P., AND SCHMIDT, V.A., 1976, Upper Triassic secular variation as recorded by the Palisades Sill, New Jersey: American Geophysical Union, Transactions, v. 57, p. 238.

SUMMARY: The sill is shown to have recorded a several thousand year secular variation record whose VGP trace corresponds with other Upper Triassic paleopoles and ranges in the area of 60-77°N, 94-118°E. Secular variation in the Upper Triassic is apparently similar to that observed today.

KEYWORDS: diabase
geophysics
paleomagnetism

GEOGRAPHIC AREA: Newark Basin, New Jersey

1084 P : RIMA, DONALD R., MEISLER, HAROLD, AND LONGWILL, STANLEY, 1962, Geology and hydrology of the Stockton Formation in Southeastern Pennsylvania: Pennsylvania Geological Survey, Bulletin W-14, 111 p.

SUMMARY: The Stockton Formation is divided into a lower arkosic conglomerate, a middle arkosic sandstone, and an upper shale member. The three members pinch and grade into one another locally. The middle arkose and upper shale have the highest (130 gpm) and lowest (20 gpm) yields, respectively. Water is of the calcium bicarbonate type with an average hardness of 202 ppm. Well logs and well data are presented for about 200 wells.

KEYWORDS: general geology
hydrology

GEOGRAPHIC AREA: Newark Basin, Pennsylvania, Montgomery Co., Bucks Co., Chester Co.

MAPS: Geol: [1:24,000]
Section: cross sections
Misc: well locations with water quality data

DATA: Chem. (type of data): water

1085 P : ROBBINS, E. IBERALL, AND TRAVERSE, ALFRED, 1980, Degraded palynomorphs from the Dan River (North Carolina) - Danville (Virginia) Basin: in, Price, V., Jr., and others, eds., Carolina Geological Society Field Trip Guidebook, 1980, Trip X, 5 p.

SUMMARY: A study of core and outcrop samples from the Cow Branch Formation yields twenty-four taxa of palynomorphs that confirm a late Carnian (late Triassic) age for the lacustrine unit. Processing of the palynomorphs and their syndepositional and diagenetic degradation are outlined.

KEYWORDS: paleontology

GEOGRAPHIC AREA: Dan River Basin, North Carolina, Danville Basin, Virginia

1086 T : ROBBINS, E.I., 1981, Fossil Lake Danville: the paleoecology of a Late Triassic ecosystem on the North Carolina-Virginia border: Ph.D. Thesis, Pennsylvania State University.

KEYWORDS: sedimentation
paleontology

GEOGRAPHIC AREA: Danville Basin, Virginia; Dan River Basin, North Carolina

1087 A : ROBBINS, E.I., 1982, Economic potential of ancient lakebeds in the Newark rift system (eastern North America): Geological Society of America, Abstracts with Programs, v. 14, no. 1-2, p. 77.

SUMMARY: Fossil fuels, phosphate, uraniuim, copper, and zinc occur in the basin lacustrine deposits throughout the Newark Supergroup. A model is developed which integrates tectonic processes with biological activity, climate, hydrology, and sedimentology. Minerals precipitate primarily at aerobic-anaerobic interfaces.

KEYWORDS: economic geology
coal

GEOGRAPHIC AREA: Regional

1088 P : ROBBINS, E.I., 1983, Accumulation of fossil fuels and metallic minerals in active and ancient rift lakes: Tectonophysics, v. 94, p. 633-658.

KEYWORDS: economic geology
coal

GEOGRAPHIC AREA: Regional

1089 A : ROBBINS, E.I., GOODWIN, B., WILKES, G.P., AND WEEMS, R.E., 1983, Coal deposits of the Newark rift system (eastern North America): Geological Society of America, Abstracts with Programs, v. 15, no. 3, p. 122.

SUMMARY: Coal deposits of Carnian age (Late Triassic) in the Dan River-Danville, Deep River, Farmville, Richmond, and Taylorsville Basins contain pollen and spores suggesting a swamp assemblage of conifers and pteridosperms. The Newark rift system coal beds show similarities to modern, lacustrine, peat-forming swamps.

KEYWORDS: economic geology
coal
paleontology

GEOGRAPHIC AREA: Regional

1090 A : ROBBINS, E.I., NIKLAS, K.J., AND SANDERS, J.E., 1979, Algal kerogens in the Newark Group lakebeds - their bearing on the Early Mesozoic History of the Atlantic continental margin: Palynology, v. 3, p. 291.

SUMMARY: Five Portland Formation shale beds are considered to have been deposited in a large algal-rich lake whose algal matter, now amorphous organic matter, consists of three kerogen types: mucilaginous blue-green algae sheaths, zooplankton fecal pellets, and amorphous Botryococcus. Newark Group debris transported to the Baltimore Canyon consists of a hematite, algal sheath, and Rhaetian-Liassic pollen and spore metallo-organic suite.

KEYWORDS: sedimentation
paleontology

GEOGRAPHIC AREA: Hartford Basin, Connecticut

1091 T : ROBERTS, J.K., 1922, The Triassic of northern Virginia: Ph.D. Thesis, Johns Hopkins University, 272 p.

KEYWORDS: general geology

GEOGRAPHIC AREA: Culpeper Basin, Virginia

1092 P : ROBERTS, J.K., 1923, Jurassic ? intrusives of Piedmont Virginia: Pan-American Geologist, v. 39, p. 289-296.

SUMMARY: Diabase dikes are considered to be Jurassic in age (based on field relations). The Belmont, Sterling, Mount Pony, and Buzzard Mountain diabase sills are described, the former containing a pegmatite with coarse fluorite. The mineralogy and petrography of the dikes and sills are outlined briefly.

KEYWORDS: general geology
diabase
mineralogy
petrology

GEOGRAPHIC AREA: Virginia

DATA: Chem. (type of data): major oxide
Photos: photomicrographs

1093 P : ROBERTS, J.K., 1923, Triassic basins of Northern Virginia: Pan-American Geologist, v. 39, no. 3, p. 185-200.

SUMMARY: Five distinct basins are recognized. Border conglomerates consist of rocks derived from the Blue Ridge schists and metabasalts, the Shenandoah limestones, and the Piedmont granites. The distribution and character of these units as well as the sandstone and shales are outlined, the latter constituting 60% of the total section and occurring in the central areas of the basins. Border faults are described. The symmetrical pattern of border conglomerates, followed inward by sandstone and then shale, indicates that each individual type is time-stratigraphic, with fining upward processes occurring at each margin.

KEYWORDS: general geology
sedimentation

GEOGRAPHIC AREA: Virginia

1094 P : ROBERTS, J.K., 1924, Petrographic analysis of Triassic sandstone: Pan-American Geologist, v. 41, p. 22-30.

SUMMARY: Six samples of sandstone are petrographically studied (from locations near Manassas and Centreville). Mineral percentages and sample descriptions are given. No specific conclusions are reached and attention is given to the technical procedure and ferric oxide content which imparts a red color.

KEYWORDS: sediments
mineralogy
petrology

GEOGRAPHIC AREA: Culpeper Basin, Virginia

DATA: Photos: photomicrographs

1095 P : ROBERTS, J.K., 1928, The geology of the Virginia Triassic: Virginia Geological Survey, Bulletin 29, 205 p.

SUMMARY: This extensive work is principally descriptive and includes: stratigraphy (border conglomerates, Manassas sandstone, Bull Run shale; mineralogy, texture, extent), mineralogy of the diabase and hornfels, adjacent pre-Triassic rocks, structure, coal mining and quality, barite and copper occurrences, and fossil occurrences of flora and fauna. A list of 150 references is included.

KEYWORDS: general geology
stratigraphy
economic geology
coal
copper
barite
structure
paleontology

GEOGRAPHIC AREA: Virginia

MAPS: Geol: (bar scale only) Dànville Basin, Scottsville Basin, Farmville Basin, Richmond Basin, Culpeper Basin

DATA: Chem. (type of data): coal
Photos: outcrops, photomicrographs

1096 A : ROBERTS, JOSEPH K., 1938, Triassic rocks of Virginia: Geologial Society of America, Bulletin, v. 49, p. 1958.

SUMMARY: The Triassic basins of Virginia lie along the eastern edges of the Blue Ridge and along the fall zone, the latter areas containing coal. Beds dip NW toward western boundary faults and consist of sediments derived chiefly from Piedmont crystalline rocks. Fossil floras are of Keuper age and are rare. Geophysical studies are suggested.

KEYWORDS: general geology

GEOGRAPHIC AREA: Virginia

1097 A : ROBINSON, PETER, HUBERT, J.F., WISE, D.U., AND HALL, L.M., 1978, The "JuraTrias" of Emerson (1898) on the new Massachusetts geologic map: Geological Society of America, Abstracts with Programs, v. 10, no. 2, p. 82-83.

SUMMARY: A detailed summary is given of the sedimentologic and structural evolution of the Hartford and Deerfield Basins. Specific data include evidence of syndeposition faulting, strike-slip in addition to dip-slip motion, K-Ar dates suggesting that eastern border-fault movement began at about 215 my and continued to at least 140 m.y.b.p., and a 30 degree westerly dip for the border fault.

KEYWORDS: sedimentation

GEOGRAPHIC AREA: Hartford Basin, Massachusetts

1098 F : RODGERS, JOHN, 1968, General geology of the Triassic rocks of Central and Southern Connecticut: in, Orville, P.M., ed., Guidebook for Fieldtrips in Connecticut, New England Intercollegiate Geological Conference, 60th, Trip C-2, 9 p.

SUMMARY: This road log includes the following stops: basal unconformity of New Haven arkose and schist, Dinosaur State Park, East Berlin Fm. lacustrine deposits, fanglomerates, agglomeratic basalt, and New Haven Arkose flood-plain facies.

KEYWORDS: general geology

GEOGRAPHIC AREA: Hartford Basin, Connecticut

1099 P : RODGERS, JOHN, 1980, The geological history of Connecticut: Discovery, v. 15, p. 3-25.

KEYWORDS: general geology

GEOGRAPHIC AREA: Hartford Basin, Connecticut

1100 M : RODGERS, JOHN, 1982, Preliminary bedrock geological map of Connecticut: Hartford, Connecticut, Connecticut Geological Natural History Survey.

KEYWORDS: bedrock geology
structure

GEOGRAPHIC AREA: Hartford Basin, Connecticut

MAPS: Geol: [1:250,000]

1101 P : ROGERS, HENRY D., 1853, Report on the Wheatley and Brookdale Mines, Chest Co., Penn.: Mining Magazine, v. 1, p. 375-387.

SUMMARY: This report discusses the physical relationships of the veins, their mineralogy, the occurrence of diabase dikes, and the extent of underground workings.

KEYWORDS: economic geology
lead
zinc
silver
barite

GEOGRAPHIC AREA: Newark Basin, Pennsylvania, Chester County

1102 P : ROGERS, HENRY DARWIN, 1858, The geology of Pennsylvania: J.B. Lippincott and Company, Philadelphia, 815 p.

SUMMARY: Includes detailed descriptions of the mine workings and veins in the Phoenixville District, particularly the Wheatley and Brookdale Mines. Veins containing galena, sphalerite, chalcopyrite, barite, tetrahedrite, silver, and wulfenite occur along the south edge of the basin. Veins within Triassic rocks are generally richer in copper, and veins principally in the bordering gneiss are richer in lead, with zinc being ubiquitous. Descriptions of the French Creek, Warwick, and Knavertown Cornwall-type deposits are given.

KEYWORDS: economic geology
copper
lead
zinc
barite
silver

GEOGRAPHIC AREA: Newark Basin, Pennsylvania, Montgomery Co., Chester Co.

1103 M : ROOT, S.I., 1978, Geology and Mineral Resources of the Carlisle and Mechanicsburg Quadrangles, Cumberland County, Pennsylvania: Pennsylvania Geological Survey, Atlas 138ab.

KEYWORDS: general geology

GEOGRAPHIC AREA: Gettysburg Basin, Pennsylvania, York County, Carlisle Quad.

MAPS: Geol: [1:24,000]

1104 PM: ROOT, SAMUEL I., 1977, Geology and mineral resources of the Harrisburg West area, Cumberland and York Counties, Pennsylvania: Pennsylvania Geological Survey, Atlas 148ab, 106 p.

SUMMARY: The Gettysburg Formation here consists of red mudstone with quartz and limestone conglomerate and sandstone lenses. A structural model is developed and suggests the basin consists of a number of SE-dipping normal fault blocks resulting in the thickest Triassic sedimentary section near the center of the basin. A NW border fault is present but locally covered by a thin SE-dipping cover of Triassic that lies unconformably above Paleozoic limestone.

KEYWORDS: general geology
structure
economic geology
copper

GEOGRAPHIC AREA: Gettysburg Basin, Pennsylvania, York Co., Cumberland Co., Lemoyne Quad., Steelton Quad.

MAPS: Geol: [1:24,000]

1105 P : ROSE, A.W., AND KEITH, M.L., 1971, Trace metals in stream sediments of southeastern Pennsylvania: Pennsylvania State University, Earth and Mineral Sciences Experiment Station, Bulletin 86, 36 p.

SUMMARY: Statistical treatment of trace metal data and field checking of anomalous areas (see Keith and others, 1967) reveal localities worthy of further investigation for metallic deposits - especially in the area of Cornwall and Morgantown (copper and nickel). Data are presented.

KEYWORDS: economic geology
copper
iron

GEOGRAPHIC AREA: Newark Basin, Gettysburg Basin, Pennsylvania

1106 P : ROSE, ARTHUR W., 1970, Atlas of Pennsylvania's mineral resources, Part 3: Metal mines and occurrences in Pennsylvania: Pennsylvania Geological Survey, Bulletin M50, 14 p.

SUMMARY: Locations of Triassic-hosted occurrences are listed in a table, and locations are shown on an accompanying map. Deposits belong to several groups: copper and other metals in diabase, Cornwall-type magnetite, copper in hornfels adjacent to diabase, copper in sediments distant from diabase, lead-zinc-silver veins, and uranium. A number of the larger of these deposits are briefly described.

KEYWORDS: bibliography
economic geology
iron
copper
lead
zinc
silver
uranium

GEOGRAPHIC AREA: Newark Basin, Gettysburg Basin, Pennsylvania

MAPS: Misc: deposit locations

1107 P : ROSE, ARTHUR W., 1972, Favorability for Cornwall-type magnetite deposits in Pennsylvania using geological, geochemical, and geophysical data in a discriminant function: Journal of Geochemical Exploration, v. 1, p. 182-194.

SUMMARY: Variables used in a simple and stepwise discriminant analysis include stream sediment data, rock types, aeromagnetics, diabase sheet thickness, and diabase-carbonate contacts. The latter is found to be most important. Two additional favorable areas for the skarn deposits - SW of Gettysburg and at Boyertown - are recognized.

KEYWORDS: economic geology
iron

GEOGRAPHIC AREA: Gettysburg Basin, Newark Basin, Pennsylvania

1108 A : ROSE, ARTHUR W., AND SMITH, ROBERT C., II, 1971, The occurrence and chemical composition of two distinct types of Triassic diabase in Pennsylvania: Pennsylvania Academy of Science, v. 45, p. 200.

SUMMARY: Two chemically distinct Pennsylvania diabases are recognized: a high Al and S, high alumina (Rossville type), and a higher Ti and Cu quartz tholeiite (York Haven-type). Field relations indicate that the Rossville-type is younger; and behavior of magma concepts indicate the two were derived from distinct batches of magma. The Rossville-type displays similar REE patterns with island arc tholeiites.

KEYWORDS: diabase
geochemistry
petrology

GEOGRAPHIC AREA: Pennsylvania

1109 A : ROSE, ARTHUR W., AND SMITH, ROBERT C., II, 1974, Assimilation of mantle and crust in the origin of Triassic diabase of Eastern U.S.: American Geophysical Union, Transactions, v. 55, p. 460.

SUMMARY: Removal of 25% olivine, 8% clinopyroxene, and 11% plagioclase coupled with an acquisition of 14% orthopyroxene from the older olivine tholeiites can produce the younger low-Ti quartz normative Rossville type. Chemical data indicate little crustal assimilation in the previous case, but as much as 20% assimilation in the York Haven type of intermediate age.

KEYWORDS: diabase
geochemistry
petrology

GEOGRAPHIC AREA: Regional

1110 T : ROSS, H.P., 1963, Detailed electrical surveys in the Triassic basin, north Chester County, Pennsylvania: M.S. Thesis, The Pennsylvania State University.

KEYWORDS: geophysics

GEOGRAPHIC AREA: Newark Basin, Pennsylvania, Chester County

1111 P : ROTHE, GEORGE H., AND LONG, L. TIMOTHY, 1976, Geophysical investigation of a diabase dike swarm in West-Central Georgia: Southeastern Geology, v. 17, p. 67-79.

SUMMARY: A 750-meter wide dike swarm in Meriwether County produces a gravity and magnetic anomaly of 2 milligals and 1000 gammas, respectively. With removal of the regional gradient, gravity anomalies suggest a 70- to 80-degree eastward dip for the dikes. A koenigsberger ratio, Q, of one is suggested.

KEYWORDS: diabase
geophysics
gravity
magnetism
aeromagnetism

GEOGRAPHIC AREA: Georgia

MAPS: Geophys: gravity, aeromagnetic

DATA: Plots: geophysical profiles; NRM plot

1112 P : ROTHWELL, R.P. (ed.), 1895, Connecticut brownstone: Mineral Industry, v. 3, p. 510-513.

KEYWORDS: sediments

GEOGRAPHIC AREA: Hartford Basin, Connecticut

1113 P : ROTHWELL, R.P. (ed.), 1896, Connecticut brownstone: Mineral Industry, v. 4, p. 555-558.

KEYWORDS: sediments

GEOGRAPHIC AREA: Hartford Basin, Connecticut

1114 PM: ROYER, DENISE W., 1983, Summary groundwater resources of Lebanon County, Pennsylvania: Pennsylvania Geological Survey, Fourth Series, Water Resources Report 55, 84 p.

SUMMARY: Data are presented for wells within the Hammer Creek Fm. and diabase and include pH, yield, depth, hardness, and chemistry. Diabase yields moderately hard (103 mg/L) water with yields of 1 to 40 gal/min. Hammer Creek sandstone yields good quality, hard water with a median yield of 90 gal/min. Hammer Creek quartz conglomerate yields softer water, pH 5.9, yield 120 gal/min.

KEYWORDS: hydrology
general geology

GEOGRAPHIC AREA: Gettysburg Basin, Pennsylvania, Lebanon County

MAPS: Geol: [1:50,000]
Misc: well locations [1:50,000]

DATA: Chem. (type of data): water

1115 P : RUSSELL, I.C., 1891, Are there glacial records in the Newark System?: American Journal of Science, v. 41, p. 499-505.

KEYWORDS: sedimentation
climate

GEOGRAPHIC AREA: Hartford Basin, Connecticut

1116 P : RUSSELL, ISRAEL C., 1878, On the intrusive nature of the Triassic trap sheets of New Jersey: American Journal of Science, 3rd series, v. 15, p. 277-280.

SUMMARY: An exposure in a ravine near Feltville along the western slope of the First Watchung Mountain reveals highly contact-metamorphosed sediments above the igneous rock, providing evidence for an intrusive origin.

KEYWORDS: general geology
basalt

GEOGRAPHIC AREA: Newark Basin, New Jersey

1117 P : RUSSELL, ISRAEL C., 1878, On the physical history of the Triassic Formation in New Jersey and the Connecticut Valley: New York Academy of Sciences, Annals, v. 1, no. 7-8, p. 220-254.

SUMMARY: Study of the sedimentary rocks and eruptive rocks indicates that the two basins are remnants of an anticlinal arch, whose center has been eroded and whose original upheaval provided ingress for magmatic eruption.

KEYWORDS: general geology
structure
sedimentation

GEOGRAPHIC AREA: Newark Basin, New Jersey, Hartford Basin, Connecticut

1118 P : RUSSELL, ISRAEL C., 1878, The Newark System: American Geologist, v. 3, p. 178.

SUMMARY: A review of previous literature concerning the basins reveals the use of a great many names, and the term Newark Group is considered most appropriate.

KEYWORDS: general geology

GEOGRAPHIC AREA: Regional

1119 P : RUSSELL, ISRAEL C., 1880, On the former extent of the Triassic Formation of the Atlantic states: American Naturalist, v. 14, p. 703-712.

SUMMARY: A broad-terrain hypothesis is favored whereby all the basin areas represent the erosional remnants of one continuous anticlinally folded basin. Evidence includes: dip of the Connecticut and Newark Basin areas, the existence of incomplete estuary deposits in each basin, the similarity of the basalt flows in Conn. and N.J., and the existence of basin outliers. Fossil evidence and the nature of the border conglomerates preclude a glacial environment.

KEYWORDS: general geology
structure
sedimentation

GEOGRAPHIC AREA: Regional

1120 P : RUSSELL, ISRAEL C., 1891, Has "Newark" priority as a group name: American Geologist, v. 7, p. 238-241.

SUMMARY: It is suggested that the term "Newark" be elevated to "system" status. A review of C.H. Hitchcock's 1890 arguments against the term "Newark" are outlined and debated.

KEYWORDS: general geology

GEOGRAPHIC AREA: Regional

1121 P : RUSSELL, ISRAEL C., 1892, Correlation papers, the Newark System: U.S. Geological Survey Bulletin 85, 344 p.

SUMMARY: This is an extensive review of the sedimentary stratigraphy, paleontology, igneous rocks, deformation, and correlation of the Newark system. Review of all previous literature is presented by subject and author in a 200-page bibliography. Topics discussed in the text include: stratigraphy, depositional and climatic history, deformation, former extent, paleontology, and correlation.

KEYWORDS: bibliography
general geology
stratigraphy
structure
sedimentation

GEOGRAPHIC AREA: Regional

MAPS: Geol: sketches

DATA: Photos: outcrops

1122 P : RUSSELL, ISRAEL C., 1895, The Newark system: Science, v. 1, p. 266-268.

SUMMARY: This is a brief discussion concerning the use of the term "Newark" for the system of Early Mesozoic rocks. Russell favors Redfield's "Newark Group" and opposes the disagreeing arguments of C.H. Hitchcock, which are outlined (see Froelich and Olsen, 1984).

KEYWORDS: general geology

GEOGRAPHIC AREA: Regional

1123 T : RUSSELL, W.L., 1922, The Great Triassic Fault of southern Connecticut and its structural and stratigraphic relations: M.S. Thesis, Yale University, 95 p.

KEYWORDS: structure
faults

GEOGRAPHIC AREA: Hartford Basin, Connecticut

1124 P : RUSSELL, W.L., 1923, The camptonite dikes in the Connecticut Triassic: American Journal of Science, v. 5, p. 409-416.

KEYWORDS: diabase
petrology

GEOGRAPHIC AREA: Hartford Basin, Connecticut

1125 P : RUSSELL, WILLIAM L., 1922, The structural and stratigraphic relations of the Great Triassic Fault of Southern Connecticut: American Journal of Science, v. 4, p. 483-497.

SUMMARY: Studies of the fanglomerates and other geologic relations indicate that the eastern boundary fault was active before the Triassic, as evidenced by the pre-Triassic quartz vein, was active during sedimentation, as evidenced by the fanglomerates, and was active after deposition, as evidenced by the monoclinal tilt. The fault's dip and throw are calculated to be 30°-60° and 16,000-30,000 feet, respectively.

KEYWORDS: structure
faults

GEOGRAPHIC AREA: Hartford Basin, Connecticut

1126 T : RYAN, J.D., 1948, The petrology of the diabase intrusives of the Delaware River Valley: M.S. Thesis, Lehigh University.

KEYWORDS: geochemistry
petrology

GEOGRAPHIC AREA: Newark Basin, New Jersey

1127 P : RYAN, JOHN DONALD, AND WILLARD, BRADFORD, 1947, Triassic footprints from Bucks County, Pennsylvania: Pennsylvania Academy of Science, v. 21, p. 91-93.

SUMMARY: A brief description is presented of footprints in the upper Brunswick Fm. (red shale) one mile south of Kintersville on Rt. 611. The tracks are considered to have been made by a Triturus-like animal swimming in shallow water.

KEYWORDS: paleontology

GEOGRAPHIC AREA: Newark Basin, Pennsylvania, Bucks Co., Riegelsville Quad.

1128 A : RYAN, SCOTT, 1984, Carbonate-quartz-barite veins of the Hartford Basin: Geological Society of America, Abstracts with Programs, v. 16, p. 61.

SUMMARY: Such veins, occurring in N 45°E-trending normal faults, indicate alternate precipitation of carbonate and quartz later cemented by carbonate, quartz and barite, the latter suggesting that faulting occurred during mineralization. Lead, zinc, and copper sulfides, as well as tennantite, occur, often associated with vitreous bitumen. Fluid inclusion results are outlined and indicate hydrothermal fluids were CO_2-rich and 123°C to 200°C. Heated groundwater that had leached the sediments was the probable hydrothermal fluid source.

KEYWORDS: economic geology
barite
silver
copper
zinc
lead

GEOGRAPHIC AREA: Hartford Basin, Connecticut

1129 M : RYDER, R.B., 1972, Contour map of the bedrock surface, Manchester Quadrangle, Connecticut: U.S. Geological Survey, Map MF-452a.

KEYWORDS: surficial geology

GEOGRAPHIC AREA: Hartford Basin, Connecticut

MAPS: Geol: depth to bedrock [1:24,000]

1130 M : RYDER, R.B., AND HANDMAN, E.H., 1973, Contour map of the bedrock surface, Hartford South Quadrangle, Connecticut: U.S. Geological Survey, Map MF-487a.

KEYWORDS: surficial geology

GEOGRAPHIC AREA: Hartford Basin, Connecticut

MAPS: Geol: depth to bedrock [1:24,000]

S

1131 P : SACHS, WALTER P., 1940, The story of the Great Notch Quarry: Rocks and Minerals, v. 15, no. 4, p. 111-115.

SUMMARY: A history of the quarry's development is outlined. A list and description of the secondary minerals occurring at this locality along the First Watchung Mtn. basalt are given and include apophyllite, babingtonite, datolite, greenockite, pectolite, and stilbite.

KEYWORDS: mineralogy
basalt
zeolites

GEOGRAPHIC AREA: Newark Basin, New Jersey, Passaic County

1132 T : SAINES, M., 1973, Hydrogeology and hydrogeochemistry of part of South Hadley, Massachusetts: Ph.D. Thesis, University of Massachusetts, 252 p.

KEYWORDS: hydrology

GEOGRAPHIC AREA: Hartford Basin, Massachusetts, Hampshire Co., Mt. Holyoke Quad.

1133 T : SANCTON, JOEL A., 1970, The East Berlin Fm. of Massachusetts: a Triassic alluvial fan complex: M.S. Thesis, University of Massachusetts, Amherst, 132 p.

KEYWORDS: sedimentation

GEOGRAPHIC AREA: Hartford Basin, Massachusetts

1134 F : SANDERS, JOHN E., 1958, Stratigraphy and structure of the Triassic rocks of central Connecticut: New England Intercollegiate Geological Conference, 50th Meeting, Trip Guide B.

KEYWORDS: stratigraphy
structure

GEOGRAPHIC AREA: Hartford Basin, Connecticut

1135 P : SANDERS, JOHN E., 1960, Structural history of Triassic rocks of the Connecticut Valley belt and its regional implications: New York Academy of Sciences, Transactions, Series II, v. 23, no. 2, p. 119-132.

SUMMARY: Border faults were active during deposition as evidenced by fanglomerates. After deposition, tilting occurred and NW-trending warps developed. The Danbury anticlinal axis represents the regional arch axis that produced the Newark Basin-Hartford Basin mirror symmetry, which is also expressed in the basement rocks.

KEYWORDS: structure
faults

GEOGRAPHIC AREA: Regional

MAPS: Geol: sketches
Section: cross section

1136 A : SANDERS, JOHN E., 1961, Tectonophysics of Late Triassic deformation, Northeastern United States: Journal of Geophysical Research, v. 66, p. 2557-2558.

SUMMARY: A broad terrane hypothesis is favored in which the Newark and Hartford Basins represent erosional remnants of an arched longitudinal basin that was 50 km. wide. Effects of this crustal arching on the regional Paleozoic and Precambrian geology are outlined and include the southward disappearance of the Taconic allochthon and the origin of Appalachian drainage.

KEYWORDS: tectonics
structure

GEOGRAPHIC AREA: Regional

1137 A : SANDERS, JOHN E., 1962, Relationships of folds to faults in Upper Triassic rocks, northeast of the Schuylkill (Pennsylvania to Massachusetts): Geological Society of America, Special Paper 68, p. 260-261.

SUMMARY: Three fold regimes are noted: (1) a medial longitudinal arch within the depressed fault block; (2) transverse anticlines and synclines, perpendicular to the marginal graben faults ((1) and (2) involve vertical crustal movements); (3) E-W trending valley and ridge-type folds developed during strike-slip faulting of the Hopewell and Flemington Faults. (3) is youngest and offsets folds of (2). Regional history was not one of simple tensional relaxation.

KEYWORDS: tectonics
structure

GEOGRAPHIC AREA: Newark Basin, Hartford Basin, Pennsylvania, New Jersey, Connecticut, Massachusetts

1138 A : SANDERS, JOHN E., 1962, Stratigraphy of Talcott Formation (Upper Triassic), Southern Connecticut: Geological Society of America, Special Paper 68, p. 260.

SUMMARY: The Talcott Formation is reinterpreted by mapping to consist of four basalt and three interbedded sedimentary members that are together 1000 feet thick. From base up, these are: brecciated flow, sandstone, massive flow, sandstone, brecciated and pillowed flow, sandstone, and upper brecciated flows.

KEYWORDS: general geology
basalt

GEOGRAPHIC AREA: Hartford Basin, Connecticut, New Haven County, Branford Quad.

1139 P : SANDERS, JOHN E., 1962, Strike-slip displacement on faults in Triassic rocks in New Jersey: Science, v. 136, p. 40-42.

SUMMARY: The Hopewell and Flemington Faults, which trend north and intersect the Ramapo Fault, are extended 10 to 15 miles farther north. Based on the structure of the Somerville anticline, the Hopewell Fault shows, in addition to a dip-slip component, a 12-mile, right-lateral strike-slip component. Similar strike-slip dynamics may characterize the Flemington Fault as well.

KEYWORDS: structure
faults

GEOGRAPHIC AREA: Newark Basin, New Jersey

MAPS: Geol: sketches

1140 P : SANDERS, JOHN E., 1963, Late Triassic tectonic history of Northeastern United States: American Journal of Science, v. 261, p. 501-524.

SUMMARY: Structural study of the Newark and Hartford Basins indicates that the isolated basins are remnants of an elongate rift valley. A complex tectonic history is developed into four episodes including graben subsidence, arching, folding, and strike-slip faulting. Post-depositional erosional history and implications to regional tectonics are outlined.

KEYWORDS: tectonics
structure

GEOGRAPHIC AREA: Regional

MAPS: Geol: sketches

1141 A : SANDERS, JOHN E., 1968, Lacustrine sedimentation in the Triassic of Connecticut: Geological Society of America, Special Paper 101, p. 276-277.

SUMMARY: Lake sediments are interbedded with and overlie the lava flows and occur in the basin center. Red siltstones dominate with calcitic and dolomitic units present. Many sedimentary structures are present: syndepositional faults, slumps, burrows, algal-reefs, ripple marks. Within lake deposits, lake bathymetry rather than regional slope governed sediment transport direction.

KEYWORDS: sedimentation

GEOGRAPHIC AREA: Hartford Basin, Connecticut

1142 P : SANDERS, JOHN E., 1968, Stratigraphy and primary sedimentary structures of fine-grained well-bedded strata, inferred lake deposits, Upper Triassic, central and southern Connecticut: Geological Society of America, Special Paper 106, p. 263-306.

SUMMARY: Coarse-grained, irregularly bedded deposits occur along the faulted margin; while the fine-grained, well bedded (red, gray, and black) strata occur well away from the fault and are considered to represent deposition in lakes of varying size that developed as a result of tectonic and lava flow damming. Paleocurrents, sedimentary structures, and environments are discussed.

KEYWORDS: sedimentation

GEOGRAPHIC AREA: Hartford Basin, Connecticut

MAPS: Section: columnar

DATA: Photos: outcrops, hand samples

1143 F : SANDERS, JOHN E., 1970, Stratigraphy and structure of the Triassic strata of the Gaillard graben, south-central Connecticut: Connecticut Geological and Natural History Survey, Guidebook 3, 15 p.

SUMMARY: This field guide includes 13 stops in the East Haven, Branford, and Durham areas of southern Connecticut within a graben bounded to the east by the basin border fault and to the west by the Foxon fault. Units and lithologies included are the New Haven Arkose; the Talcott basalt breccias, pillows, and interbedded arkoses; and the Shuttle Meadow, East Berlin, Hampden, and Portland Fms. Emphasis is placed on the relationship between folds and faults within the basin.

KEYWORDS: structure
stratigraphy
general geology

GEOGRAPHIC AREA: Hartford Basin, Connecticut

MAPS: Geol: sketches

1144 A : SANDERS, JOHN E., 1971, Triassic rocks, northeastern North America: regional tectonic significance in light of plate tectonics: Geological Society of America, Abstracts with Programs, v. 3, p. 781-783.

SUMMARY: A five-stage tectonic-structural history is developed to account for the complex structure of the basins (i.e., three sets of fold axes, right- and left-lateral strike-slip faults, and three episodes of dike injection perpendicular to the fold axes). This period of post-depositional instability occurred in the early Jurassic during a period of rapid paleomagnetic pole shifting between the Appalachian and Atlantic tectonic regimes.

KEYWORDS: structure
tectonics

GEOGRAPHIC AREA: Regional

1145 A : SANDERS, JOHN E., 1971, Upper Triassic rocks, Northeastern North America: interpretation as products of transition period between ancient "Appalachian" and modern "Atlantic" lithosphere-plate regimes: Pennsylvania Academy of Science, v. 45, p. 199.

SUMMARY: The tectonic history is interpreted as not one of simple tension but one of a five-stage history: (1) tension, sedimentation, magmatism; (2) compression; (3, 4, 5) three successive episodes of tensional faulting, dike intrusion, compressional folding, and strike-slip faulting. Movements occurred during a 30-m.y. period between the Appalachian and Atlantic regimes.

KEYWORDS: tectonics
structure
faults

GEOGRAPHIC AREA: Regional

1146 F : SANDERS, JOHN E., 1974, Guidebook to field trip in Rockland County, New York: Petroleum Exploration Society of New York, 87 p.

SUMMARY: In addition to the road log, discussions concerning the potential for oil and gas reservoirs, the significance of border conglomerates, and the tectonic history are presented.

KEYWORDS: general geology
economic geology
oil
gas

GEOGRAPHIC AREA: Newark Basin, New York, Rockland County

MAPS: Geol: sketches

DATA: Photos: photomicrographs (sed rocks)

1147 P : SANDERS, JOHN E., GUIDOTTI, CHARLES V., AND WILDE, PAT, 1963, Foxon Fault and Gaillard graben in the Triassic of Southern Connecticut: Connecticut Geological and Natural History Survey, Guidebook 2, 16 p.

SUMMARY: The Foxon Fault is a SE-dipping normal fault that parallels the NW-dipping normal border fault and is several miles west of the border fault. The Gaillard graben is the area between the two faults. Transverse folds in the area only occur in the graben, which may have developed as an adjustment to the folding system. Dikes were emplaced along the Foxon Fault and are therefore not the feeders for the older basalt flows of the area.

KEYWORDS: structure
general geology

GEOGRAPHIC AREA: Hartford Basin, Connecticut, New Haven, Branford Quad.

MAPS: Section: stratigraphic

1148 T : SARGENT, J.D., 1949, The geology of the Windsor Locks quadrangle, Connecticut: M.A. Thesis, Department of Geology and Geography, University of Buffalo, Buffalo, N.Y., 38 p.

KEYWORDS: bedrock geology
structure

GEOGRAPHIC AREA: Hartford Basin, Connecticut

1149 T : SARRIS, N.J., 1955, Contributions to the stratigraphy and lithology of the Triassic sedimentary rocks in the Connecticut Valley of Massachusetts: M.S. Thesis, University of Massachusetts.

KEYWORDS: general geology
stratigraphy
sedimentation

GEOGRAPHIC AREA: Hartford Basin, Massachusetts

1150 P : SASSEN, ROGER, 1978, Natrolite and associated secondary minerals at the Chimney Rock Quarry, Bound Brook, New Jersey: Mineralogical Record, v. 9, p. 25-31.

SUMMARY: Zeolites and other minerals are described from this quarry in the First Watchung basalt. From early to late, the paragenesis is: soluble salts (anhydrite, glauberite); quartz period (quartz, copper, silver); prehnite period (prehnite, datolite, copper sulfides); natrolite period (zeolites); calcite; and copper carbonate, iron oxide weathering products.

KEYWORDS: basalt
mineralogy
zeolites

GEOGRAPHIC AREA: Newark Basin, New Jersey, Somerset Co., Bound Brook Quad.

DATA: Photos: minerals

1151 T : SAVAGE, E. LYNN, 1967, The Triassic sediments of Rockland County, New York: Ph.D. Thesis, Rutgers University.

KEYWORDS: general geology

GEOGRAPHIC AREA: Newark Basin, New York

1152 F : SAVAGE, E. LYNN, AND VAN HOUTEN, F.B., 1968, Trip C: The Triassic rocks of the Northern Newark Basin: New York State Geological Association, Guidebook No. 40, p. 49-100.

SUMMARY: The constitution and paleontology of the Stockton, Lockatong, and Brunswick Formations are outlined. The source of sediments is outlined, and various hypotheses are presented. Field trip stops are along the Palisades Sill, at Ladentown, and at Cherry Hill.

KEYWORDS: general geology
sedimentation
sediments
mineralogy

GEOGRAPHIC AREA: Newark Basin, New Jersey

MAPS: Geol: sketches
Misc: pebble composition; garnet, apatite, tourmaline, rutile, zircon distribution in sediments; cross bedding directions

1153 A : SCHAEFER, C.A., 1882, Native silver in New Jersey copper ores: Engineering and Mining Journal, v. 33, p. 90.

SUMMARY: It is noted that native silver occurs at the Bridgewater mine two miles north of Somerville and that during early mining the silver payed for the copper smelting. (A note by W.B. Dersereux on p. 66, v. 33, indicates that the silver occurs in siliceous ore containing cuprite.)

KEYWORDS: economic geology
copper
silver

GEOGRAPHIC AREA: Newark Basin, New Jersey

1154 P : SCHAEFFER, BOBB, AND MCDONALD, NICHOLAS G., 1978, Redfieldiid fishes from the Triassic-Liassic Newark Supergroup of eastern North America: American Museum of Natural History, Bulletin, v. 159, Article 4, p. 130-173.

SUMMARY: Four Newark Redfieldiid genera are described in detail, and their geologic occurrence with respect to all the basin areas is outlined. Geographically, Dictopyge shows the most narrow distribution (Richmond, Taylorsville, Scottsburg Basins), while Redfieldius and Synorichthys have a broader range. Redfieldius is Liassic in age, with the other genera being middle and upper Carnian. A correlation chart is included.

KEYWORDS: paleontology

GEOGRAPHIC AREA: Regional

DATA: Photos: fossil fish

1155 P : SCHALLER, WALDEMAR T., 1932, The crystal cavities of the New Jersey zeolite region: U.S. Geological Survey Bulletin 832, 90 p.

SUMMARY: It is shown that glauberite and anhydrite crystallized first as lava reacted with lake water. Crystal cavities left by the removal of these and other zeolites are classed as rectangular (after anhydrite); lamellar (after anhydrite, calcite, babingtonite); rhombic (after glauberite); and other miscellaneous cavities. Babingtonite is in most cases not the primary mineral. Crystal morphology is emphasized.

KEYWORDS: basalt
mineralogy
zeolites

GEOGRAPHIC AREA: Newark Basin, New Jersey

DATA: Photos: mineral specimens

1156 A : SCHARNBERGER, C.K., NICHOLS, P.H., AND BRIA, J.J., 1979, Diabase dikes in Lancaster County, Pennsylvania: evidence of Late Triassic shear: Geological Society of America, Abstracts with Programs, v. 11, p. 52.

SUMMARY: A z-shaped, sigmoidal pattern characterizes the dikes and is attributed to emplacement in echelon extension fractures resulting from dextral simple shear whose plane is N 70°W and whose angular shear is 40°.

KEYWORDS: structure
diabase
faults

GEOGRAPHIC AREA: Newark Basin, Pennsylvania, Lancaster County

1157 P : SCHILT, F.S., BROWN, L.D., OLIVA, J.E., AND KAUFMAN, SIDNEY, 1983, Subsurface structures near Charleston, South Carolina - results of COCORP reflection profiling in the Atlantic Coastal Plain: in, Gohn, G.S., ed., Studies Related to the Charleston, South Carolina Earthquake of 1886 - tectonics and seismicity: U.S. Geological Survey Professional Paper 1313-H, p. H1-H19.

SUMMARY: Interpretation of seismc profiles delineates the lower Mesozoic basalt layer in the Charleston-Summerville area.

KEYWORDS: buried basins
geophysics
seismic profiles
structure

GEOGRAPHIC AREA: South Carolina

MAPS: Section: fence diagram
Geophys: seismic profiles

1158 P : SCHIPF, ROBERT G., 1961, Geology and ground water resources of the Fayetteville area: North Carolina Department of Water Resources, Ground-water Bulletin Number 3, 99 p.

SUMMARY: Water chemistry and yield are presented for wells in Triassic rock from the Deep River Basin. Yields are generally low (less than 10 gpm), and water is generally alkaline and hard.

KEYWORDS: hydrology

GEOGRAPHIC AREA: Deep River Basin, North Carolina, Lee Co., Montgomery Co., Moore Co., Richmond Co.

MAPS: Geol: sketches
Misc: well locations

DATA: Chem. (type of data): water

1159 P : SCHIPF, ROBERT G., 1964, Fayetteville "Buried Triassic Basin": American Association of Petroleum Geologists, Bulletin, v. 48, p. 721-723.

SUMMARY: Well evidence between Raeford in Hoke County and Benson in Johnston County does not support the existence of a buried basin, as no red beds have been recovered.

KEYWORDS: buried basins

GEOGRAPHIC AREA: North Carolina

MAPS: Geol: sketch

1160 P : SCHNABEL, R.W., 1968, Chemical analysis of selected samples of diabase and basalt from Connecticut: U.S. Geological Survey Open-File Report, 6 p.

SUMMARY: Chemical analyses (major oxides) are presented for thirty-two diabase and basalt samples (locations provided). Samples include: Holyoke, Hampden, and Talcott basalts, and Mount Carmel and West Rock diabase.

KEYWORDS: diabase
basalt
geochemistry

GEOGRAPHIC AREA: Hartford Basin, Connecticut

DATA: Chem. (type of data): major oxide (diabase, basalt)

1161 M : SCHNABEL, ROBERT, 1960, Bedrock geology of the Avon Quadrangle: U.S. Geological Survey, Geologic Quadrangle Map GQ-134.

KEYWORDS: general geology

GEOGRAPHIC AREA: Hartford Basin, Connecticut, Hartford Co.

MAPS: Geol: [1:24,000]

1162 M : SCHNABEL, ROBERT W., 1974, Bedrock geology of the Southwick Quadrangle: U.S. Geological Survey, Geologic Quadrangle Map GQ-1170.

KEYWORDS: general geology

GEOGRAPHIC AREA: Hartford Basin, Connecticut, Massachusetts, Hampden Co. (Mass.), Hartford Co. (Conn.)

MAPS: Geol: [1:24,000]

1163 M : SCHNABEL, ROBERT W., 1975, Geology of the New Hartford Quadrangle: U.S. Geological Survey, Geologic Quadrangle Map GQ-1257.

KEYWORDS: general geology

GEOGRAPHIC AREA: Hartford Basin, Connecticut, Hartford Co.

MAPS: Geol: [1:24,000]

1164 M : SCHNABEL, ROBERT W., AND ERIC, JOHN H., 1964, Bedrock geology of the Windsor Locks Quadrangle: U.S. Geological Survey, Geologic Quadrangle Map GQ-388.

KEYWORDS: general geology
economic geology
copper
uranium

GEOGRAPHIC AREA: Hartford Basin, Connecticut, Hartford Co.

MAPS: Geol: [1:24,000]

1165 M : SCHNABEL, ROBERT W., AND ERIC, JOHN H., 1965, Bedrock geology of the Tariffville Quadrangle: U.S. Geological Survey, Geologic Quadrangle Map GQ-370.

KEYWORDS: general geology

GEOGRAPHIC AREA: Hartford Basin, Connecticut, Hartford Co.

MAPS: Geol: [1:24,000]

1166 P : SCHULTZ, GEORG, AND HOPE, R.C., 1973, Late Triassic microfossil flora from the Deep River Basin, North Carolina: Palaeontographica Abt. B, v. 141, p. 63-88.

SUMMARY: The microflora species (47) of a 20-foot section of the Pekin Formation (gray, shaly siltstone) at Gulf are described. A late Triassic age is suggested. Because the N.C. species correlate closely to European forms, a closer continental connection and a more equitable climate are suggested.

KEYWORDS: paleontology

GEOGRAPHIC AREA: Deep River Basin, North Carolina, Chatham Co., Goldston Quad.

DATA: Photos: microfossils

1167 T : SCHUTZ, D.F., 1956, The geology of the Pomperaug Valley, Connecticut: Senior Thesis, Yale University, 45 p.

KEYWORDS: general geology

GEOGRAPHIC AREA: Pomperaug Basin, Connecticut

1168 PM: SCOTT, R.G., 1974, The bedrock geology of the Southbury Quadrangle with map: Connecticut Geological and Natural History Survey, Quadrangle Report 30, 63 p.

SUMMARY: The SE area of the basin is bounded by normal border faults and consists of east-dipping New Haven Arkose overlain by three basalt flows, displaying brecciated, pillowed, columnar, and amygdaloidal character, intercalated with arkose, shale, and conglomerate. Structural interpretations are discussed. Correlation of the basalt flows and sediments with those of the Hartford Basin to the east requires further paleomagnetic study. Coarse conglomerate in the Pomperaug Basin may preclude a source of the basalts and sediments from east of the Hartford Basin.

KEYWORDS: general geology
structure

GEOGRAPHIC AREA: Pomperaug Basin, Connecticut, New Haven Co., Southbury Quad.

MAPS: Geol: [1:24,000]

1169 M : SEGERSTROM, KENNETH, 1956, Bedrock geology of the Shelburne Falls Quadrangle, Massachusetts: U.S. Geological Survey Geologic Quadrangle Map GQ-87.

KEYWORDS: general geology

GEOGRAPHIC AREA: Deerfirld Basin, Massachusetts, Franklin Co.

MAPS: Geol: [1:31,680]

1170 P : SEGUIN, M.K., RAO, K.V., VENUGOPAL, D.V., AND GAHE, E., 1981, Paleomagnetism of parts of the Late Triassic diabase dike system associated with the Trans-New Brunswick aeromagnetic lineament: Canadian Journal of Earth Sciences, v. 18, p. 1776-1787.

SUMMARY: Three diabase samples from the Caraquet dike yield pole and corresponding age data as follows: 82°E, 62°N (late Triassic 200-190 m.y.); and 143°E, 78°N and 133°E, 74°N (late Jurassic 180-170 m.y.). Independent age data are lacking, and the occurrence of younger magnetization due to viscous partial thermoremanence is considered.

KEYWORDS: diabase
geophysics
paleomagnetism

GEOGRAPHIC AREA: Maritime Province, Canada

MAPS: Misc: sample locations

DATA: Plots: pole positions; NRM vs. induced; demagnetization

1171 P : SEIDEMANN, D.E., MASTERSON, W.D., DOWLING, M.P., AND TUREKIAN, K.K., 1984, K-Ar dates and $^{40}Ar/^{39}Ar$ age spectra for Mesozoic basalt flows of the Hartford Basin, Connecticut, and the Newark Basin, New Jersey: Geological Society of America, Bulletin, v. 95, p. 594-598.

SUMMARY: Conventional K-Ar dates for plagioclase separates are: Talcott (bottom-186$\pm$8), Holyoke (middle-189$\pm$6), Hampden (top-230$\pm$12), First Watchung through Third (191$\pm$8, 194$\pm$4, 185$\pm$4). $^{40}Ar/^{39}Ar$ age spectrum for Talcott and Hampdem flows are discussed. Samples profiling the Hampdem flow yield higher ages in the coarse, altered, upper portions than the finer base, suggesting that excess radiogenic ^{40}Ar is introduced via hydrothermal alteration. Correlation between basins is not attempted; however, the Second Watchung flow may have preceeded all Hartford Basin flows.

KEYWORDS: basalt
geophysics
radiometric age
K/Ar dating

GEOGRAPHIC AREA: Newark Basin, New Jersey, Hartford Basin, Connecticut

DATA: Plots: $^{40}Ar/^{39}Ar$ vs. age

1172 PM: SHALER, NATHANIEL SOUTHGATE, AND WOODWORTH, JAY BACKUS, 1899, Geology of the Richmond Basin, Virginia: U.S. Geological Survey, 19th Annual Report, Pt. 2, p. 385-519.

SUMMARY: The stratigraphy and paleontology of the Tuckahoe and Chesterfield Groups are outlined. Previous structural interpretations, and the nature of the eastern and western borders, are discussed. Other topics include diabase dikes, coal deposits, erosional history, and internal basin structure.

KEYWORDS: general geology
stratigraphy
paleontology
economic geology
coal
structure

GEOGRAPHIC AREA: Richmond Basin, Virginia

MAPS: Geol: sketches; [1 inch = 2 miles]
Section: geologic cross sections; stratigraphic

DATA: Photos: outcrops

1173 T : SHANK, J.C., 1961, A detailed magnetic survey in the Traissic basin, North Chester County, Pennsylvania: M.S. Thesis, The Pennsylvania State University.

KEYWORDS: geophysics
magnetism

GEOGRAPHIC AREA: Newark Basin, Pennsylvania, Chester County

1174 P : SHANNON, EARL V., 1919, Famous mineral localities: the datolite locality near Westfield, Massachusetts: American Mineralogist, v. 4, p. 5-6.

SUMMARY: The occurrence of datolite and calcite within sheared zones in the diabase of the Holyoke sheet is outlined.

KEYWORDS: diabase
mineralogy
zeolites

GEOGRAPHIC AREA: Hartford Basin, Massachusetts, Hampden County

1175 P : SHANNON, EARL V., 1919, On coarse gabbroid diabase in Westfield, Massachusetts: Journal of Geology, v. 27, p. 579-581.

SUMMARY: The pegmatitic diabase occurring near the top of the Holyoke flow is attributed to the acquisition of water in the molten flow resulting in the formation of the pegmatitic chambers of augite and plagioclase. (See B.K. Emerson, 1905.)

KEYWORDS: basalt
mineralogy

GEOGRAPHIC AREA: Hartford Basin, Massachusetts, Hampden County

1176 A : SHANNON, EARL V., 1920, The Trap Quarry at Meriden, Connecticut: American Mineralogist, v. 5, p. 34.

SUMMARY: The mineral occurrences of the quarry in the amygdaloidal basalt are briefly outlined and include: calcite, anhydrite, diabantite, and datolite.

KEYWORDS: basalt
mineralogy
zeolites

GEOGRAPHIC AREA: Hartford Basin, Connecticut, New Haven Co., Meriden Quad.

1177 P : SHANNON, EARL V., 1925, An occurrence of xonotlite at Leesburg, Virginia: American Mineralogist, v. 10, p. 12-13.

SUMMARY: Xonotlite admixed with diopside and thaumasite is found in limestone conglomerate adjacent to diabase. 5-mm veins of the mineral are also found in relatively unaltered conglomerate. No locality is given. Optical properties are outlined.

KEYWORDS: mineralogy
metamorphism
zeolites

GEOGRAPHIC AREA: Culpeper Basin, Virginia, Loudoun County

1178 P : SHANNON, EARL V., 1926, Mineralogy and petrography of Triassic limestone conglomerate metamorphosed by intrusive diabase at Leesburg, Virginia: U.S. National Museum, Proceedings, v. 66, Art. 28, 31 p.

SUMMARY: Contact metamorphism of limestone conglomerate by diabase results in the formation of diopside-garnet zones (veins) which contain in paragenetic order: diopside, vesuvianite, andradite, serpentine, and magnetite. Distal, low-temperature veins contain diopside, datolite, apophyllite, barite, and calcite. Optical and crystallographic data are presented.

KEYWORDS: mineralogy
metamorphism

GEOGRAPHIC AREA: Culpeper Basin, Virginia, Loudoun, Leesburg Quad.

1179 P : SHANNON, EARL V., 1926, The mineralogy and petrology of intrusive Triassic diabase at Goose Creek, Loudoun County, Virginia: U.S. National Museum, Proceedings, v. 66, Art. 2, 86 p.

SUMMARY: This extensive work is a descriptive presentation of the mineralogy (with crystallographic emphasis) of the normal diabase, diabase pegmatite, albitic pegmatite, aplites, secondary mineral cavities, and hydrothermal alteration.

KEYWORDS: diabase
mineralogy
petrology

GEOGRAPHIC AREA: Culpeper Basin, Virginia, Loudoun Co., Leesburg Quad.

DATA: Photos: mineral specimens; photomicrographs

1180 T : SHAUB, F.J., 1975, Interpretation of a gravity profile across the Gettysburg Triassic Basin: Ph.D. Thesis, Pennsylvania State University.

KEYWORDS: geophysics
gravity
structure

GEOGRAPHIC AREA: Gettysburg Basin, Pennsylvania

1181 T : SHEARER, RALPH D., 1927, A cross section through the Durham Triassic Basin: M.S. Thesis, University of North Carolina, 24 p.

KEYWORDS: structure

GEOGRAPHIC AREA: Durham Basin, North Carolina

1182 A : SICHKO, MICHAEL S., 1974, A structural and petrological study of the Second Watchung basaltic flow near Pluckemin, New Jersey: Geological Society of America, Abstracts with Programs, v. 6, p. 73.

SUMMARY: A complex history is revealed in three flows, a pillow-palagonite complex, volcanic breccia pipes, a feeder dike, and an iron-enriched flow unit. The Palisades Sill was intruded between the First and Second Watchung flow events.

KEYWORDS: basalt
petrology

GEOGRAPHIC AREA: Newark Basin, New Jersey

1183 P : SILLIMAN, BENJAMIN, 1830, Igneous origin of some trap rocks: American Journal of Science, v. 17, p. 119-132.

SUMMARY: This is a brief review of the field evidence supporting an igneous origin for the trap trocks of the Newark system.

KEYWORDS: general geology
diabase

GEOGRAPHIC AREA: Regional

1184 P : SILLIMAN, BENJAMIN, JR., AND WHITNEY, J.D., 1855, Notice of the geological position and character of the copper mines at Bristol, Connecticut: American Journal of Science, v. 20, p. 361-368.

SUMMARY: A detailed description is given of the history and mine workings in the deposit which lies between the Triassic sandstone and the Paleozoic metamorphic rocks. The ore zone, of which 3% is copper mineral, increases in width with depth to about 50 feet at a depth of 240 feet.

KEYWORDS: economic geology
copper

GEOGRAPHIC AREA: Hartford Basin, Connecticut, Bristol County, Bristol Quad.

MAPS: Section: cross section of mine

1185 T : SILVERSTEIN, HENRY, 1974, The New Haven Arkose of Connecticut (Triassic): M.A. Thesis, Brooklyn College, Brooklyn, N.Y., 73 p.

KEYWORDS: sediments
petrology

GEOGRAPHIC AREA: Hartford Basin, Connecticut

1186 A : SIMPSON, DALE K., 1969, Hornfels associated with Triassic diabase: Geological Society of America, Abstracts with Programs, v. 1, p. 55-56.

SUMMARY: Contact metamorphism of the Brunswick (red shale) Fm. results in depletion of quartz and the formation of plagioclase-alkali feldspar-mica hornfels with chlorite, kaolinite, and apatite. Phosphorus contents of the contact and unaltered rocks are similar. Removal of silica is attributed to magmatic assimilation.

KEYWORDS: metamorphism
hornfels
mineralogy

GEOGRAPHIC AREA: Newark Basin, Pennsylvania

1187 P : SIMPSON, DALE R., 1969, Prehnite veins in Triassic diabase, Coopersburg, Pennsylvania: Geological Society of America, Bulletin, v. 80, p. 1355-1362.

SUMMARY: Prehnite-rich veins contain early pyroxene and albite with later amphibole, chlorite, and prehnite. Alteration zones in the diabase consist of an outer hypersthene-altered-to-chlorite zone, a central chlorite zone, and an inner vein-adjacent amphibole zone. The albite in the veins contains numerous inner inclusions and inclusion-free rims indicating deposition by a hydrothermal fluid with a later vapor phase.

KEYWORDS: diabase
mineralogy
petrology

GEOGRAPHIC AREA: Newark Basin, Pennsylvania, Bucks County

DATA: Chem. (type of data): major oxide

1188 M : SIMPSON, HOWARD E., 1966, Bedrock geology of the New Britain Quadrangle: U.S. Geological Survey, Geologic Quadrangle Map GQ-494.

KEYWORDS: general geology
economic geology
copper
lead
zinc
barite

GEOGRAPHIC AREA: Hartford Basin, Connecticut, Hartford Co.

MAPS: Geol: [1:24,000]

1189 P : SIMS, SAMUEL J., 1968, The Grace Mine magnetite deposit, Berks County, Pennsylvania: in, Ridge, J.D., ed., Ore Deposits of the United States 1933-1967, Volume 1, American Institute of Mining and Metallurgical Engineers, p. 108-124.

SUMMARY: A magnetite replacement ore-body occurs in Cambrian limestone between footwall diabase and hanging wall Triassic sediments. Pyrite, chalcopyrite, pyrrhotite, and sphalerite also occur within the serpentine, talc, chlorite gangue. Magnetite formed by replacement of serpentine. Ore formation occurred at 1500 bars and between 500 and 675°C. History, geology, and mineralogy are further discussed.

KEYWORDS: economic geology
iron

GEOGRAPHIC AREA: Newark Basin, Pennsylvania, Berks County, Morgantown Quad.

MAPS: Geol: sketches

DATA: Chem. (type of data): ore
Plots: ore zone (Fe - Si + Al - Mg + Ca) ternary; orebody chemical variations with depth

1190 T : SINCLAIR, HORACE A., 1981, Apatite fission track analysis of the Triassic Portland Formation, Connecticut River Valley: M.S. Thesis, Rensselear Polytechnic Institute, 74 p.

KEYWORDS: radiometric age
K/Ar dating
fission-track dating

GEOGRAPHIC AREA: Hartford Basin, Connecticut

1191 T : SINGH, HARINDER, 1964, Diabase intrusions of a portion of the Durham Triassic Basin, North Carolina: M.S. Thesis, University of North Carolina, 23 p.

KEYWORDS: general geology

GEOGRAPHIC AREA: Durham Basin, North Carolina

1192 A : SIPLE, GEORGE E., AND MARINE, I.W., 1968, Newly discovered Triassic basin in the Central Savannah River area, South Carolina: Geological Society of America, Special Paper 101, p. 374-375.

SUMMARY: A buried basin containing at least 95 feet of red and gray arkosic claystone and siltstone trends for 25 miles at N 57°E from Aiken, S.C., to the Savannah River. Geophysics has been used to outline the basin which has a southeast border fault and which may be a continuation of the Florence, S.C., buried basin.

KEYWORDS: buried basins

GEOGRAPHIC AREA: South Carolina

1193 P : SMITH, CHARLES, 1982, Bibliography of mines and quarries of Connecticut: Connecticut State Geological and Natural History, Open-File Report, 26 p.

KEYWORDS: bibliography
economic geology
copper
barite

GEOGRAPHIC AREA: Hartford Basin, Connecticut

1194 PM: SMITH, LAURENCE L., 1931, Magnetite deposits of French Creek, Pennsylvania: Pennsylvania Geological Survey, 4th Series, Bulletin M-14, 52 p.

SUMMARY: The general geology and structure of the area are outlined. Ore occurs within pre-Cambrian limestone within gneiss and consists of magnetite, pyrite, chalcopyrite in a calc-silicate gangue. A diabase intrusive adjacent to the limestone resulted in ore formation whose fluids were a late magmatic differentiate. The deposit is not exposed at the surface.

KEYWORDS: economic geology
iron

GEOGRAPHIC AREA: Newark Basin, Pennsylvania, Chester Co., Pottstown Quad.

MAPS: Geol: [1:62,500]

DATA: Photos: hand samples; photomicrographs

1195 T : SMITH, ROBERT C., II, 1973, Geochemistry of Triassic diabase from southeastern Pennsylvania: Ph.D. Thesis, Pennsylvania State University, 262 p.

KEYWORDS: geochemistry
petrology
diabase

GEOGRAPHIC AREA: Newark Basin, Gettysburg Basin, Pennsylvania

1196 P : SMITH, ROBERT C., II, 1977, Zinc and lead occurrences in Pennsylvania: Pennsylvania Geological Survey, Mineral Resource Report 72, 318 p.

SUMMARY: Detailed descriptions are given for a number of Triassic-hosted lead-zinc deposits and deposits closely associated with the Triassic rocks. The deposits include: Charlestown-Buckwalter, Chester County Mine, Jug Hollow Mine, Montgomery County Mine, New Galena, Perkiomen-Ecton Mine, Wheatley-Brookdale.

KEYWORDS: economic geology
lead
zinc
copper
barite

GEOGRAPHIC AREA: Newark Basin, Pennsylvania, Chester Co., Bucks Co.

MAPS: Misc: mine sketches

DATA: Photos: underground workings

1197 P : SMITH, ROBERT C., II, AND HOFF, DONALD T., 1977, Newly discovered minerals at Stone Jug copper prospect, Adams County: Pennsylvania Geology, v. 8, no. 5, p. 14-16.

SUMMARY: Chalcopyrite, molybdenite, powellite, and copper carbonates occur in the Gettysburg shale adjacent to a diabase intrusive, and a high-grade ore sample contains 180 ppm Mo, 3 oz/ton Ag, and .05 oz/ton Au. Further investigation in the area is suggested.

KEYWORDS: economic geology
copper
molybdenum
silver
gold
iron

GEOGRAPHIC AREA: Gettysburg Basin, Pennsylvania, Adams Co., Biglerville Quad.

MAPS: Misc: sketch of location

1198 A : SMITH, ROBERT C., II, AND ROSE, ARTHUR W., 1970, The occurrence and chemical composition of two distinct types of Triassic diabase in Pennsylvania: Geological Society of America, Abstracts with Programs, v. 2, p. 688.

SUMMARY: The two types are: Rossville-type (higher Al and S, high-alumina basalt) and York Haven-type (higher Mg, Ti, Cu, quartz tholeiite). Uniformity within each type suggests magma homogeneity within the entire Pa. Triassic area. Similarity to oceanic tholeiite suggests the magmatic episode was an aborted rifting attempt.

KEYWORDS: diabase
petrology
geochemistry

GEOGRAPHIC AREA: Gettysburg Basin, Newark Basin, Pennsylvania

1199 A : SMITH, ROBERT C., II, AND ROSE, ARTHUR W., JR., 1972, Major and trace elements in differentiates of Triassic diabase and their relationship to Cornwall-type deposits: Geological Society of America, Abstracts with Programs, v. 4, p. 671.

SUMMARY: Diabase sheets in S.E. Pennsylvania show crystal fractionation by bronzite settling depleting the magma in Mg, Cr, and Ni. A residual quartz gabbro, magnetite-rich magma results, accompanied by loss of hydrothermal fluid. Estimates of final magma: 780°C, FO2 (10^{-16} bars), FH2 (50 bars), FH2O (1900 bars). Separation of a late stage hydrothermal fluid may result in formation of magnetite-chalcopyrite ores.

KEYWORDS: diabase
petrology
geochemistry
economic geology
iron

GEOGRAPHIC AREA: Newark Basin, Gettysburg Basin, Pennsylvania

1200 P : SMITH, ROBERT C., II, ROSE, ARTHUR W., AND LANNING, ROBERT M., 1975, Geology and geochemistry of Triassic diabase in Pennsylvania: Geological Society of America, Bulletin, v. 86, p. 943-955.

SUMMARY: Three diabase types are recognized: oldest Quarryville-type, dikes, olivine tholeiite; York Haven-type quartz tholeiite; Rossville-type, youngest, quartz tholeiite. Dike intrusion followed pre-existing basement structure. The latter two magmas resulted from fractionation and reaction with the crust and mantle.

KEYWORDS: petrology
geochemistry
diabase

GEOGRAPHIC AREA: Gettysburg Basin, Newark Basin, Pennsylvania

DATA: Chem. (type of data): major oxide, trace
Plots: dike orientation

1201 T : SMITH, T.E., 1976, Paleomagnetism of the Lower Mesozoic diabase and arkose of Connecticut and Maryland: Ph.D. Thesis, Ohio State University.

KEYWORDS: geophysics
paleomagnetism

GEOGRAPHIC AREA: Hartford Basin, Connecticut, Gettysburg Basin, Maryland

1202 A : SMITH, T.E., 1977, Paleomagnetic reversal in the Lower Mesozoic Medford diabase of Eastern Massachusetts: American Geophysical Union, Transactions, v. 58, p. 376.

SUMMARY: The northern portion of the sheet, a NE-trending dike (42°24'N, 71°6'W), produced a mean pole at 96.1°E, 50.6°N. Curie temperatures ranged from 375-550°C. The dike showed normal polarity, whereas cross-cutting, mildly serpentinized dikes showed reversed or scattered polarity. This reversal may correspond to the 190 m.y. old Nvantsi Zone.

KEYWORDS: geophysics
paleomagnetism

GEOGRAPHIC AREA: Massachusetts

1203 A : SMITH, T.E., 1978, Paleomagnetism of Newark group arkose, Connecticut and Maryland: American Geophysical Union, Transactions, v. 59, p. 271.

SUMMARY: Twelve samples from the New Haven and New Oxford Fms. yield good results in only three (103°E, 75°N; 92°E, 57°N; 50°E, 64°N). Other samples yielded anomalous results characterized by steep NRM inclinations (35-75°) that shallowed during cleaning. Anomalous results appear to be due to diagenetic pigmentation processes involving the iron oxides and hydroxides.

KEYWORDS: geophysics
paleomagnetism

GEOGRAPHIC AREA: Hartford Basin, Connecticut; Gettysburg Basin, Maryland

1204 A : SMITH, T.E., AND NOLTIMIER, H.C., 1974, Paleomagnetic study of some Mesozoic diabase dikes and sills in Central Maryland and in the Connecticut Valley: American Geophysical Union, Transactions, v. 55, p. 675.

SUMMARY: Woodsboro, Md., dike yielded VGP (+72°, +84°, k = 34); Franklinsville, Md., dike yielded (VGP +10°, +27°, k = 42) though samples may not have been in place; and Boyds Sill, Md. (VGP +45°, +101°, k = 1.9). The VGP from the Woodsboro site lies west of the Lower Jurassic pole suggested by de Boer. No Connecticut data are cited.

KEYWORDS: geophysics
paleomagnetism

GEOGRAPHIC AREA: Gettysburg Basin, Culpeper Basin, Maryland

1205 P : SMITH, T.E., AND NOLTIMIER, H.C., 1979, Paleomagnetism of the Newark trend igneous rocks of the North Central Appalachians and the opening of the Central Atlantic Ocean: American Journal of Science, v. 279, p. 778-807.

SUMMARY: Data from the Barndoor, East Rock, Mt. Carmel, and West Rock intrusives together with previous data and biostratigraphy suggest two regional igneous pulses at 190 m.y. (83.2°E, 63.0°N) and 175 m.y. (103.2°E, 65.3°N) that agree with western U.S. polar wander paths. Data from Liberia and Morocco together with seafloor magnetic anomaly data indicate active spreading had not begun before 175 m.y.

KEYWORDS: geophysics
paleomagnetism
tectonics

GEOGRAPHIC AREA: Regional; Hartford Basin, Connecticut

MAPS: Section: regional stratigraphic chart
Misc: sample locations

DATA: Plots: pole positions, VGP data

1206 P : SMITH, TIMOTHY E., 1976, Paleomagnetic study of Lower Mesozoic diabase dikes and sills of Connecticut and Maryland: Canadian Journal of Earth Sciences, v. 13, p. 597-609.

SUMMARY: 61 samples from the two states yield a pole at 100.9°E, 68.6°N that, when combined with Pennsylvania sites, yields 101.6°E, 65.4°N. Stratigraphic and age considerations when combined with these results indicate that the basins did not subside simultaneously. Evidence suggests that continental separation (Europe - N. America) had not begun by the Middle Jurassic.

KEYWORDS: geophysics
paleomagnetism

GEOGRAPHIC AREA: Regional (Culpeper Basin, Gettysburg Basin, Maryland; Hartford Basin, Connecticut)

MAPS: Misc: sample locations

DATA: Plots: pole positions

1207 A : SMITH, W.A., AND HARE, J.C., 1983, Paleomagnetic results from north-south and northwest trending diabase dikes from the Piedmont of North Carolina: Geological Society of America, Abstracts with Programs, v. 15, p. 198.

SUMMARY: Mean magnetization directions are: NW group (D=17.7°, I=18.9°), N group (D=13.4°, I=33.5°). The NW suite is the older of the two as dictated by the latitude of the site mean directions. A 20° rotation of the Piedmont is required to bring the observed VGP in coincidence with the N. American polar wander path.

KEYWORDS: geophysics
paleomagnetism

GEOGRAPHIC AREA: North Carolina

1208 P : SMITHERINGALE, W.G., AND JENSEN, M.L., 1963, Sulfur isotopic composition of the Triassic igneous rocks of Eastern United States: Geochimica et Cosmochimica Acta, v. 27, p. 1183-1207.

SUMMARY: Studies indicate late Triassic upper mantle sulfur was isotopically similar to meteoritic sulfur. Isotopic fractionation during crystallization of tholeiites results in S(34) enrichment in sulfides, and such enrichment may continue into hydrothermal stage sulfides. Mean values include: diabase (+0.1), differentiate (+5.5), Cornwall ore (+7), extrusives (-5).

KEYWORDS: diabase
geochemistry
isotopes

GEOGRAPHIC AREA: Regional

1209 T : SMITHERINGALE, WILLIAM GEORGE, 1964, The isotopic composition of sulfur in the Triassic igneous rocks of eastern United States: Ph.D. Thesis, Massachusetts Institute of Technology.

KEYWORDS: diabase
isotopes
basalt
geochemistry

GEOGRAPHIC AREA: Regional

1210 A : SMOOT, JOSEPH P., AND KATZ, SAMUEL B., 1982, Comparison of modern playa mudflat fabrics to cycles in the Triassic Lockatong Formation of New Jersey: Geological Society of America, Abstracts with Programs, v. 14, p. 83.

SUMMARY: Lockatong cycles (laminated black shale; mudcracked, thin-bedded mudstone; brecciated mudstone; massive mudstone with analcime and dolomite void fillings) are related to subaerial exposure and arid soil processes after lake shallowing (black shale). Such cycles are similar to those of the Mojave region of California and Nevada.

KEYWORDS: sedimentation

GEOGRAPHIC AREA: Newark Basin, New Jersey

1211 T : SNIDER, F.G., 1975, Analysis of magnetic and chemical data from Mesozoic diabase dikes of the Appalachians, with implications for the presence of a Triassic hotspot in the Carolinas: M.S. Thesis, Wesleyan University, 61 p.

KEYWORDS: diabase
geochemistry
petrology

GEOGRAPHIC AREA: Regional

1212 P : SOHON, JULIAN A., 1951, Connecticut minerals: Connecticut Geology and Natural History Survey, Bulletin 77, 128 p.

SUMMARY: A list of minerals and their descriptions are given with no precise localities or map. An extensive bibliography is provided. Of importance are the occurrences of copper, barite, and lead-zinc localities within the Hartford Mesozoic basin.

KEYWORDS: bibliography
mineralogy
zeolites
economic geology
copper
barite
lead
zinc

GEOGRAPHIC AREA: Hartford Basin, Connecticut

1213 T : SOLOYANIS, S.C., 1972, Upper Triassic fluviatile and lacustrine sediments, Turners Falls, Massachusetts: B.A. Honors Thesis, Department of Geology, Smith College, Northampton, Massachusetts, 86 p.

KEYWORDS: sedimentation

GEOGRAPHIC AREA: Hartford Basin, Massachusetts

1214 P : SOSMAN, R.B., AND MERWIN, H.E., 1913, Data on the intrusion temperature of the Palisade diabase: Washington Academy of Science, Journal, v. 3, p. 389-395.

SUMMARY: Arkosic inclusions trapped in diabase prompted experimental melting studies which indicate that arkose would melt before diabase could flow (actual temperatures - diabase 1225°C, arkose 1150°C). This discrepancy may result from pressure and volatile components not considered in experimentation. Sample location and descriptions are given.

KEYWORDS: diabase
petrology

GEOGRAPHIC AREA: Newark Basin, New Jersey

1215 P : SPENCER, ARTHUR C., 1908, Magnetite deposits of the Cornwall-type in Pennsylvania: U.S. Geological Survey Bulletin 359, 102 p.

SUMMARY: The geology and mine workings of a number of the magnetite-chalcopyrite Cornwall-type deposits are described from Lebanon, Berks, and York Counties. The deposits are considered to be genetically related to large diabase intrusives that provided the mineralizing solutions that replaced adjacent limestone.

KEYWORDS: economic geology
iron

GEOGRAPHIC AREA: Newark Basin, Gettysburg Basin, Pennsylvania

MAPS: Geol: Cornwall, Reading, Boyertown, and Dillsburg areas
Misc: mine layouts

1216 PM: STANLEY, ROLF S., AND CALDWELL, KATHERINE G., 1976, The bedrock geology of the Newtown Quadrangle: Connecticut Geology and Natural History Survey Quadrangle Report 33, 44 p.

SUMMARY: The SW edge of the Pomperaug Basin is present in the NE corner of the quadrangle and includes the New Haven Arkose and a basalt unit. The contact with Paleozoic rocks to the west is covered by surficial deposits but is considered an angular unconformity. Several faults enter the basin from the west and offset the western basin margin.

KEYWORDS: general geology

GEOGRAPHIC AREA: Pomperaug Basin, Connecticut, New Haven Co., Newtown Quad.

MAPS: Geol: [1:24,000] (bedrock)

1217 PM: STANLEY, ROLFE S., 1964, The bedrock geology of the Collinsville Quadrangle: Connecticut Geological and Natural History Survey, Quadrangle Report 16, 99 p.

SUMMARY: Triassic New Haven Arkose and diabase lie in the eastern edge of the quadrangle along the west margin of the basin. The Cherry Brook outlier lies within the crystalline highlands, is fault bounded on its east side, but in unconformable contact on its west side. The west margin of the Hartford Basin is marked by a normal fault.

KEYWORDS: general geology

GEOGRAPHIC AREA: Hartford Basin, Connecticut, Hartford Co., Collinsville Quad.

MAPS: Geol: [1:24,000]

1218 T : STARQUIST, V.L., 1943, The stratigraphy and structural geology of the central portion of the Mount Tom and East Mountain ridges: M.A. Thesis, Department of Geology, Smith College, Northampton, Massachusetts, 49 p.

KEYWORDS: basalt
stratigraphy
structure

GEOGRAPHIC AREA: Hartford Basin, Massachusetts

1219 T : STEEL, WARREN G., 1949, Dikes of the Durham Triassic Basin near Chapel Hill, North Carolina: M.S. Thesis, University of North Carolina, 25 p.

KEYWORDS: general geology
diabase

GEOGRAPHIC AREA: Durham Basin, North Carolina

1220 A : STEELE, KENNETH F., 1970, Chemical differentiation of a Triassic (?) diabase dike, Pageland, South Carolina: Geological Society of America, Abstracts with Programs, v. 2, p. 241.

SUMMARY: Alkali elements and Si, Ti, and Fe increase toward the center of the 1000-foot wide dike, while the transition metals and Ca, Mg, and Al decrease. Crystal field energy controls the behavior of the transition metals, and Cr/Ni ratios best indicate differentiation. The magma underwent normal differentiation, resulting in a felsic center.

KEYWORDS: diabase
geochemistry
petrology

GEOGRAPHIC AREA: South Carolina

1221 T : STEELE, KENNETH F., 1971, Chemical variations parallel and perpendicular to strike in two Mesozoic dolerite dikes, North Carolina and South Carolina: Ph.D. Thesis, University of North Carolina, 206 p.

KEYWORDS: diabase
geochemistry

GEOGRAPHIC AREA: North Carolina, South Carolina

1222 P : STEELE, KENNETH F., AND RAGLAND, PAUL C., 1976, Model for the closed-system fractionation of a dike formed by two pulses of dolerite magma: Contributions to Mineralogy and Petrology, v. 57, p. 305-316.

SUMMARY: Element concentrations across the dike are symmetrical about its center with subsidiary inflections due to mixing of two magma pulses of similar composition that have undergone closed-system crystal fractionation.

KEYWORDS: diabase
geochemistry
petrology

GEOGRAPHIC AREA: South Carolina

DATA: Chem. (type of data): major oxide, trace; profiles across dike

1223 F : STEVENS, G.R., AND COLWELL, J.A., 1980, Triassic volcanism and structure, northern Bay of Fundy region: Geological Association of Canada and Mineralogical Association of Canada Fieldtrip Guidebook, 40 p.

SUMMARY: Two contrasting exposures of Mesozoic basalt are examined. The first exposure (uppermost flows) were emplaced under static conditions. The second exposure includes flows, dikes, and agglomerates emplaced during active tectonism along a major fault zonc.

KEYWORDS: basalt

GEOGRAPHIC AREA: Maritime Province, Nova Scotia, Canada

1224 P : STEVENS, NELSON P., 1938, Two analyses of trap rock from the Holyoke Range in Massachusetts: American Journal of Science, 5th Series, v. 36, p. 150-154.

SUMMARY: Chemical analysis and thin section study of diabase from the main sheet and a cross-cutting dike indicate that they "are genetically related" with the main sheet more "salic" than the dike. Analytical procedure is outlined.

KEYWORDS: geochemistry

GEOGRAPHIC AREA: Hartford Basin, Massachusetts

DATA: Chem. (type of data): major oxide
Photos: photomicrographs

1225 T : STEVENS, R.L., 1977, Sedimentology of the Sugarloaf Arkose, Deerfield Basin, Massachusetts: M.S. Thesis, University of Massachusetts, 84 p.

KEYWORDS: sedimentation

GEOGRAPHIC AREA: Deerfield Basin, Massachusetts

1226 P : STEVENS, R.L., AND HUBERT, JOHN F., 1980, Alluvial fans, braided rivers, and lakes in a fault-bounded semiarid valley: Sugarloaf Arkose (Late Triassic-Early Jurassic), Newark Supergroup, Deerfield Basin, Massachusetts: Northeastern Geology, v. 2, p. 100-117.

SUMMARY: The Sugarloaf Arkose (2000 meters) was deposited by four alluvial fan systems. Six depositional facies - braided channel, floodplain, flood event, scour and fill, channel migration, and debris flow - are described and elucidate river-channel geometry and processes. Pyritic and dolomitic gray units correspond to an Early Jurassic alkaline lake period. The alluvial fan distribution, paleocurrents, and truncated map contours (clast size, cross beds) favor a "broad-terrane" hypothesis.

KEYWORDS: sedimentation

GEOGRAPHIC AREA: Deerfield Basin, Massachusetts

MAPS: Section: columnar (4)
Misc: Sugarloaf Arkose outcrops; clast size; paleocurrents; cross-bed set thickness; paleogeography

DATA: Photos: outcrops
Plots: paleocurrents

1227 A : STEVENSON, I.M., 1960, New occurrences of Triassic sedimentary rocks in Chedabucto Bay area, Nova Scotia: Geological Society of America, Bulletin, v. 71, p. 1807-1808.

SUMMARY: Several outliers of Triassic conglomerate, sandstone, and siltstone occur 85 miles NE of the Minas Basin Triassic area. Fossil evidence supports the Triassic age. Triassic sedimentation was more widely distributed in this area than previously inferred.

KEYWORDS: general geology

GEOGRAPHIC AREA: Maritime Province, Nova Scotia, Canada

MAPS: Geol: sketch

1228 P : STEVENSON, R.E., 1948, Pigmentation of black Triassic argillite of Bucks County, Pennsylvania: Pennsylvania Academy of Science, Proceedings, v. 22, p. 131-134.

SUMMARY: Analysis of six samples of black Lockatong argillite indicate that the color is due to ferrous sulfide and disulfide minerals as well as free carbon and hydrocarbon. A decrease in carbon content adjacent to diabase indicates the presence of hydrocarbons vaporized by the thermal metamorphism. (Qualitative chemical analysis was employed.)

KEYWORDS: mineralogy
sediments

GEOGRAPHIC AREA: Newark Basin, Pennsylvania, Bucks Co.

1229 P : STEWART, DAVID M., BALLARD, J.A., AND BLACK, WILLIAM W., 1973, A seismic estimate of depth of Triassic Durham Basin, North Carolina: Southeastern Geology, v. 15, p. 93-103.

SUMMARY: Seismic depth to basement calculations, based on interval velocities of Triassic rocks from other basins, indicate the basin is 6000 ± 500 feet deep, that east-dipping beds steepen with depth from 20° to 30°, the basin floor is flat, and 50- to 200-foot thick sills may occur.

KEYWORDS: geophysics
seismic profiles

GEOGRAPHIC AREA: Durham Basin, North Carolina

1230 A : STODDARD, EDWARD F., 1983, A compositionally bimodal, alkali-rich suite of Early Mesozoic dikes, eastern North Carolina Piedmont: Geological Society of America, Abstracts with Programs, v. 15, p. 698.

SUMMARY: A NW-trending suite of dikes of assumed early Mesozoic age associated with Triassic olivine diabase dikes occurs in the NE Piedmont of N.C. and is dominated by a rhyolite porphyry group with subordinate ferrobasalt and K-rich andesite. Mineralogy is outlined. Whole-rock analyses reveal high Fe/Mg, K/Na, and Rb/Sr and enrichment in incompatible elements. This distinct suite may have originated from a rift-related alkalic magma of from differentiation and contamination of a tholeiitic magma.

KEYWORDS: geochemistry
diabase
petrology

GEOGRAPHIC AREA: North Carolina

1231 PM: STONE, R.W., 1910, Coal on Dan River, North Carolina: U.S. Geological Survey Bulletin 471, p. 137-169.

SUMMARY: This is a detailed description of the coal and carbonaceous shale sequences that occur along the eastern side of the basin in a narrow belt. No commercially valuable coal occurs with semianthracite beds at Walnut Cove and Leaksville being only a few inches thick.

KEYWORDS: economic geology
coal
general geology

GEOGRAPHIC AREA: Dan River basin, North Carolina

MAPS: Geol: [1:62,500] and other sketches
Section: measured outcrop sections

1232 PM: STONE, R.W., 1914, Coal on Dan River, North Carolina: in, Pratt, J.H., North Carolina Geological and Economic Survey, Economic Paper 34, p. 115-149.

SUMMARY: The general stratigraphy of the basin consists of lower conglomerates, overlain by a thin coal-bearing shale horizon, which is overlain by sandstone and finer conglomerate. Detailed descriptions of the coal mines, the coal seams, and the chemical quality of the coal are presented. The very thin and discontinuous semianthracite coal seams at Walnut Cove and Leaksville demonstrate that the basin is an economically unimportant source of coal.

KEYWORDS: economic geology
coal
general geology
paleontology

GEOGRAPHIC AREA: Dan River Basin, North Carolina

MAPS: Geol: [1:62,500]
Section: columnar (Walnut Cover, N.C.)
Misc: mine location sketches

DATA: Chem. (type of data): coal

1233 P : STONE, R.W., 1939, The minerals of Pennsylvania - non-metallic minerals: Pennsylvia Geological Survey (4th), Bulletin M 18-C, 49 p.

SUMMARY: A barite vein occurring 3/4 mi. SE of Buckmanville consists of a breccia of diabase with a quartz and barite matrix. Barite also occurs near Logan Spring and at the Hinter Quarry in Plymouth Township (no details provided). (A more detailed description of the Buckmanville vein may be obtained from B. Darton et al., 1909, Trenton Folio.)

KEYWORDS: economic geology
barite

GEOGRAPHIC AREA: Newark Basin, Pennsylvania, Bucks County

1234 P : STORM, THOMAS W., AND HOLLAND, HEINRICH D., 1957, The distribution of nickel in the Lambertville diabase: Geochimica et Cosmochimica Acta, v. 11, p. 335-347.

SUMMARY: Nickel contents of pyroxene and magnetite increase with depth in the sill from 10 to 150 and 100 to 380 ppm, respectively. Nickel content of plagioclase is 10 ppm at the base of the sill and also decreases with height. Results correlate with the Nipissing Sill, Ontario, and the Skaergaard intrusion, Greenland, and suggest that nickel mineralization is not dependent upon Ni concentration in the initial magma.

KEYWORDS: geochemistry
diabase
economic geology

GEOGRAPHIC AREA: Newark Basin, New Jersey, Hunterdon County

MAPS: Geol: sketch

DATA: Chem. (type of data): Ni in magnetite, pyroxene, and rock
Plots: Ni variation w/depth

1235 P : STOSE, A.I.J., AND STOSE, G.W., 1946, Geology of Carroll and Frederick Counties: in, The Physical Features of Carroll County and Frederick County, Maryland Department of Geology, Mines and Water Resources, 303 p.

SUMMARY: The geology of the lower New Oxford and upper Gettysburg shale formation is described. The former consists of a basal limestone or quartz conglomerate and upper shale and arkose, and the latter consists of red shale. Beds dip west toward the border fault. Sediment provenance, paleontology, structure, and diabase dike occurrences are further discussed.

KEYWORDS: general geology

GEOGRAPHIC AREA: Gettysburg Basin, Maryland

1236 PM: STOSE, ANNA JONAS, AND STOSE, GEORGE W., 1944, Geology of the Hanover-York District, Pennsylvania: U.S. Geological Survey Professional Paper 204, 84 p.

SUMMARY: The SE edge of the basin consists of the lower New Oxford Fm. (basal conglomerate, arkosic sandstone) and the upper Gettysburg Fm. (red shale, Conewago conglomerate member in center). Diabase dikes crosscutting Triassic and pre-Triassic rocks are described. The New Oxford Fm. rests unconformably on Paleozoic rocks to the SE. The Triassic rocks dip 30° to the NW.

KEYWORDS: general geology
structure

GEOGRAPHIC AREA: Gettysburg Basin, Pennsylvania, York Co., Adams Co., Abbotstown Quad., West York Quad., Hanover Quad.

MAPS: Geol: [1:62,500]

1237 PM: STOSE, G.W., AND BASCOM, F., 1919, Fairfield-Gettysburg folio, Pennsylvania: U.S. Geological Survey, Atlas of the U.S., Folio 225, 22 p.

SUMMARY: The structure and general geology of the Gettysburg and New Oxford Formations, the fanglomerates, and the diabase sills and dikes are outlined. A basalt flow is described from a location .5 mi S of Bendersville. Garnet skarns occur in Cambro-Ordovician limestone adjacent to diabase in the Fairfield area. Cornwall-type magnetite deposits occur at the base of Fox Hill near Cashtown.

KEYWORDS: general geology
economic geology
copper
iron

GEOGRAPHIC AREA: Gettysburg Basin, Pennsylvania, Adams County, Iron Springs Quad., Fairfield Quad., Gettysburg Quad., McSherrystown Quad., Hampton Quad., Biglerville Quad., Arendtsville Quad.

MAPS: Geol: [1:62,500]
Section: stratigraphic

1238 P : STOSE, GEORGE W., 1919, Glauberite crystal cavities in the Triassic rocks in the vicinity of Gettysburg, Pa.: American Mineralogist, v. 4, p. 1-4.

SUMMARY: Crystal casts in sandstone altered by diabase resemble glauberite morphologically and indicate arid, playa conditions at times during deposition of the Triassic rocks.

KEYWORDS: hornfels
sediments
mineralogy

GEOGRAPHIC AREA: Gettysburg Basin, Pennsylvania, Adams Co.

MAPS: Misc: localities

DATA: Photos: specimens

1239 P : STOSE, GEORGE W., 1924, New type of structure in the Appalachians: Geological Society of America, Bulletin, v. 35, p. 465-480.

SUMMARY: Studies of the structure of the Ephrata-Hahnstown graben, within the Triassic sediments, indicate that the graben faulting has been superimposed upon earlier late-Paleozoic synclinal folding of Cambro-Ordovician units.

KEYWORDS: structure
faults

GEOGRAPHIC AREA: Newark Basin, Gettysburg Basin, Pennsylvania

MAPS: Geol: sketches
Section: cross sections

1240 PM: STOSE, GEORGE W., 1932, Geology and mineral resources of Adams County, Pennsylvania: Pennsylvania Geological Survey, 4th Series, Bulletin C1, 153 p.

SUMMARY: The Triassic consists of the lower New Oxford Fm. (sandstone, conglomerate, and shale) and the upper Gettysburg Fm. (shale) which occupies the western area of the basin and contains a white sandstone member. Limestone and quartzite conglomerates occupy areas along the western border fault. A large intrabasin graben is inferred to occur. Garnet-bearing skarns, copper mineralization, and magnetite deposits occur in association with diabase.

KEYWORDS: general geology
economic geology
copper
iron

GEOGRAPHIC AREA: Gettysburg Basin, Pennsylvania, Adams County

MAPS: Geol: [1 inch = 2 miles]
Section: composite sections

1241 P : STOSE, GEORGE W., 1949, The fault at the west edge of the Triassic in Southern Pennsylvania: American Journal of Science, v. 247, p. 531-536.

SUMMARY: The occurrence of Cambrian limestone floor toward the west edge of the basin where the thickest Triassic sediments would be expected indicates that a fault occurs within the basin, resulting in a horst along the western margin. A belt of diabase intrusives within the basin is inferred to occur along this fault.

KEYWORDS: general geology
structure
faults

GEOGRAPHIC AREA: Gettysburg Basin, Pennsylvania

MAPS: Geol: sketches

1242 M : STOSE, GEORGE W., 1953, Geology of the Carlisle (15') Quadrangle, Pennsylvania: U.S. Geological Survey, Map GQ-28.

KEYWORDS: general geology

GEOGRAPHIC AREA: Gettysburg Basin, Pennsylvania, Adams Co., York Co., Mt. Holly Springs Quad., Dillsburg Quad., Mechanicsburg Quad.

MAPS: Geol: [1:62,500]

1243 P : STOSE, GEORGE W., AND GLASS, JEWELL J., 1938, Garnet crystals in cavities in metamorphosed Triassic conglomerate in York County, Pennsylvania: American Mineralogist, v. 23, p. 430-435.

SUMMARY: Andradite garnet occurs in the Heidlersburg member of the Gettysburg Formation, replacing limestone-rich conglomerate adjacent to a diabase intrusion near Frogtown along the west shore of the Susquehanna River just south of the basin margin. The garnet's optical properties are discussed.

KEYWORDS: metamorphism
mineralogy

GEOGRAPHIC AREA: Gettysburg Basin, Pennsylvania, York County, Steelton Quad.

MAPS: Misc: locations

DATA: Photos: specimen

1244 A : STOSE, GEORGE W., AND JONAS, ANNA I., 1925, Triassic rocks northwest of Lebanon, Pennsylvania: Pan-American Geologist, v. 43, p. 368-369.

SUMMARY: An area of southward-dipping Triassic shales and sandstones lies upon Ordovician shales 10 miles NW of the main Triassic belt near Lebanon. A basalt flow also occurs, and the beds are truncated against a southern normal fault. (No specific location is given - the area in question corresponds to the Martinsburg Fm. as indicated by the Pennsylvania State Geologic Map.)

KEYWORDS: general geology

GEOGRAPHIC AREA: Newark Basin, Pennsylvania, Lebanon County

1245 A : STOSE, GEORGE W., AND JONAS, ANNA I., 1925, Triassic sedimentary rocks and basaltic flow northwest of Lebanon, Pennsylvania: Geological Society of America, Bulletin, v. 36, p. 160-161.

SUMMARY: A four-mile wide area of greenish-yellow arkose, red shales, and an interbedded basalt flow occur 10 miles NW of the main Triassic belt near Lebanon. The beds dip gently south and terminate against a border fault. The rocks were originally considered Ordovician, but more closely resemble Triassic strata.

KEYWORDS: general geology

GEOGRAPHIC AREA: Newark Basin, Pennsylvania, Lebanon County

1246 PM: STOSE, GEORGE W., AND JONAS, ANNA I., 1933, Geology and mineral resources of the Middletown Quadrangle, Pennsylvania: U.S. Geological Survey Bulletin 840, 86 p.

SUMMARY: The basin in this area consists of an eastern New Oxford Fm. (arkose, lower quartzose and limestone conglomerates unconformable on pre-Triassic rocks) and a western Gettysburg Fm. (sandstone and shale with fanglomerates adjacent to western margin fault). The diabase intrusives and their contact metamorphic effects are described.

KEYWORDS: general geology
economic geology
iron

GEOGRAPHIC AREA: Gettysburg Basin, Pennsylvania, York Co., Lancaster Co., Lebanon Co., Dauphin Co., Middleton Quad., Elizabethtown Quad., York Haven Quad., Columbia West Quad.

MAPS: Geol: [1:62,500]

DATA: Photos: outcrops

1247 PM: STOSE, GEORGE W., AND JONAS, ANNA I., 1939, Geology and mineral resources of York County, Pennsylvania: Pennsylvania Geological Survey, 4th Series, Bulletin C67, 199 p.

SUMMARY: The stratigraphy, paleontology, and composition of the lower arkosic New Oxford Fm. and the upper shaley Gettysburg Fm. are described, the latter consisting of two conglomerate members and upper fanglomerates adjacent to the western border faults. The petrography and nature of diabase intrusives, and the occurrence of copper and magnetite deposits adjacent to diabase are outlined.

KEYWORDS: general geology
paleontology
economic geology
copper
iron

GEOGRAPHIC AREA: Gettysburg Basin, Pennsylvania, York Co.

MAPS: Geol: no scale given
Section: outcrop sections

DATA: Photos: fossils

1248 P : STOSE, GEORGE W., AND LEWIS, J. VOLNEY, 1916, Triassic igneous rocks in the vicinity of Gettysburg, Pennsylvania: Geological Society of America, Bulletin, v. 27, p. 623-644.

SUMMARY: The petrography and composition of the diabase is discussed in detail, and 9 varieties are recognized: normal diabase, anorthosite, quartz diabase, micropegmatite, aplite, hypersthene diabase, olivine diabase, basalt, and olivine basalt.

KEYWORDS: diabase
mineralogy
petrology

GEOGRAPHIC AREA: Gettysburg Basin, Pennsylvania, Adams County

DATA: Chem. (type of data): major oxide (rock, feldspar)

1249 M : STOVER, C.W., BARNHARD, L.M., REAGOR, B.G., AND ALGERMISSEN, S.T., 1980, Seismicity map of the state of New Jersey: U.S. Geological Survey, Map MF-1260.

KEYWORDS: geophysics
faults

GEOGRAPHIC AREA: Newark Basin, New Jersey

MAPS: Geophys: seismicity [1:100,000]

1250 P : STRONG, D.F., AND HARRIS, A., 1974, The petrology of Mesozoic alkaline intrusives of Central Newfoundland: Canadial Journal of Earth Sciences, v. 11, p. 1208-1219.

SUMMARY: A gabbroic stock surrounded radially by lamprophyre dikes along the north-central coast is interpreted to be Jurassic to Cretaceous in age and the result of Atlantic rifting. The suite resulted from high-pressure eclogite fractionation followed by low-pressure induced volatile build-up.

KEYWORDS: diabase
geochemistry
petrology

GEOGRAPHIC AREA: Maritime Province, Newfoundland, Canada

MAPS: Misc: location

DATA: Chem. (type of data): major oxide, trace
Plots: variations; A - F - M

1251 P : STUCKEY, J.L., 1965, North Carolina: its geology and mineral resources: North Carolina Department of Conservation and Development, Raleigh, N.C., 550 p.

SUMMARY: A short summary of Triassic stratigraphy and structure in the Deep River and Dan River Basins is given (p. 126-141). A discussion of the coal resources of these basins is given (p. 508-516).

KEYWORDS: stratigraphy
economic geology
coal

GEOGRAPHIC AREA: Deep River Basin, Dan River Basin, North Carolina

1252 A : STURM, E., 1978, The Newark Group of New Jersey: cyclic deposits and the crystallinity of illite: Tenth International Congress on Sedimentology, Jerusalem, Abstracts, v. 2, p. 649.

SUMMARY: Clay-size fractions of red siltstone and shale (no localities given) consist of illite, with only minor kaolinite or chlorite-sericite. Illite is dioctahedral with ferric iron occupying octahedral sites. Well-crystallized illite is restricted to sediments removed from the basin's chemical environment by rapid burial in impervious, clay-rich sediments. Degree of illite crystallinity is related to length of exposure. Illite "structural perfection" is a "good indicator of the cyclic nature of these deposits."

KEYWORDS: sediments
mineralogy

GEOGRAPHIC AREA: Newark Basin, New Jersey

1253 T : STURM, EDWARD, 1956, Mineralogy and petrology of the Newark Group sediments of New Jersey: Ph.D. Thesis, Rutgers University.

KEYWORDS: sedimentation
sediments
mineralogy

GEOGRAPHIC AREA: Newark Basin, New Jersey

1254 T : SUGARMAN, PETER J., 1981, The geological interpretation of gravity anomalies in the vicinity of Raritan Bay, New Jersey and New York: M.S. Thesis, University of Delaware.

KEYWORDS: geophysics
gravity

GEOGRAPHIC AREA: Newark Basin, New Jersey

1255 T : SULLIVAN, J.G., 1972, Chemistry and structural state of plagioclase feldspars from a differentiated dolerite dike (North Carolina): M.S. Thesis, University of North Carolina.

KEYWORDS: diabase
petrology
mineralogy

GEOGRAPHIC AREA: North Carolina

1256 P : SUMNER, JOHN RANDOLF, 1977, Geophysical investigation of the structural framework of the Newark-Gettysburg Triassic Basin, Pennsylvania: Geological Society of America, Bulletin, v. 88, p. 935-942.

SUMMARY: Gravity investigation reveals that the SE basin margin is not entirely a simple on-lap unconformity, but is represented by step faults that often coincide with the margin or otherwise occur just inside the margin. Regional gravity characteristics of the sedimints and diabase entrusives are discussed.

KEYWORDS: geophysics
gravity

GEOGRAPHIC AREA: Gettysburg Basin, Newark Basin, Pennsylvania

MAPS: Section: gravity profiles
Geophys: regional gravity

1257 P : SUNDERMAN, HARVEY COFER, 1958, Geology and mineral resources of the Scottsville Triassic Basin, Virginia: Virginia Division of Mineral Resources, Open-File Report, 58 p.

SUMMARY: The stratigraphy, structure, and metamorphism of the basin are outlined. The Ballinger member fanglomerate; Howardsville member metadiabase intrusives, pyroclastics, and metasediments; and the Hardware member fanglomerate constitute the Totier Fm. from oldest to youngest, respectively. Hydrothermal activity along the western border fault zone is responsible for barite mineralization and alteration of diabase dikes and sills. Beds dip toward the western fault, which was active before, during, and after Triassic deposition. A less developed fault zone is present along the eastern boundary.

KEYWORDS: general geology
structure
diabase
mineralogy
economic geology
barite

GEOGRAPHIC AREA: Scottsville Basin, Virginia

MAPS: Geol: bar scale only
Section: cross section; type sections

DATA: Photos: outcrop

1258 P : SURLYK, F., AND CLEMMENSEN, L.B., 1983, Rift propagation and eustacy as controlling factors during Jurassic inshore and shelf sedimentation in northern East Greenland: Sedimentary Geology, v. 34, p. 119-143.

SUMMARY: The sedimentary structures, stratigraphy, and depositional environments of the Middle and Late Jurassic rift sedimentation are discussed and consist of (from base) the Pelion shallow sandy embayment facies, the Jakobsstigen inner shelf heterolithic facies, and the Bernbjerg outer shelf mudstone facies. Sedimentation was influenced by fluvial, tidal, and storm-related processes and represents an overall fining upward sequence. Trace fossils are used to elucidate the stratigraphy.

KEYWORDS: sedimentation
general geology

GEOGRAPHIC AREA: Greenland

MAPS: Geol: sketches
Section: stratigraphic

DATA: Photos: outcrops

1259 T : SUTPHEN, C.F., 1975, The petrology of a Triassic diabase intrusion near Frederick, Maryland: M.S. Thesis, Temple University.

KEYWORDS: petrology
diabase

GEOGRAPHIC AREA: Gettysburg Basin, Maryland

1260 A : SUTPHEN, C.F., AND ULMER, G.C., 1975, A classic study of a not so classic dike: American Geophysical Union, Transactions, v. 56, p. 471.

SUMMARY: An 80-meter wide, 40-km. long dike near Frederick dips 85°E and has a calc-silicate halo on its east side and a "faulted-folded unconformable" contact on its west side. The dike intrudes Cambro-Ordovician limestone and is of the Rossville-type. From west to east the dike: decreases in grain size, shows a 7% orthopyroxene decrease, and has maximum F02 and ferric/ferrous ratios to the east. These data indicate the diabase was a sill, now deformed to nearly vertical.

KEYWORDS: petrology
geochemistry
diabase

GEOGRAPHIC AREA: Frederick County, Maryland

1261 A : SUTTER, JOHN F., AND ARTH, JOSEPH G., 1983, $^{40}Ar/^{39}Ar$ age spectrum dating and strontium isotope geochemistry of diabase sills from the Culpeper Basin, Virginia: Geological Society of America, Abstracts with Programs, v. 15, p. 92.

SUMMARY: Six samples of diabase between Rapidan and Leesburg yield a mean age of 197 ± 4 m.y. Paleomagnetics suggests a pole position corresponding to the North America polar-wander path at 200 m.y. $^{87}Sr/^{86}Sr$ values (0.7060 to 0.7066) and an Rb/Sr ratio of 0.10 to 0.13 are consistent with other Mesozoic diabases and indicate continental tholeiitic affinity, as opposed to mid-ocean tholeiites.

KEYWORDS: diabase
petrology
isotopes
radiometric age
Ar/Ar dating

GEOGRAPHIC AREA: Culpeper Basin, Virginia

1262 P : SUTTER, JOHN F., AND SMITH, TIMOTHY E., 1979, $^{40}Ar/^{39}Ar$ ages of diabase intrusives from Newark trend basins in Connecticut and Maryland: initiation of Central Atlantic rifting: American Journal of Science, v. 279, p. 808-831.

SUMMARY: Ar/Ar and K/Ar dating on sills and dikes in Connecticut and Maryland suggest that data scatter may be due to excess ^{40}Ar. The Mt. Carmel Sill (Conn.) yields a 191 m.y. age, in agreement with the group 1 pole position of Smith and Noltimier (1979). Dikes from Conn. and Md. yield 175 m.y. and correspond to group 2 (Early to Middle Jurassic). It is suggested that the latter age group indicates that rifting began no later than 175 m.y.

KEYWORDS: radiometric age
K/Ar dating

GEOGRAPHIC AREA: Gettysburg Basin, Maryland, Hartford Basin, Connecticut

MAPS: Misc: sample locations

DATA: Chem. (type of data): $^{40}Ar/^{36}Ar$, $^{39}Ar/^{36}Ar$, K/Ar

1263 P : SWANSON, MARK T., 1982, Preliminary model for an early transform history in Central Atlantic rifting: Geology, v. 10, p. 317-320.

SUMMARY: A model is developed based upon pre-existing structural grain and rotation about a Sahara, Africa, pole: (1) Late Permian to Middle Triassic dextral shear-thermal arch, S. Appalachian graben sedimentation; (2) NW-SE extension in Late Triassic to Early Jurassic-graben sedimentation, 190 m.y. basalt event; (3) left lateral shear-graben faults/folds, 175 m.y. dike event (fan-shaped), (4) drift.

KEYWORDS: tectonics

GEOGRAPHIC AREA: Regional

1264 T : SWE, W., 1963, Structural and stratigraphic relationships along the northwestern border of the Wadesboro Basin of North Carolina: M.S. Thesis, University of North Carolina, 64 p.

KEYWORDS: structure

GEOGRAPHIC AREA: Wadesboro Basin, North Carolina

1265 A : SWE, WIN, AND WHEELER, WALTER H., 1964, Structural and stratigraphic relationships along the Northwestern border of the Wadesboro Triassic Basin of North Carolina: Geological Society of America, Special Paper 76, p. 259.

SUMMARY: The border is considered the "most complex" of the Newark troughs and consists of numerous NE-trending faults of differing movements that have developed many horsts and grabens. The horsts are now represented by pre-Triassic rocks, and the grabens by fanglomerates, the only traceable unit that occurs along the entire NW margin.

KEYWORDS: structure
faults

GEOGRAPHIC AREA: Wadesboro Basin, North Carolina

1266 P : SWIFT, DONALD J.P., AND LYALL, ANIL K., 1968, Origin of the Bay of Fundy, an interpretation from sub-bottom profiles: Marine Geology, v. 6, p. 331-343.

SUMMARY: The structure and geologic features of the Bay of Fundy, floored by Triassic rocks, are outlined, and the bay is considered to be of Pleistocene glacial origin modifying an original Mesozoic subaerial drainage system.

KEYWORDS: geophysics
seismic profiles

GEOGRAPHIC AREA: Maritime

MAPS: Geol: sketches
Geophys: seismic profiles

1267 P : SWIFT, DONALD J.P., AND LYALL, ANIL K., 1968, Reconnaissance of bedrock geology by sub-bottom profiler, Bay of Fundy: Geological Society of America, Bulletin, v. 79, p. 639-646.

SUMMARY: The Acadian Triassic Basin, largely in the position of the Bay of Fundy, occupies the bay floor in the form of a broad syncline with a zone of normal faults along the NW margin. The North Mountain Basalt defines the NE limb.

KEYWORDS: geophysics
seismic profiles
structure

GEOGRAPHIC AREA: Maritime, Nova Scotia

MAPS: Geol: sketches
Section: seismic profiles

DATA: Photos: outcrops

T

1268 T : TANGER, J.C., IV, 1976, Structure and petrography of the Black Rock Ridge area, Holyoke Range, Massachusetts: B.A. Thesis, Amherst College, 96 p.

KEYWORDS: structure
mineralogy
petrology
basalt

GEOGRAPHIC AREA: Hartford Basin, Massachusetts

1269 A : TAYLOR, C.A., JR., AND BUTLER, J.R., 1982, Geology and gravity of the northern end of the Charlotte belt, and Davie County Mesozoic basin, central North Carolina Piedmont: Geological Society of America, Abstracts with Programs, v. 14, p. 88-89.

SUMMARY: A ductile shear zone that separates the Charlotte and Inner Piedmont Belts underlies the basin, whose movement is "totally contained within the shear zone." A negative gravity signature up to -12 mgals characterizes the basin, and a -20 mgals zone defines the shear zone between the Charlotte and Inner Piedmont Belts.

KEYWORDS: structure
geophysics
gravity

GEOGRAPHIC AREA: Davie County Basin, North Carolina

1270 PM: TAYLOR, LARRY E., AND ROYER, DENISE W., 1981, Summary groundwater resources of Adams County, Pennsylvania: Pennsylvania Geological Survey, 4th Series, Water Resource Report 52, 50 p.

SUMMARY: Water chemistry, pH, hardness, well yield and depth data are provided for 130 wells in the Triassic rocks. The Gettysburg Fm. water is hard (171 mg/L), New Oxford Fm. water is hard with 25 percent of water samples not meeting recommended iron and manganese limits, and diabase provides a poor aquifer.

KEYWORDS: hydrology

GEOGRAPHIC AREA: Gettysburg Basin, Pennsylvania, Adams County

MAPS: Geol: [1:50,000]

DATA: Chem. (type of data): water

1271 A : TESTA, STEPHEN M., 1983, Geochemistry of Mesozoic tholeiites from Liberia, Guyana and Surinam: Geological Society of America, Abstracts with Programs, v. 15, p. 91.

SUMMARY: Diabase dikes in NW Liberia are 173-192 m.y. old quartz-normative tholeiites that intrude three geologic provinces and that show petrochemical differences among the provinces. Dikes in Guyana and Surinam are of two types: a coastal group lower in SiO_2 and MgO, and higher in TiO_2, FeO, MnO, and P_2O_5 than those intruding the Guiana Shield to the west of the second group. These two types, respectively, compare to those in Liberia that intrude the Pre-cambrian Pan African Province and the coastal Paleozoic Paynesville sandstone.

KEYWORDS: diabase
general geology
petrology
geochemistry

GEOGRAPHIC AREA: Liberia, Guyana, Surinam, Africa, South America

1272 A : THAYER, P.A., ROBBINS, E.I., AND ZIEGLER, D.G., 1982, Hydrocarbon potential of the Dan River-Danville Triassic Basin, North Carolina and Virginia: Geological Society of America, Abstracts with Programs, v. 14, p. 89.

SUMMARY: Little hydrocarbon potential exists in the basin. Analyses of the Cow Branch Formation show .9% organic carbon, .06 mg/g free and residual hydrocarbons, and pyrolysis Tmax exceeding 400°C. The occurrence of wurtzite in sediments and of diabase intrusives indicates that the area was underlain by high heat flow that may have destroyed pre-existing hydrocarbons.

KEYWORDS: economic geology
oil
coal

GEOGRAPHIC AREA: Dan River Basin, Danville Basin, North Carolina, Virginia

1273 T : THAYER, PAUL A., 1967, Geology of the Dan River and Davie County Triassic Basins, North Carolina: Ph.D. Thesis, University of North Carolina, 195 p.

KEYWORDS: general geology

GEOGRAPHIC AREA: Dan River Basin, Davie County Basin, North Carolina

1274 A : THAYER, PAUL A., 1969, Depositional environments: Upper Triassic Dan River Group, North Carolina: Geological Society of America, Abstracts with Programs, v. 1, pt. 4, p. 81.

SUMMARY: Four facies are recognized: (1) alluvial fan - along NW (faulted) and SE (unconformity) margins, gneiss and schist clasts, thick stratification; (2) fluvial - fining upward cycles, channel conglomeratic base grading up into fine grained, stratified sandstone and then mudstone; (3) lacustrine - central, dark shales, pyrite, ripple marks, subaerial features also; (4) swamp - black shale, coal, siderite.

KEYWORDS: sedimentation

GEOGRAPHIC AREA: Dan River Basin, North Carolina

1275 P : THAYER, PAUL A., 1970, Geology of Davie County Triassic Basin, North Carolina: Southeastern Geology, v. 11, p. 187-198.

SUMMARY: This basin is considered an erosional outlier of the Dan River Basin just to the NE. An alluvial fan, polymictic, rounded, poorly sorted conglomerate facies occurs in the western area along the faulted margin. Sandstones, mudstones, and siltstones occupy the remainder of the area and display a fining upward sequence from plagioclase arkose to mudstones.

KEYWORDS: sedimentation
general geology

GEOGRAPHIC AREA: Davie County Basin, North Carolina

MAPS: Geol: sketches

DATA: Photos: outcrops

1276 P : THAYER, PAUL A., 1970, Stratigraphy and geology of Dan River Triassic Basin, North Carolina: Southeastern Geology, v. 12, p. 1-32.

SUMMARY: The basin sediments are divided into three formations: a lower Pine Hall Fm. (conglomerate, sandstone, siltstone, east side of basin), medial Cow Branch Fm. (conformable on former, dark mudstones, coal, arkose, uniform bedding), and upper Stoneville Fm. (conformable on former, western margin conglomerate, siltstone). Environments are discussed and include a lacustrine (Cow Branch) component; the structural history is outlined and includes western margin faulting accompanying sedimentation.

KEYWORDS: general geology
stratigraphy
sedimentation

GEOGRAPHIC AREA: Dan River Basin, North Carolina

MAPS: Geol: sketch map (no scale given)
Section: measured (Stoneville and Cow Branch Fms.)

DATA: Chem. (type of data): diabase mineral composition
Plots: sediment petrography

1277 A : THAYER, PAUL A., 1971, Sedimentology of Dan River Group (Upper Triassic), North Carolina: Pennsylvania Academy of Science, Proceedings, v. 45, p. 196.

SUMMARY: Deposition within the 225-km long rift valley consisted of alluvial fan, lacustrine, swamp, and fluvial systems. Sandstone compositions, controlled by source area - not tectonics - are immature arkoses and litharenites. Provenance was less than 25 miles as indicated by sediment immaturity, euhedral and subhedral heavy mineral suites (many unstable), and 1.5 meter boulders along the basin margins.

KEYWORDS: general geology
sedimentation

GEOGRAPHIC AREA: Dan River Basin, Danville Basin, North Carolina, Virginia

1278 A : THAYER, PAUL A., 1973, Geology of the southern and south-central part of Danville Triassic Basin, Virginia: Geological Society of America, Abstracts with Programs, v. 5, p. 444.

SUMMARY: From base, the stratigraphy is: Pine Hall, Cow Branch, and Stoneville Fms., Pine Hall and Stoneville Fms. are alluvial fan and fluvial deposits composed of conglomerate, sandstone, and mudstone. The Cow Branch Fm. is a 5000-foot dark-colored lacustrine sequence. These fms. intertongue with the coarse fluvial and alluvial fan Dry Fork Fm. northeast of Judy Byrd Mtn. A silicified mylonite occurs along the NW border fault zone. The SE margin is an unconformity that has been locally faulted.

KEYWORDS: general geology
stratigraphy

GEOGRAPHIC AREA: Danville Basin, Virginia

1279 F : THAYER, PAUL A., KIRSTEIN, DEWEY S., AND INGRAM, ROY L., 1970, Stratigraphy, sedimentology, and economic geology of Dan River Basin, North Carolina: Carolina Geological Society Field Trip Guidebook, 44 p.

SUMMARY: Field stops include: Pine Hall conglomerate and sandstone, eastern border fault, Cow Branch Fm. argillite, Stoneville Fm., and the Dry Fork Fm. A road log, sketch maps, discussions, outcrop sections, and drill logs from 3 cores within the Cow Branch Fm. are presented.

KEYWORDS: general geology

GEOGRAPHIC AREA: Dan River Basin, North Carolina

1280 T : THOMAS, M.A., 1983, Pyroxene chemistry in a tholeiitic lava flow: effects of magma cooling rate and oxidation state: M.S. Thesis, University of Connecticut, Storrs, Connecticut, 90 p.

KEYWORDS: basalt
petrology
mineralogy

GEOGRAPHIC AREA: Hartford Basin, Connecticut

1281 A : THOMAS, MARGARET A., 1983, Effect of cooling rate and magma oxidation state on pyroxene chemical trends in a tholeiitic basalt: Geological Society of America, Abstracts with Programs, v. 15, p. 122.

SUMMARY: Clinopyroxene compositions reveal two types of augite and pigeonite fractionation trends (outlined).

KEYWORDS: basalt
geochemistry
petrology

GEOGRAPHIC AREA: Hartford Basin, Connecticut

1282 PM: THOMPSON, H.D., 1959, The Palisades Ridge in Rockland County, New York: New York Academy of Science, Annals, v. 80, p. 1106-1125.

SUMMARY: The geological relations and structure of the diabase are outlined in detail. It is shown that the diabase is disformable with the sediments; and, where concordant, faults are present, so that discordant relations do not represent feeder dikes. Notches in the ridge are the result of weathering along fault planes.

KEYWORDS: general geology
diabase
structure

GEOGRAPHIC AREA: Newark Basin, New York, Rockland County

MAPS: Geol: [1:31,680]

DATA: Photos: outcrops

1283 A : THOMSON, KEITH S., 1983, Scale structure and growth in fossil Semionotid fishes: Geological Society of America, Abstracts with Programs, v. 15, no. 3, p. 121.

SUMMARY: Studies of the growth features of the family Semionotidae suggest that the fishes lived in "highly seasonal environments." It is hoped that such data can be linked with information concerning depositional environment and ecology of the lake systems.

KEYWORDS: paleontology

GEOGRAPHIC AREA: Regional

1284 P : TILLING, R.I., GOTTFRIED, D., AND ROWE, J.J., 1973, Gold abundance in igneous rocks: bearing on gold mineralization: Economic Geology, v. 68, p. 168-186.

SUMMARY: The discussion includes gold analyses of diabase from North and South Carolina. Average values are 4.8 parts per billion. Specific localities are not provided.

KEYWORDS: diabase
geochemistry
economic geology
gold

GEOGRAPHIC AREA: North Carolina, South Carolina

1285 P : TOENGER, A.L., AND OTHERS, 1952, Coal deposits in the Deep River Field, Chatham, Lee, and Moore Counties, North Carolina: U.S. Bureau of Mines, Bulletin 515, 41 p.

SUMMARY: Coal reserves, petrography, and chemistry are discussed for the coal-bearing Cumnock Fm. Estimated reserves for coal beds over 14 inches thick total 87.5 million short tons. Coal mining methods are suggested. The amount of anthraxylon, dull and bright attrital, and fusain varies both horizontally and vertically within beds. Igneous activity induced carbonization of the coal. Sulfur content ranges from 1.7 to 6.1%, due chiefly to pyrite. Mining history, lithologic description of mine shafts, and six drill hole logs are presented.

KEYWORDS: economic geology
coal
general geology

GEOGRAPHIC AREA: Deep River Basin, North Carolina

MAPS: Misc: mine and drill hole locations

DATA: Chem. (type of data): coal
Photos: coal photomicrographs

1286 P : TOEWE, CLAYTON E., 1968, Magnetometer study in the Leesburg Quadrangle: Virginia Minerals, v. 14, p. 9-14.

SUMMARY: A magnetic intensity map is presented for the quadrangle and illustrates the location of the western border fault and the approximate location of diabase and basalt units. The geology of the quadrangle is briefly outlined and consists of limestone and quartz conglomerate, sandstone, shale, pyroclastics, basalt, and diabase.

KEYWORDS: geophysics
magnetism

GEOGRAPHIC AREA: Culpeper Basin, Virginia, Loudoun Co., Leesburg Quad.

MAPS: Geophys: [1" = 1 mile] (100 gamma contour)

1287 PM: TOEWE, E. CLAYTON, 1966, Geology of the Leesburg Quadrangle, Virginia: Virginia Division of Mineral Resources, Report of Investigations 11, 52 p.

SUMMARY: Adjacent to the western border fault, limestone conglomerates and basalt occur, while sandstone occupies the center of the area and shales occupy the eastern area. A diabase sill occupies much of the quadrangle and is bordered by zones of pyroclastics (now considered hornfels). The structure and descriptions of these units are discussed in the text.

KEYWORDS: general geology

GEOGRAPHIC AREA: Culpeper Basin, Virginia, Loudoun Co., Leesburg Quad.

MAPS: Geol: [1:24,000]
Section: stratigraphic (descriptions); diabase core logs

DATA: Photos: outcrops

1288 P : TOEWE, E. CLAYTON, AND LE VAN, D.C., 1966, Anomalous magnetization in Triassic diabase near Leesburg, Loudoun County, Virginia: Geophysics, v. 31, p. 618-621.

SUMMARY: A local, steep magnetic negative anomaly occurs on a diabase intrusive and is attributed to lightning. The 3000-gamma negative anomaly has gradients as steep as 800 gammas per foot across the 20-foot circular area.

KEYWORDS: diabase
geophysics
magnetism

GEOGRAPHIC AREA: Culpeper Basin, Virginia, Loudoun Co., Leesburg Quad.

MAPS: Geophys: magnetic

1289 P : TOMLINSON, W. HAROLD, 1942, Idiomorphic cordierite from Safe Harbor, Pennsylvania: American Mineralogist, v. 27, p. 646-649.

SUMMARY: Idiomorphic cordierite in contact with orthoclase replaces mica due to the contact metamorphic effect of a 50-foot diabase dike. The mica occurs in a brecciated zone within the Cambrian Harpers Fm. Optical properties are outlined. The cordierite alters to pinnite or chlorophyllite.

KEYWORDS: metamorphism
hornfels
mineralogy

GEOGRAPHIC AREA: Lancaster County, Pennsylvania (location is not within the Triassic basins)

DATA: Photos: photomicrograph

1290 P : TOMLINSON, W. HAROLD, 1945, Notes on the derivitives of the Triassic diabases of Pennsylvania: Economic Geology, v. 40, p. 526-536.

SUMMARY: Petrographic study indicates that diabase results from basaltic and acidic magma mixing. Normal diabase results from up to a 6% acid component, and diabase pegmatite and albite pegmatite result from higher acid components. Iron ores of the Cornwall-type could be derived from the acid magma.

KEYWORDS: diabase
petrology
economic geology
iron

GEOGRAPHIC AREA: Gettysburg Basin, Newark Basin, Pennsylvania

DATA: Photos: rock specimens

1291 P : TOMLINSON, W. HAROLD, 1945, Occurrence of borosilicates in diabase at Lambertville, New Jersey: American Mineralogist, v. 30, p. 203-204.

SUMMARY: The core of a pocket within pegmatitic diabase contains 30% axinite with associated datolite. Toward the core, augite is replaced by hornblende and then actinolite, and albite and calcite replace labradorite. Prehnite, tourmaline, actinolite, epidote, and axinite are present as an upward extension of the pocket.

KEYWORDS: diabase
mineralogy
zeolites

GEOGRAPHIC AREA: Newark Basin, New Jersey, Hunterdon County

DATA: Photos: photomicrograph

1292 T : TOOKER, E.W., 1949, Barite deposits of Bucks County: M.S. Thesis, Lehigh University.

KEYWORDS: economic geology
barite

GEOGRAPHIC AREA: Newark Basin, Pennsylvania, Bucks Co.

1293 P : TOURTELOT, ELIZABETH B., AND VINE, JAMES D., 1976, Copper deposits in sedimentary and volcanic rocks: U.S. Geological Survey Professional Paper 907-C, p. C1-C34.

SUMMARY: The geologic settings and theories of origin of copper deposits in sedimentary rocks are summarized. Some attention is given to sandstone-hosted copper deposits in Triassic rocks of the Connecticut Valley and southeastern Pennsylvania. Genesis of deposits by local reduction of oxidizing basin brines is hypothesized.

KEYWORDS: economic geology
copper

GEOGRAPHIC AREA: Regional

1294 P : TRUESDELL, D.B., AND ZOLLINGER, R.C., 1977, Preliminary study of the uranium potential of the Triassic-Jurassic Basin in Connecticut and Massachusetts: Bendix Field Engineering Corporation, Grand Junction Operations, Colorado, GJBX-68(77), 20 p.

SUMMARY: Although the only known uranium occurrence is at East Granby, Connecticut (Newgate Prison Copper Mine), source rocks, host rocks, and physical and chemical traps indicate the area is favorable for the occurrence of uranium. Glacial till and other cover may inhibit detection of deposits.

KEYWORDS: economic geology
uranium
lead
zinc
copper

GEOGRAPHIC AREA: Hartford Basin, Deerfield Basin, Connecticut, Massachusetts

DATA: Chem. (type of data): gamma spectrometry, Zn, Pb, Cu

1295 T : TRYGSTAD, J.C., 1979, The petrology of Mesozoic dolerite dikes of southern New Hampshire and Maine: M.S. Thesis, University of North Carolina, 132 p.

KEYWORDS: petrology
diabase

GEOGRAPHIC AREA: New England

1296 P : TSUSUE, AKIO, 1964, Mineral aspects of the Grace Mine magnetite deposit: Pennsylvania Geological Survey, Bulletin M-49, 10 p.

SUMMARY: Calcite-dolomite geothermometry and paragenesis indicate that calcite veins formed at 650°C in dolomite, and magnetite formed later at 500°C.

KEYWORDS: metamorphism
economic geology
iron

GEOGRAPHIC AREA: Newark Basin, Pennsylvania, Berks Co., Morgantown Quad.

MAPS: Geol: general map of area
Section: general

DATA: Chem. (type of data): calcite composition

1297 P : TUCKER, M.E., AND BERTON, M.J., 1982, Triassic environments, climates, and reptile evolution: Palaeogeography, Palaeoclimatology, Palaeoecology, v. 40, p. 361-379.

SUMMARY: It is suggested that competition was not the major factor in the quick radiation of the dinosaurs after the sudden extinction of the last mammal-like reptiles in the Norian. Increasing aridity brought about new floras which resulted in the proliferation of a new group of fauna, the dinosaurs.

KEYWORDS: buried basins
climate
paleontology

GEOGRAPHIC AREA: Regional

1298 A : TUCKER, ROBERT D., 1979, A new occurrence of Late (?) Triassic fossils in South-Central Virginia: Geological Society of America, Abstracts with Programs, v. 11, p. 216.

SUMMARY: Remains of crustacea and plants (Coniferales, Cycadales) occur within black, pyritic shale and black, calcareous siltstone. A stratified lake model is considered in which anoxic bottom waters deposited pyritic siltstone and quiet, shallower water deposited overlying calcareous units.

KEYWORDS: sedimentation
paleontology

GEOGRAPHIC AREA: Farmville Basin, Virginia

1299 A : TURNER, C.E., 1971, Acid differentiates in Triassic diabase, Bull Run Quarry, Loudoun County, Virginia: Virginia Journal of Science, v. 22, p. 124.

SUMMARY: The Bull Run and Arlington Stone Quarries contain abundant pods and veins of acid differentiates, unlike the other seven quarries, with the latter displaying the greatest differentiation. Primary minerals are pyroxene, plagioclase, rutilated quartz, skeletal magnetite, and sphene. Hydrothermal solution alteration has introduced: quartz, amphibole, chlorite, prehnite, and calcite.

KEYWORDS: diabase
granophyre
mineralogy
petrology

GEOGRAPHIC AREA: Culpeper Basin, Virginia

1300 P : TURNER-PETERSON, C.E., 1977, Uranium mineralization during early burial, Newark Basin, Pennsylvania-New Jersey: U.S. Geological Survey Circular 753, p. 3-4.

SUMMARY: Uranium mineralization occurred in the euxinic, offshore, black mudstones of the Lockatong Fm. and the intertonguing near shore, gray sandstone of the Stockton Fm. along the southern basin area, the northern basin area lacking such gradual facies changes due to faulting. A basic, anaerobic, sulfidic, humic acid regime resulted in uranium precipitation in the Lockatong. Uranium in groundwater entering the lake reacted with the humic-acid and sulfidic fluids and was deposited in the Stockton sands.

KEYWORDS: economic geology
uranium
sedimentation

GEOGRAPHIC AREA: Newark Basin, Pennsylvania, New Jersey

1301 A : TURNER-PETERSON, C.E., 1978, Genesis of tabular uranium bodies in Triassic and Jurassic basins in Eastern United States: U.S. Geological Survey Professional Paper 1100, p. 27.

SUMMARY: Studies at the Newgate Prison Mine (Conn.) indicate that intercalation of nearshore, lacustrine, massive to laminated sandstone with offshore, lacustrine, black mudstone is the facies relationship favorable to uranium mineralization. Humic acid supplied by mudstone and uranium by groundwater results in early burial mineralization in sandstone. Such facies relationship is present in other Newark Basins.

KEYWORDS: economic geology
uranium

GEOGRAPHIC AREA: Regional

1302 P : TURNER-PETERSON, C.F., 1980, Sedimentology and uranium mineralization in the Triassic-Jurassic Newark Basin, Pennsylvania and New Jersey: in, Turner-Peterson, C.E., ed., Uranium in Sedimentary Rocks, Application of the Facies Concept to Exploration, Society of Economic Paleontologists and Mineralogists, Rocky Mountain Section, Short Course Notes, p. 149-176.

SUMMARY: A review of the sedimentologic facies and relationships of the Stockton (alluvial fan), Lockatong (offshore lacustrine), Brunswick (near-shore lacustrine), and Hammer Creek (fanglomerate) Formations is given. Syngenetic uranium fixed near the sediment-water interface occurs in the black mudstone Lockatong Fm. Uranium also occurs within the marginal lacustrine sandstones where interbedded with off-shore mudstones. Processes of uranium transport and precipitation involving humic substances are outlined. Mineral occurrences are noted.

KEYWORDS: economic geology
uranium
sedimentation

GEOGRAPHIC AREA: Newark Basin, Pennsylvania, New Jersey

MAPS: Geol: sketches
Section: block diagrams

1303 A : TURNER-PETERSON, CHRISTINE E., 1982, Tectonism and sedimentation in the Triassic-Jurassic Newark Basin, Pennsylvania and New Jersey: Geological Society of America, Abstracts with Programs, v. 14, p. 92.

SUMMARY: A fault-bounded NW border resulted in coarse, poorly sorted, debris flow fans that interfingered with low-energy medial basin lakes. Sedimentation along the non-faulted, gentle-sloping SE margin resulted in coalescing fans of well-sorted alluvium. Perennial, alkaline lacustrine deposition dominated, except for the basin margins, with sediments delivered from all directions.

KEYWORDS: sedimentation

GEOGRAPHIC AREA: Newark Basin, New Jersey, Pennsylvania

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1304 M : U.S. GEOLOGICAL SURVEY, 1969, Aeromagnetic map of the Broad Brook Quadrangle and part of the Manchester Quadrangles, Hartford and Tolland Counties, Connecticut: U.S. Geological Survey, Geophysical Investigations Map GP-647.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Hartford Basin, Connecticut

MAPS: Geophys: aeromagnetism [1:24,000]

1305 M : U.S. GEOLOGICAL SURVEY, 1969, Aeromagnetic map of the Ellington Quadrangle and part of the Rockville Quadrangle, Hartford and Tolland Counties, Connecticut: U.S. Geological Survey, Geophysical Investigations Map GP-648.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Hartford Basin, Connecticut

MAPS: Geophys: aeromagnetism [1:24,000]

1306 M : U.S. GEOLOGICAL SURVEY, 1969, Aeromagnetic map of the New Hartford Quadrangle and parts of the Collinsville and West Granville Quadrangles, Litchfield and Hartford Counties, Connecticut: U.S. Geological Survey, Map GP-644.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Hartford Basin, Connecticut

MAPS: Geophys: aeromagnetism [1:24,000]

1307 M : U.S. GEOLOGICAL SURVEY, 1969, Aeromagnetic map of the Tariffville Quadrangle, and parts of the Avon and Southwick Quadrangles, Connecticut and Massachusetts: U.S. Geological Survey, Map GP-645.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Hartford Basin, Connecticut

MAPS: Geophys: aeromagnetism [1:24,000]

1308 M : U.S. GEOLOGICAL SURVEY, 1969, Aeromagnetic map of the Windsor Locks Quadrangle and part of the Hartford North Quadrangle, Hartford County, Connecticut: U.S. Geological Survey, Map GP-646.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Hartford Basin, Connecticut

MAPS: Geophys: aeromagnetism [1:24,000]

1309 M : U.S. GEOLOGICAL SURVEY, 1970, Aeromagnetic map of the Shutesbury Quadrangle and part of the Millers Falls Quadrangle, Franklin and Hampshire Counties, Massachusetts: U.S. Geological Survey, Map GP-697.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Deerfield Basin, Massachusetts

MAPS: Geophys: aeromagnetism [1:24,000]

1310 M : U.S. GEOLOGICAL SURVEY, 1971, Aeromagnetic map of the Danville Quadrangle, Pittsylvania County, Virginia, and Caswell County, North Carolina: U.S. Geological Survey, Map GP-745.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Danville Basin, Virginia, Pittsylvania Co.

MAPS: Geophys: aeromagnetism [1:62,500]

1311 M : U.S. GEOLOGICAL SURVEY, 1971, Aeromagnetic map of the Roxbury Quadrangle, Litchfield and New Haven Counties, Connecticut: U.S. Geological Survey, Map GP-819.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Pomperaug Basin, Connecticut

MAPS: Geophys: aeromagnetism [1:24,000]

1312 M : U.S. GEOLOGICAL SURVEY, 1971, Aeromagnetic map of the South Boston Quadrangle, Halifax County, Virginia, and Person and Granville Counties, North Carolina: U.S. Geological Survey, Map GP-747.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Scottsburg Basin, Virginia

MAPS: Geophys: aeromagnetism [1:62,500]

1313 M : U.S. GEOLOGICAL SURVEY, 1973, Aeromagnetic map of part of the Branford Quadrangle, New Haven County, Connecticut: U.S. Geological Survey, Geophysical Investigations Map GP-874.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Hartford Basin, Connecticut

MAPS: Geophys: aeromagnetism [1:24,000]

1314 M : U.S. GEOLOGICAL SURVEY, 1973, Aeromagnetic map of the Bristol Quadrangle and part of the Collinsville Quadrangle, Hartford, New Haven, and Litchfield Counties, Connecticut: U.S. Geological Survey, Geophysical Investigations Map GP-845.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Hartford Basin, Connecticut

MAPS: Geophys: aeromagnetism [1:24,000]

1315 M : U.S. GEOLOGICAL SURVEY, 1973, Aeromagnetic map of the Woodbury Quadrangle, Litchfield and New Haven Counties, Connecticut: U.S. Geological Survey, Map GP-852.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Pomperaug Basin, Connecticut

MAPS: Geophys: aeromagnetism [1:24,000]

1316 M : U.S. GEOLOGICAL SURVEY, 1973, Aeromagnetic map of the Durham Quadrangle, Middlesex and New Haven Counties, Connecticut: U.S. Geological Survey, Geophysical Investigations Map GP-866.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Hartford Basin, Connecticut

MAPS: Geophys: aeromagnetism [1:24,000]

1317 M : U.S. GEOLOGICAL SURVEY, 1973, Aeromagnetic map of the northern parts of the Durham North and Creedmoor Quadrangles, north-central North Carolina: U.S. Geological Survey, Geophysical Map GP-883.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Durham Basin, North Carolina, Granville Co., Stem Quad., Wilton Quad.

MAPS: Geophys: aeromagnetism [1:62,500]

1318 M : U.S. GEOLOGICAL SURVEY, 1973, Aeromagnetic map of the Glastonbury Quadrangle, Hartford and Middlesex Counties, Connecticut: U.S. Geological Survey, Map GP-848.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Hartford Basin, Connecticut

MAPS: Geophys: aeromagnetism [1:24,000]

1319 M : U.S. GEOLOGICAL SURVEY, 1973, Aeromagnetic map of part of the Guilford Quadrangle, New Haven County, Connecticut: U.S. Geological Survey, Map GP-875.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Hartford Basin, Connecticut

MAPS: Geophys: aeromagnetism [1:24,000]

1320 M : U.S. GEOLOGICAL SURVEY, 1973, Aeromagnetic map of the Haddam Quadrangle, Middlesex and New Haven Counties, Connecticut: U.S. Geological Survey, Map GP-867.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Hartford Basin, Connecticut

MAPS: Geophys: aeromagnetism [1:24,000]

1321 M : U.S. GEOLOGICAL SURVEY, 1973, Aeromagnetic map of the Hartford South and part of the Hartford North Quadrangles, Hartford and Middlesex Counties, Connecticut: U.S. Geological Survey, Map GP-847.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Hartford Basin, Connecticut

MAPS: Geophys: aeromagnetism [1:24,000]

1322 M : U.S. GEOLOGICAL SURVEY, 1973, Aeromagnetic map of the Meriden Quadrangle, New Haven, Hartford, and Middlesex Counties, Connecticut: U.S. Geological Survey, Map GP-855.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Hartford Basin, Connecticut

MAPS: Geophys: aeromagnetism [1:24,000]

1323 M : U.S. GEOLOGICAL SURVEY, 1973, Aeromagnetic map of the Middle Haddam Quadrangle, Middlesex County, Connecticut: U.S. Geological Survey, Map GP-857.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Hartford Basin, Connecticut

MAPS: Geophys: aeromagnetism [1:24,000]

1324 M : U.S. GEOLOGICAL SURVEY, 1973, Aeromagnetic map of the Middletown Quadrangle, Middlesex, Hartford, and New Haven Counties, Connecticut: U.S. Geological Survey, Map GP-856.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Hartford Basin, Connecticut

MAPS: Geophys: aeromagnetism [1:24,000]

1325 M : U.S. GEOLOGICAL SURVEY, 1973, Aeromagnetic map of the Mount Carmel Quadrangle, New Haven County, Connecticut: U.S. Geological Survey, Map GP-864.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Hartford Basin, Connecticut

MAPS: Geophys: aeromagnetism [1:24,000]

1326 M : U.S. GEOLOGICAL SURVEY, 1973, Aeromagnetic map of the New Britain Quadrangle and part of the Avon Quadrangle, Hartford County, Connecticut: U.S. Geological Survey, Map GP-846.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Hartford Basin, Connecticut

MAPS: Geophys: aeromagnetism [1:24,000]

1327 M : U.S. GEOLOGICAL SURVEY, 1973, Aeromagnetic map of the New Haven Quadrangle, New Haven County, Connecticut: U.S. Geological Survey, Map GP-873.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Hartford Basin, Connecticut

MAPS: Geophys: aeromagnetism [1:24,000]

1328 M : U.S. GEOLOGICAL SURVEY, 1973, Aeromagnetic map of the Southbury Quadrangle and part of the Newtown Quadrangle, New Haven and Fairfield Counties, Connecticut: U.S. Geological Survey, Map GP-862.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Pomperaug Basin, Connecticut

MAPS: Geophys: aeromagnetism [1:24,000]

1329 M : U.S. GEOLOGICAL SURVEY, 1973, Aeromagnetic map of the Southington Quadrangle, New Haven and Hartford Counties, Connecticut: U.S. Geological Survey, Map GP-854.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Hartford Basin, Connecticut

MAPS: Geophys: aeromagnetism [1:24,000]

1330 M : U.S. GEOLOGICAL SURVEY, 1973, Aeromagnetic map of the Wallingford Quadrangle, New Haven County, Connecticut: U.S. Geological Survey, Map GP-865.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Hartford Basin, Connecticut

MAPS: Geophys: aeromagnetism [1:24,000]

1331 M : U.S. GEOLOGICAL SURVEY, 1974, Aeromagnetic map of south half of Creedmoor quadrangle, North Carolina: preliminary map on open-file: U.S. Geological Survey Open-File Report 74-29.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Durham Basin, North Carolina, Wake Co., Granville Co., Durham Co., Creedmoor Quad., Grisson Quad.

MAPS: Geophys: aeromagnetism [1:62,500]

1332 M : U.S. GEOLOGICAL SURVEY, 1974, Aeromagnetic map of south half of Durham North Quadrangle, North Carolina: preliminary map on open-file: U.S. Geological Survey, Open File Report 74-29.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Durham Basin, North Carolina, Durham Co., Granville Co., NW Durham Quad., NE Durham Quad.

MAPS: Geophys: aeromagnetism [1:62,500]

1333 M : U.S. GEOLOGICAL SURVEY, 1974, Aeromagnetic map of Durham South Quadrangle, North Carolina: preliminary map on open-file: U.S. Geological Survey Open-File Report 74-29.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Durham Basin, North Carolina

MAPS: Geophys: aeromagnetism [1:62,500]

1334 M : U.S. GEOLOGICAL SURVEY, 1974, Aeromagnetic map of Frederick County, Maryland: U.S. Geological Survey Open-File Report 74-206.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Gettysburg Basin, Maryland, Frederick County

MAPS: Geophys: aeromagnetism [1:62,500]

1335 M : U.S. GEOLOGICAL SURVEY, 1974, Aeromagnetic map of parts of the Greensboro and Raleigh 1° by 2° quadrangles, North Carolina: preliminary map on open-file: U.S. Geological Survey Open-File Report 74-29.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Deep River Basin, North Carolina

MAPS: Geophys: aeromagnetism [1:250,000]

1336 M : U.S. GEOLOGICAL SURVEY, 1976, Aeroradioactivity map of the Amherst, Massachusetts area: U.S. Geological Survey Open-File Report 76-515.

KEYWORDS: geophysics
aeroradioactivity

GEOGRAPHIC AREA: Hartford Basin, Deerfield Basin, Massachusetts, Hampshire Co., Franklin Co., Mt. Toby Quad., Mt. Holyoke Quad., Belchertown Quad., Shutesbury Quad.

MAPS: Geophys: aeroradioactivity [1:24,000]

1337 M : U.S. GEOLOGICAL SURVEY, 1977, Aeromagnetic map of north-central North Carolina: U.S. Geological Survey Open-File Report 77-192.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Dan River Basin, Davie County Basin, North Carolina

MAPS: Geophys: aeromagnetism [1:250,000]

1338 M : U.S. GEOLOGICAL SURVEY, 1977, Aeromagnetic map of south-central North Carolina: U.S. Geological Survey Open-File Report 77-205.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Wadesboro Basin, Sanford Basin, North Carolina

MAPS: Geophys: aeromagnetism [1:250,000]

1339 M : U.S. GEOLOGICAL SURVEY, 1977, Aeroradioactivity map of north-central North Carolina: U.S. Geological Survey Open-File Report 77-193.

KEYWORDS: geophysics
aeroradioactivity

GEOGRAPHIC AREA: Dan River Basin, Davie County Basin, North Carolina

MAPS: Geophys: aeromagnetism [1:250,000]

1340 M : U.S. GEOLOGICAL SURVEY, 1977, Aeroradioactivity map of south-central North Carolina: U.S. Geological Survey Open-File Report 77-206.

KEYWORDS: geophysics
aeroradioactivity

GEOGRAPHIC AREA: Wadesboro Basin, Sanford Basin, North Carolina

MAPS: Geophys: aeromagnetism [1:250,000]

1341 M : U.S. GEOLOGICAL SURVEY, 1978, Aeromagnetic map of parts of south-eastern Virginia: U.S. Geological Survey Open-File Report 78-600.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Richmond Basin, Virginia

MAPS: Geophys: aeromagnetism [1:125,000]

1342 M : U.S. GEOLOGICAL SURVEY, 1979, Aeromagnetic map of parts of Delaware and New Jersey: U.S. Geological Survey Open-File Report 79-1683.

SUMMARY: Map covers eastern area of N. Jersey Newark Basin.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Newark Basin, New Jersey

MAPS: Geophys: aeromagnetism [1:250,000]

1343 M : U.S. GEOLOGICAL SURVEY, 1980, Aeromagnetic map of Fairfax County, Virginia: U.S. Geological Survey Open-File Map 80-813.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Culpeper Basin, Virginia

MAPS: Geophys: aeromagnetism [1:48,000]

1344 M : U.S. GEOLOGICAL SURVEY, 1980, Aeroradioactivity map of Fairfax County, Virginia: U.S. Geological Survey Open-File Map 80-812.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Culpeper Basin, Virginia

MAPS: Geophys: aeromagnetism [1:48,000]

1345 M : U.S. GEOLOGICAL SURVEY, 1981, Aeromagnetic map of the Culpeper Basin and vicinity, Virginia and Maryland: U.S. Geological Survey Open-File Report 81-472.

KEYWORDS: geophysics
aeromagnetism

GEOGRAPHIC AREA: Culpeper Basin, Virginia, Maryland

MAPS: Geophys: aeromagnetism [1:125,000]

1346 P : UCHUPI, E., BALLARD, R.D., AND ELLIS, J.B., 1977, Continental slope and upper rise off western Nova Scotia and Georges Bank: American Association of Petroleum Geologists, Bulletin, v. 61, p. 1483-1492.

SUMMARY: Geophysical data are used to outline the Mesozoic history of the continental rise and shelf. Emphasis is placed upon the evolution of salt deposits and the marine transgression within the Georges Bank and Scotian Basins.

KEYWORDS: buried basins
seismic profiles

GEOGRAPHIC AREA: Maritime Province, Canada

1347 P : UCHUPI, ELAZAR, AND AUSTIN, JAMES ALBERT, JR., 1979, The geologic history of the passive margin off New England and the Canadian Maritime Provinces: Tectonophysics, v. 59, p. 53-69.

SUMMARY: This is a summary of the proposed tectonic events occurring offshore from New England to Newfoundland. Rifting was initiated in the Late Triassic and completed by Early Jurassic. A block-faulted terrain developed by uplift and tensional fracturing. Mesozoic sediments on the continental shelf consist of evaporites, hemipelagic limestones, and shales.

KEYWORDS: tectonics
buried basins

GEOGRAPHIC AREA: Maritime

MAPS: Geophys: seismic profiles

V

1348 P : VAN DER VOO, R., MAUK, F.J., AND FRENCH, R.B., 1976, Permian-Triassic continental configurations and the origin of the Gulf of Mexico: Geology, v. 4, p. 177-180.

SUMMARY: Paleomagnetics is used to propose a new juxtaposition of North and South America. The Gulf of Mexico may have opened before the Atlantic, at the same time, or later. In the first case, a counterclockwise Late Triassic rotation of Gondwanaland w.r.t. N. America is required. More paleomagnetic data are needed to resolve these options.

KEYWORDS: geophysics
paleomagnetism
tectonics

GEOGRAPHIC AREA: Regional

DATA: Plots: pole positions

1349 P : VAN HOUTEN, F.B., 1969, Stratigraphy and sedimentology of Triassic rocks of eastern North America: U.S. Atomic Energy Commission (Grand Junction Office), Report GJO-7402, 77 p.

KEYWORDS: sedimentation
stratigraphy

GEOGRAPHIC AREA: Regional

1350 F : VAN HOUTEN, F.B., 1980, Late Triassic part of Newark Supergroup, Delaware River section, West-Central New Jersey: in, Manspeizer, W., ed., Field Studies of New Jersey Geology and Guide to Feild Trips, New York State Geological Association, 52nd Meeting, p. 264-276.

SUMMARY: Field trip stops include the following which are also described in text: Hammer Creek conglomerate, Brunswick Fm., Lockatong Fm., Lockatong hornfels, Stockton arkose. The depositional environments and sedimentary facies development are discussed.

KEYWORDS: sedimentation
general geology

GEOGRAPHIC AREA: Newark Basin, New Jersey, Hunterdon County

MAPS: Geol: Delaware River area
Section: stratigraphic

1351 P : VAN HOUTEN, FRANKLYN B., 1960, Composition of Upper Triassic Lockatong argillite, west-central New Jersey: Journal of Geology, v. 68, p. 666-669.

SUMMARY: The massive gray to red-brown argillite consists predominantly of analcime, dolomite, feldspar, and a 10 Å micaceous clay mineral. This facies contains as much as 7% Na2O and as little as 47% SiO2. In platy, black shale, analcime is rare, pyrite is common, and dolomite, clays, and feldspar are abundant. Contact metamorphic effects of diabase convert clay to biotite, analcime to albite, dolomite to calcite, and pyrite to pyrrhotite.

KEYWORDS: sediments
mineralogy
geochemistry

GEOGRAPHIC AREA: Newark Basin, New Jersey

MAPS: Geol: sketch

DATA: Plots: XRD data

1352 P : VAN HOUTEN, FRANKLYN B., 1962, Cyclic sedimentation and the origin of analcime-rich Upper Triassic Lockatong Formation, West-Central New Jersey and adjacent Pennsylvania: American Journal of Science, v. 260, p. 561-576.

SUMMARY: (See Van Houten, 1964.) Short detrital and chemical cycles comprise ten long cycles, each about 345 feet, so that the Lockatong Formation is 3500 feet deposited over a 5.1 m.y. period. Structure and textures of the cycles are outlined. Lockatong and Brunswick intertonguing resulted from interaction of lacustrine and flood plain environments by climatic cycles.

KEYWORDS: sedimentation
climate

GEOGRAPHIC AREA: Newark Basin, New Jersey, Pennsylvania

DATA: Photos: outcrops, samples

1353 P : VAN HOUTEN, FRANKLYN B., 1964, Cyclic lacustrine sedimentation, Upper Triassic Lockatong Formation, Central New Jersey and adjacent Pennsylvania: Kansas Geological Survey, Bulletin 169, p. 497-531.

SUMMARY: Detrital and more common chemical cycles are described (primary structures and textures). Detrital cycles (14 to 20 ft.) consist of lower black shale, carbonate mudstone, and calcareous silty mudstone. Chemical cycles (8 to 13 ft.) consist of gray to black dolomite mudstone with pyrite, a central gray mudstone, and an upper massive analcime- and carbonate-rich mudstone (7% Na, 47% Si, 40% analcime). Cycles, resulting from alternating climatic patterns, represent 21,000-year cycles.

KEYWORDS: sedimentation
climate

GEOGRAPHIC AREA: Newark Basin, New Jersey, Pennsylvania

MAPS: Section: stratigraphic

DATA: Photos: outcrops, core, samples

1354 P : VAN HOUTEN, FRANKLYN B., 1965, Composition of Triassic Lockatong and associated formations of Newark Group, Central New Jersey and adjacent Pennsylvania: American Journal of Science, v. 263, p. 825-863.

SUMMARY: The Stockton arkose contains 3.5% Na2O, 1.27 K2O, and 0.3% MgO; while mudstones contain 5.17% K2O and 2.6% MgO. Detrital Lockatong mudstone contains 4% Na2O, 5.2% K2O, 3.8% MgO, and 49% SiO2; and chemical cycles contain 3.3% K2O, 4% MgO, 6.4% Na2O, 49% SiO2, and anamolously high Cr, V, Ni, and Co. Brunswick shale contains 3.5% and 5.8% Na2O in the upper and lower parts, respectively. Physicochemical environments are discussed.

KEYWORDS: sediments
geochemistry

GEOGRAPHIC AREA: Newark Basin, New Jersey, Pennsylvania

MAPS: Geol: with K2O and Na2O contents (no numerical scale)

DATA: Chem. (type of data): major oxide; organics; trace
Plots: K2O, Na2O stratigraphy

1355 P : VAN HOUTEN, FRANKLYN B., 1965, Crystal casts in Upper Triassic Lockatong and Brunswick Formations: Sedimentology, v. 4, p. 301-313.

SUMMARY: Glauberite casts, now filled with calcite, occur as large complete casts, rosettes of elongate, radiating casts, and long sprays and stringers of casts. Those in the Brunswick mudstone form large casts and beds several inches thick; while those in analcime-dolomite Lockatong argillite are more scattered and smaller. Glauberite developed during the drying, waning, saline lake cycles.

KEYWORDS: sedimentation
sediments
mineralogy

GEOGRAPHIC AREA: Newark Basin, New Jersey

DATA: Photos: casts

1356 A : VAN HOUTEN, FRANKLYN B., 1965, Origin of sodium-rich Triassic lacustrine deposits, New Jersey and Pennsylvania: American Association of Petroleum Geologists, Bulletin, v. 49, p. 361.

SUMMARY: Sodium was derived from Na-feldspar rich source rocks. Lockatong detrital cycles (avg. 15 ft.) contain Na-feldspar, illite, chlorite, calcite, and little quartz or K-spar, and accumulated in an open lake of low salinity (Eh 0 to -2.5, pH 7 to 8). Chemical cycles contain analcime, Na-feldspar, dolomite-calcite, illite, chlorite, and no quartz, and accumulated in a closed lake of moderate salinity (Eh (-2), pH (8)) for gray beds and higher salinity (Eh (-1), pH (7.75)) for red beds.

KEYWORDS: sedimentation
sediments
geochemistry
mineralogy

GEOGRAPHIC AREA: Newark Basin, New Jersey, Pennsylvania

1357 A : VAN HOUTEN, FRANKLYN B., 1969, Hornfels facies, Late Triassic Newark Group, New Jersey: Geological Society of America, Abstracts with Programs, v. 1, pt. 7, p. 229.

SUMMARY: This abstract presents detailed descriptions of a number of mineral assemblages developed in the Brunswick mudstone and the Lockatong cycles (lower black shale, carbonate mudstone, silty argillite, analcime-dolomite argillite).

KEYWORDS: metamorphism
hornfels
mineralogy

GEOGRAPHIC AREA: Newark Basin, New Jersey

1358 F : VAN HOUTEN, FRANKLYN B., 1969, Late Triassic Newark Group, north-central New Jersey and adjacent New York and Pennsylvania: in, Subitzky, S., ed., Geology of Selected Areas in New Jersey and Eastern Pennsylvania and Guidebook of Excursions, Geological Society of America, Annual Meeting 1969, Rutgers University Press, p. 314-347.

SUMMARY: A summary of the nomenclature, paleontology, age, correlation, provenance, deposition, and composition of the Stockton, Lockatong, and Brunswick Fms. is presented. Fieldstops include the Stockton arkose, Lockatong chemical cycles, Brunswick Fm., Hammer Creek conglomerate, First Watchung basalt and tuff, and Lockatong hornfels.

KEYWORDS: sedimentation
general geology

GEOGRAPHIC AREA: Newark Basin, Pennsylvania, New Jersey, New York

MAPS: Geol: sketches
Section: stratigraphic sections; sedimentary cycles; cross sections

DATA: Chem. (type of data): major oxide (Stockton, Lockatong, Brunswick Fms.)

1359 A : VAN HOUTEN, FRANKLYN B., 1971, Comparison of thermal metamorphic effects on Stockton, Lockatong, and Brunswick deposits: Pennsylvania Academy of Science, Proceedings, v. 45, p. 200.

SUMMARY: Newark high-grade hornfels consist of datolite, scapolite, fluorite, and tourmaline, suggesting volatile addition from the diabase. Some scapolite and tourmaline may have developed from halite and illite, respectively. Toward intrusions Na-feldspar increases, and K-spar decreases. The origin of analcime is considered, and nepheline syenite bodies may result from high-temperature feldspathoidal hornfels.

KEYWORDS: metamorphism
hornfels
mineralogy

GEOGRAPHIC AREA: Newark Basin, Pennsylvania, New Jersey

1360 P : VAN HOUTEN, FRANKLYN B., 1971, Contact metamorphic mineral assemblages, Late Triassic Newark Group, New Jersey: Contributions to Mineralogy and Petrology, v. 30, p. 1-14.

SUMMARY: (See Van Houten, 1971.) Stockton arkose alters to diopside and sphene quartzo-feldspathic hornfels; Lockatong calcareous mudstone alters to calc-silicate hornfels; Lockatong calcareous, feldspathic argillite alters to sanidine, anorthoclase, aegirine, riebeckite, and scapolite; and Lockatong analcime-dolomite argillite alters to cancrinite, natrolite-thomsonite, and rarely sodalite and nepheline.

KEYWORDS: metamorphism
hornfels
mineralogy
geochemistry

GEOGRAPHIC AREA: Newark Basin, New Jersey

DATA: Chem. (type of data): major oxide
Plots: mineral assemblages

1361 P : VAN HOUTEN, FRANKLYN B., 1977, Triassic-Liassic deposits of Morocco and Eastern North America: comparison: American Association of Petroleum Geologists, Bulletin, v. 61, p. 79-99.

SUMMARY: Deposits in Morocco and N. America comprise red-bed evaporites and clastics, respectively. Faulting and basin filling began in Carnian time with a warm, moist climate that became dry and hot by the early Liassic. Salt brines covered both continental margins and interior Morocco by Middle Liassic. The history of the areas is further developed and includes timing of igneous activity and marine transgression.

KEYWORDS: sedimentation
tectonics
economic geology
salt

GEOGRAPHIC AREA: Regional, Morocco

MAPS: Geol: sketches
Section: regional stratigraphy

1362 A : VAN HOUTEN, FRANKLYN B., AND OLSON, R.C., JR., 1957, Lithology of Upper Triassic Lockatong argillite: Geological Society of America, Bulletin, v. 68, p. 1808.

SUMMARY: The fm. consists of gray to black argillite in the middle and coarser, redder argillites in the upper and lower parts; illite and authigenic analcime; dolomite as thin layers in the dark argillite; pyrite crystals and nodules in the black argillite; and small-scale sedimentary structures: graded-, cross-, and thin-bedding, ripple marks and mudcracks.

KEYWORDS: sedimentation
sediments
mineralogy

GEOGRAPHIC AREA: Newark Basin, Pennsylvania, New Jersey

1363 P : VILBRANDT, FRANK C., 1927, Oil-bearing shales of Deep River Valley: North Carolina Department of Conservation and Development, Economic Paper 59, 23 p.

SUMMARY: Analyses of the coal and shale strata from a core .5 mile SW of the Cumnock Mine shaft indicate that oil-bearing units (several inches in thickness) average 30 gallons of oil per ton with oil and ammonia sulfate yields below other notable oil shales of the world. One billion tons of oil-bearing shale is estimated to occur in the basin, and economic development is suggested feasible.

KEYWORDS: economic geology
coal
oil

GEOGRAPHIC AREA: Deep River Basin, North Carolina

1364 T : VOLK, KAREN, 1977, The paleomagnetism of Mesozoic diabase and the deformational history of southeastern Pennsylvania: Ph.D. Thesis, Pennsylvania State University.

KEYWORDS: diabase
geophysics
paleomagnetism

GEOGRAPHIC AREA: Newark Basin, Gettysburg Basin, Pennsylvania

1365 P : VOLK, KAREN WAGNER, 1977, Probable PSD behavior in the Rossville-type diabase of Pennsylvania: Geophysical Journal of the Royal Astronomical Society, v. 49, p. 685-693.

SUMMARY: The Rossville-type (low Cu, Ti, quartz tholeiite) has a multi-domained primary magnetic structure, while that of the York Haven-type (high Cu, Ti, quartz tholeiite) is single domained due to exsolution lamellae. Inconsistencies are present in the multi-domained Rossville-type, which may be a pseudo single domained (PSD) material.

KEYWORDS: diabase
geophysics
magnetism
paleomagnetism

GEOGRAPHIC AREA: Newark Basin, Gettysburg Basin, Pennsylvania

1366 P : VON HUENE, F.R., 1926, Notes on the age of the continental Triassic beds in North America, with remarks on some fossil vertebrates: U.S. National Museum, Proceedings, v. 69, Art. 18, p. 1-10.

SUMMARY: A study of vertebrates from the basins and western U.S. indicates that, in the East Coast basins, the Parasuchians and Labyrinthodonts are middle Triassic between Mushelkalk and lower Keuper. Also, the Conn. and Mass. Saurischians are upper Keuper or Rhaetic.

KEYWORDS: paleontology

GEOGRAPHIC AREA: Regional

W

1367 A : WALKER, ALFRED T., 1971, Chemistry of the Triassic Watchung lava flows of the Newark Basin, New Jersey: Pennsylvania Academy of Science, Proceedings, v. 45, p. 200-201.

SUMMARY: The three flows, with K20, Sr, Zr, and REE values between oceanic and alkali tholeiitic basalts, each possesses a uniform composition. Ni distribution indicates pulses in the 1st and 2nd flows, therefore paralleling the multiple intrusion theory of the Palisades Sill. A common origin for all the Newark system tholeiites is suggested by Zr and Ti ratios which show a NE trend of enrichment.

KEYWORDS: basalt
geochemistry
petrology

GEOGRAPHIC AREA: Newark Basin, New Jersey

1368 P : WALKER, FREDERICK, 1940, Differentiation of the Palisade diabase, New Jersey: Geological Society of America, Bulletin, v. 51, p. 1059-1106.

SUMMARY: Petrographic and geochemical study indicates that the sill differentiated by crystal settling of olivine and pyroxene with no major settling of magnetite or plagioclase, and that upper, late stage, volatile-rich differentiates formed pegmatites and marginal sodic veins.

KEYWORDS: diabase
geochemistry
petrology
mineralogy

GEOGRAPHIC AREA: Newark Basin, New Jersey

DATA: Chem. (type of data): major oxide
Plots: pyroxene composition

1369 P : WALKER, FREDERICK, 1952, Late magmatic ores and the Palisade diabase sheet: Economic Geology, v. 47, p. 349-351.

SUMMARY: It is argued that one magmatic pulse is represented and that iron enrichment in the later, upper portions of the sill does not exceed 6-10 percent by volume. However, later stage, cross-cutting pegmatitic veins may contain as much as 25 percent (FeO + Fe2O3 + TiO2) (George Washington Bridge Section), indicating that such fluids may form iron-rich limestone replacement bodies adjacent to diabase (Cornwall-type).

KEYWORDS: diabase
petrology
economic geology
iron

GEOGRAPHIC AREA: Newark Basin, New Jersey

DATA: Plots: Fe-Mg-alkali

1370 P : WALKER, FREDERICK, 1953, The pegmatitic differentiates of basic sheets: American Journal of Science, v. 251, p. 41-60.

SUMMARY: Studies of sills, including those from Goose Creek, Va., the Palisades Sill, and West Rock, Connecticut, indicate that veins and patches of diabase pegmatite (pyroxene, plagioclase An 40, magnetite, quartz, alkali-feldspar, and amphibole) represent a late stage, iron- and titanium-enriched differentiate injected into rifts within the crystallizing host diabase.

KEYWORDS: diabase
petrology
chemistry
granophyre

GEOGRAPHIC AREA: Culpeper Basin, Virginia; Newark Basin, New Jersey; Hartford Basin, Connecticut

DATA: Chem. (type of data): major oxide
Photos: photomicrograph
Plots: A - F - M

1371 P : WALKER, KENNETH R., 1969, A mineralogical, petrological, and geochemical investigation of the Palisades Sill, New Jersey: Geological Society of America, Memoir 115, p. 175-187.

SUMMARY: Studies indicate that two magma phases are evident, and that fractional crystallization is an important differentiation process. Differentiation was controlled by rates of cooling and resulted in an iron, silica, and alkali enrichment. Geochemical behavior and differentiation trends are discussed.

KEYWORDS: diabase
geochemistry
petrology

GEOGRAPHIC AREA: Newark Basin, New Jersey

MAPS: Geol: sketch
Section: mineral composition with height in sill

DATA: Chem. (type of data): major oxide, trace
Plots: A-F-M

1372 P : WALKER, KENNETH R., 1969, The Palisades Sill, New Jersey: a reinvestigation: Geological Society of America, Special Paper 111, 178 p.

SUMMARY: All aspects of the sill's chemistry, differentiation, and petrography are outlined. Conclusions include: multiple two magma intrusion; olivine crystallzied largely after emplacement of the second, larger phase; fractional crystallization dominated. Behavior and partitioning of trace elements is studied.

KEYWORDS: diabase
mineralogy
geochemistry
petrology

GEOGRAPHIC AREA: Newark Basin, New Jersey

DATA: Chem. (type of data): major oxide, trace (bulk and mineral species)
Photos: outcrops, photomicrographs
Plots: distribution trends; coherence curves

1373 F : WALKER, KENNETH R., AND POLDERVAART, A., 1962, The Palisade Sill: International Mineralogical Association, 3rd General Congress, Northern Field Excursion Guidebook, p. 5-7.

SUMMARY: The general mineralogic and field relations of the sill are outlined, and it is proposed that the olivine-rich layer toward the base of the sill formed, not by crystal settling, but by injection of a second magma within a partially crystallized previous magma. Fractional crystallization is considered responsible for the classic enrichment of the upper parts of the sill in iron, silica, and alkalies.

KEYWORDS: general geology
diabase

GEOGRAPHIC AREA: Newark Basin, New Jersey, New York

MAPS: Geol: sketch

1374 P : WALKER, T.L., AND PARSONS, A.L., 1922, The zeolites of Nova Scotia: Toronto University, Geological Series, v. 14, p. 13-73.

SUMMARY: This work includes zeolite dehydration experiments, descriptions of the North Mountain and Five Island basalts, the zeolite localities and their mineral assemblages, and a detailed crystallographic and chemical description of the minerals.

KEYWORDS: basalt
mineralogy
zeolites

GEOGRAPHIC AREA: Maritime

MAPS: Geol: sketch

DATA: Chem. (type of data): major oxide

1375 A : WAMPLER, J.M., AND DOOLEY, ROBERT E., 1975, Potassium-argon determination of Triassic and Eocene igneous activity in Rockingham County, Virginia: Geological Society of America, Abstracts with Programs, v. 7, p. 547.

SUMMARY: Diabase dikes striking NW-SE are Triassic in age. (This area is in NW Virginia and not in a Triassic Basin.)

KEYWORDS: geophysics
radiometric age
K/Ar dating

GEOGRAPHIC AREA: Virginia, Rockingham Co. (outside Triassic basins)

1376 P : WANNER, H.E., 1921, Some faunal remains from the Trias of York County, Pennsylvania: Academy of Natural Sciences of Philadelphia, Proceedings, v. 73, p. 25-38.

SUMMARY: Fossil crustaceans, fishes, reptiles, mollusks, and polychaeta, as well as tracks, occur in red, green, and black shales along the Big Conewago and Little Conewago Creeks. The species are described in detail.

KEYWORDS: paleontology

GEOGRAPHIC AREA: Gettysburg Basin, Pennsylvania, York County

DATA: Photos: fossils

1377 P : WANNER, H.E., 1927, Some additional faunal remains from the Trias of York County, Pennsylvania: Academy of Natural Sciences of Philadelphia, Proceedings, v. 78, p. 21-28.

SUMMARY: Additional reptilian and mollusca remains are described (see Wanner, 1921) and occur in nodular, calcareous sandstone and the shales in contact with it.

KEYWORDS: paleontology

GEOGRAPHIC AREA: Gettysburg Basin, Pennsylvania, York County

MAPS: Misc: localities

1378 T : WARD, FREEMAN, 1907, Geology of the East Haven-Branford area: Ph.D. Thesis, Yale University, 135 p.

KEYWORDS: general geology

GEOGRAPHIC AREA: Hartford Basin, Connecticut, New Haven Co.

1379 P : WARD, LESTER F., 1891, The plant-bearing deposits of the American Triassic: Science, v. 18, p. 287-288.

SUMMARY: It is shown that the flora can be correlated with the Keuper and, to a lesser extent, the Rhaetic, and that in many cases, a given plant fossil is found in more than one of the East Coast Basins, suggesting their correlation. Fossils from the Lias and Oolite periods are also present but few in number. No details on species are provided.

KEYWORDS: paleontology

GEOGRAPHIC AREA: Regional

1380 A : WARD, ROLAND V., AND ROBERTS, JOSEPH K., 1937, Prismatic jointing in the Virginia Triassic: Geological Society of America, Proceedings, 1936, p. 111.

SUMMARY: A quarry, 4 miles NW of Remington, displays fine-grained diabase prisms from 4 to 12 inches across and dipping 70° SE. The diabase consists of twinned labradorite and augite with accessory chlorite, sericite, calcite, and magnetite.

KEYWORDS: diabase

GEOGRAPHIC AREA: Culpeper Basin, Virginia, Fauquier Co.

1381 P : WARD, ROLAND V., AND ROBERTS, JOSEPH K., 1938, Prismatic jointing in Triassic diabase of Virginia: Washington Academy of Sciences, Journal, v. 28, p. 153-158.

SUMMARY: A quarry 4 mi. NW of Remington exposes ophitic, prismatic diabase as well as amygdaloidal, sheet-like diabase. The prisms dip from 68° to 72° in a N 15°E direction and are attributed to contraction by cooling.

KEYWORDS: diabase
basalt

GEOGRAPHIC AREA: Culpeper Basin, Virginia, Fauquier Co., Remington Quad.

DATA: Photos: outcrop, photomicrographs

1382 P : WATKINS, J.S., AND OTHERS, eds., 1979, Geological and geophysical investigations of continental margins: American Association of Petroleum Geologists, Memoir 29, 472 p.

SUMMARY: Included in this volume are papers concerning the distribution, general geology, and structure of offshore Triassic-Jurassic deposits of the U.S. Atlantic margin.

KEYWORDS: buried basins
geophysics
seismic profiles

GEOGRAPHIC AREA: Regional

1383 P : WATSON, T.L., AND WEED, W.H., 1906, The Virginia copper deposits: Economic Geology, v. 1, p. 309-330.

SUMMARY: One paragraph is devoted to Triassic copper occurrences and gives no localities. It is noted that no veins or "well-defined" horizons exist, and that the ores are for the most part malachite coatings along fractures or dissimanated copper sulfides and phosphates within the rock.

KEYWORDS: economic geology
copper

GEOGRAPHIC AREA: Culpeper Basin, Virginia

1384 P : WATSON, THOMAS L., AND CLINE, JUSTUS H., 1913, Petrology of a series of igneous dikes in Central Western Virginia: Geological Society of America, Bulletin, v. 24, p. 301-334.

SUMMARY: Granite-felsophyre, quartz gabbro, nepheline syenite, analcite-basalt, camptonite, and olivine diabase intrude Paleozoic rocks - principally the Shenandoah Valley limestones. Petrographic and chemical data are presented. All the dikes are considered to be of Triassic age.

KEYWORDS: general geology
diabase
granophyre

GEOGRAPHIC AREA: Virginia, Highland Co., Augusta Co., Rockingham Co., Rockbridge Co. (not in Triassic basin)

MAPS: Geol: sketch
Misc: localities

DATA: Chem. (type of data): major oxide
Photos: outcrops

1385 P : WATSON, THOMAS LEONARD, 1907, Geology of the Virginia barite deposits: American Institute of Mining Engineers, Transactions, v. 38, p. 710-733.

SUMMARY: Four miles SE of Catlett, barite occurs within brecciated zones as wide as several feet. The breccia is comprised of red shale fragments cemented by crystalline limestone. Both red sandy shale and limestone occur in the old mine area which is along the eastern margin of the basin. The area was last worked in 1903, with a 1500-ton production of ore. (Only one and one-half pages of text are devoted to this occurrence.)

KEYWORDS: economic geology
barite

GEOGRAPHIC AREA: Culpeper Basin, Virginia, Prince William Co.

1386 T : WATTS, D.R., 1975, A paleomagnetic study of four Mesozoic diabase dike swarms of the southern Appalachian Mountains: M.S. Thesis, Ohio State University, 115 p.

KEYWORDS: diabase
geophysics
paleomagnetism

GEOGRAPHIC AREA: Regional

1387 A : WATTS, DOYLE, AND NOLTIMIER, H.D., 1974, Paleomagnetic study of diabase dikes in the Inner Piedmont of North Carolina and Georgia: American Geophysical Union, Transactions, v. 55, p. 675.

SUMMARY: 12 VGP's are obtained for 112 samples. Six are from the same 150-mile-long, 169-m.y.-old dike and yield +60.7° lat., +70.8° long., close to the average of the other dikes. VGP's obtained from dikes that cross the Brevard Zone show no change across the zone in one case (Morgantown), but a 12° variation in a second dike (Rebun County).

KEYWORDS: diabase
geophysics
paleomagnetism

GEOGRAPHIC AREA: North Carolina, Georgia (outside of Triassic basin)

1388 T : WEDDLE, T.K., 1979, Petrology of Upper Triassic sandstones from the Hartford, Pomperaug and Newark Basins: M.S. Thesis, University of Massachusetts, 105 p.

KEYWORDS: sediments
petrology

GEOGRAPHIC AREA: Hartford Basin, Pomperaug Basin, Newark Basin, Connecticut, Massachusetts, New Jersey

1389 P : WEDDLE, T.K., AND HUBERT, J.F., 1983, Petrology of upper Triassic fluvial sandstones of the Newark Supergroup in the northern Newark, Pomperaug, Hartford, and Deerfield Basins: implications for the broad terrane hypothesis: Geological Society of America, Abstracts with Programs, v. 15, 121.

SUMMARY: (See Weddle and Hubert, 1983.) The provenance of the Passaic (Newark), New Haven (Hartford and Pomperaug), and the Newark and Pomperaug basins are different, indicating the basins were not connected.

KEYWORDS: sedimentation
sediments
petrology

GEOGRAPHIC AREA: Newark Basin, New Jersey; Hartford Basin, Pomperaug Basin, Deerfield Basin, Connecticut, Massachusetts

1390 P : WEDDLE, THOMAS K., AND HUBERT, JOHN F., 1983, Petrology of Upper Triassic sandstones of the Newark Supergroup in the Northern Newark, Pomperaug, Hartford, and Deerfield Basins: Northeastern Geology, v. 5, no. 1, p. 8-22.

SUMMARY: The northern Newark Basin Passaic Fm. (N.Y.) litharenites were derived from pre-Triassic rocks to the west and north. The northern N.J. Passaic lithic arkoses were derived from the east and north-east. The New Haven arkoses of the Hartford and Pomperaug Basins were derived from the eastern highlands, and the Deerfield Basin arkoses from the north and east. The Newark and Hartford Basins were not once connected.

KEYWORDS: sedimentation
sediments
petrology

GEOGRAPHIC AREA: Newark Basin, New Jersey; Pomperaug Basin, Hartford Basin, Deerfield Basin, Connecticut, Massachusetts

MAPS: Section: columnar, stratigraphic
Misc: paleogeography; samples

DATA: Plots: petrography, paleocurrents

1391 P : WEED, WALTER HARVEY, 1903, Copper deposits of New Jersey: New Jersey Geological Survey, Annual Report of the State Geologist, 1902, p. 125-140.

SUMMARY: The history, nature of the ores and mine workings at Arlington, Sommerville, and the American Mine are described. Chalcocite and secondary copper minerals occur in red beds adjacent to basalt or diabase and often concentrated in faults. Native copper and calcite occur in "bleached zones" at depth. Iron oxides in the sediments served as the precipitating agent, and carbonaceous matter resulted in the formation of native copper.

KEYWORDS: economic geology
copper

GEOGRAPHIC AREA: Newark Basin, New Jersey

DATA: Chem. (type of data): ore (major oxide)

1392 P : WEED, WALTER HARVEY, 1904, The Griggstown, N.J., copper deposit: in, Contributions to Economic Geology, U.S. Geological Survey Bulletin 225, p. 187-189.

SUMMARY: A conformable seam of native copper and secondary copper minerals occurs within red Triassic shale three miles north of Rocky Hill and just above a diabase sheet. The mineralized seam, varying in size up to a "foot or more," occurs within "altered and leached" shale hornfels rich in chlorite.

KEYWORDS: economic geology
copper

GEOGRAPHIC AREA: Newark Basin, New Jersey, Somerset County

1393 P : WEED, WALTER HARVEY, 1911, Copper deposits of the Appalachian states: U.S. Geological Survey Bulletin 455, 166 p.

SUMMARY: Copper occurrences in Triassic rocks are described from near Leesburg and Culpeper, Virginia, from New Jersey (Schuyler, Griggstown, and American Mines), and from Connecticut (Simsbury, Higley, Bristol Mines, and New Haven County occurrences). Copper mineralization is attributed to the adjacent basalt units.

KEYWORDS: economic geology
copper

GEOGRAPHIC AREA: Regional

1394 T : WEEKS, L., 1950, The tectonic significance of the joints in the First Watchung flow, New Jersey: M.S. Thesis, Columbia University, 38 p.

KEYWORDS: basalt

GEOGRAPHIC AREA: Newark Basin, New Jersey

1395 P : WEEMS, R.E., 1982, Geology and mineral resources of the Ashland Quadrangle, Virginia: Virginia Division of Mineral Resources, Open-File Report 82-2, 34 p.

SUMMARY: Triassic rocks occur within the fault-bounded basin and consist of the members of the Doswell Formation, largely of sandstone, conglomerate, and siltstone. Diabase dikes occur. Exposures of Triassic rocks are limited to stream and river valleys. Provenance is discussed, and fossil species are noted.

KEYWORDS: general geology

GEOGRAPHIC AREA: Taylorsville Basin, Virginia, Hanover Co., Ashland Quad.

MAPS: Geol: [1:24,000]

1396 A : WEEMS, ROBERT E., 1972, The Taylorsville Basin of Virginia: Geological Society of America, Abstracts with Programs, v. 4, p. 112-113.

SUMMARY: Sediment provenance and structure indicate the basin is not an erosional outlier of the Richmond Basin. The Taylorsville Basin is a reversed-faulted graben in which Triassic rocks are more strongly folded than in other basins. Lithologic units are (from base): black siltstone, sandstone, conglomerate, coal; tan, cross-bedded sandstone; and gray, poorly consolidated siltstones, sandstones, and conglomerates. Local source areas are from the W, SW, and SE with sediment transport to the NE. Rhaetic fauna occur high in the lower unit.

KEYWORDS: general geology
sedimentation
structure

GEOGRAPHIC AREA: Taylorsville Basin, Virginia

1397 P : WEEMS, ROBERT E., 1979, A large parasuchian (Phytosaur) from the Upper Triassic portion of the Culpeper Basin of Virginia (USA): Biological Society of Washington, Proceedings, v. 92, no. 4, p. 682-688.

SUMMARY: Postcranial remains comparable to Rutiodon manhattanensis were recovered from an excavation at Dulles International Airport near the base of the Balls Bluff Siltstone (see Lee, K.Y.). This find, described in detail, represents the first parasuchian and the only tetrapod skeletal material reported from the basin.

KEYWORDS: paleontology

GEOGRAPHIC AREA: Culpeper Basin, Virginia, Fairfax Co.

DATA: Photos: fossils

1398 P : WEEMS, ROBERT E., 1980, Geology of the Taylorsville Basin, Hanover County, Virginia: Virginia Division of Mineral Resources, Publication 27, p. 23-38.

SUMMARY: The basin, fault-bounded on its west side, consists of Middle to Late Carnian deposits (from base): sandstones and conglomerates; calcareous sandstones, coal, and shale; sandstones and conglomerates; and siltstones and sandstones. Border conglomerates occur along both margins. Sediment provenance and the depositional history are outlined.

KEYWORDS: general geology
sedimentation
paleontology
economic geology
coal

GEOGRAPHIC AREA: Taylorsville Basin, Virginia

MAPS: Geol: sketch
Section: stratigraphic type sections

1399 M : WEEMS, ROBERT E., 1981, Geology of the Hanover Academy Quadrangle, Virginia: Virginia Division of Mineral Resources, Publication 30.

KEYWORDS: general geology
economic geology
coal

GEOGRAPHIC AREA: Taylorsville Basin, Virginia

MAPS: Geol: [1:24,000]

1400 A : WEEMS, ROBERT E., 1982, Footprints in the Newark Supergroup as a stratigraphic tool: Geological Society of America, Abstracts with Programs, v. 14, p. 94.

SUMMARY: Footprint assemblages correlate with fish and pollen correlation among beds of similar ages and suggest that regional footprint correlation may be used, especially where other biostratigraphic remains are absent. Related observations include: lack of thecodont tracks in the Jurassic, upward stratigraphic increase in track size, and the puzzling restriction of known ornithischian tracks to Norian and younger strata.

KEYWORDS: paleontology
stratigraphy

GEOGRAPHIC AREA: Regional

1401 T : WEIGAND, PETER W., 1970, Major and trace element geochemistry of the Mesozoic dolerite dikes from eastern North America: Ph.D. Thesis, University of North Carolina.

KEYWORDS: diabase
geochemistry

GEOGRAPHIC AREA: Regional

1402 A : WEIGAND, PETER W., 1970, Major element geochemistry of the Eastern North American Triassic (?) dikes: Geological Society of America, Abstracts with Programs, v. 2, p. 247.

SUMMARY: Study of 200 dikes reveals two types: continental quartz-tholeiite, and oceanic olivine-tholeiite. The former type occurs in Nova Scotia, Conn., Pa., Md., and Ga., while the latter type is found in N.C. and S.C. Va. and Alabama dikes are of both types. Dikes exhibit a Palisades-type differentiation. The composition ranges shown on plots are attributed to crystal settling and crustal contamination.

KEYWORDS: diabase
geochemistry

GEOGRAPHIC AREA: Regional

1403 P : WEIGAND, PETER W., AND RAGLAND, PAUL C., 1970, Geochemistry of Mesozoic dolerite dikes from Eastern North America: Contributions to Mineralogy and Petrology, v. 29, p. 195-214.

SUMMARY: Three types occur: southern-dominated olivine-normative, and northern-dominated high- and low-TiO_2 quartz-normative diabases. The olivine type may represent the parent to the quartz-types, although the quartz-types developed from different magma parents. The quartz-types may be derived by various crystal fractionation processes from the olivine-type. Incompatible vertical inhomogeneity is suggested, and the geographic distribution of the types suggests differing tectonic regimes in the N and S.

KEYWORDS: diabase
geochemistry
petrology

GEOGRAPHIC AREA: Regional

DATA: Chem. (type of data): major oxide, trace
Plots: TiO_2 vs. mafic index; Ol-Hy-Qz-Di-Ne; Cu vs. mafic index

1404 T : WENK, W., 1983, Seismic refraction measurements in Connecticut's Triassic Basin: M.S. Thesis, University of Connecticut.

KEYWORDS: geophysics
seismic profiles

GEOGRAPHIC AREA: Hartford Basin, Connecticut

1405 T : WESSEL, J.M., 1969, A paleocurrent and petrographic study of the Triassic Mount Toby Conglomerate and Turners Falls Sandstone of north central Massachusetts: M.S. Thesis, University of Massachusetts, 157 p.

KEYWORDS: sedimentation
sediments
petrology

GEOGRAPHIC AREA: Deerfield Basin, Massachusetts

1406 P : WESSEL, JAMES M., 1969, Sedimentary history of Upper Triassic alluvial fan complexes in North-Central Massachusetts: University of Massachusetts, Department of Geology, Contribution No. 2, 157 p.

SUMMARY: (See Wessel, 1971.) This extensive work covers the stratigraphy, sedimentary structures, provenance, petrography, and depositional climate of the Deerfield Basin.

KEYWORDS: general geology
sedimentation
stratigraphy

GEOGRAPHIC AREA: Deerfield Basin, Massachusetts

MAPS: Geol: sketches
Misc: paleocurrent; pebble orientation; clast size

DATA: Photos: outcrops, photomicrographs
Plots: grain size; sandstone composition

1407 A : WESSEL, JAMES, 1971, Sedimentology and stratigraphy of some Upper Triassic fanglomerates, Northern Connecticut Valley, Massachusetts: Pennsylvania Academy of Science, Proceedings, v. 45, p. 198.

SUMMARY: The intertonguing Mount Toby and Turners Falls fanglomerates, sandstones, and mudstones were derived from the east. Sandstone facies developed in water depths as shallow as 1.6 cm on a paleoslope of 2.7° with velocities of 100 cm/sec. This semi-arid deposition consisted of alluvial, fluvial, flood plain, and lacustrine facies.

KEYWORDS: sedimentation
stratigraphy

GEOGRAPHIC AREA: Hartford Basin, Massachusetts

1408 F : WESSEL, JAMES M., HAND, BRYCE M., AND HAYES, MILES O., 1967, Sedimentary features of the Triassic rocks in Northern Massachusetts: in, Robinson, P., ed., Field Trips in the Connecticut Valley Massachusetts, New England Intercollegiate Geological Conference, 59th Meeting, p. 154-165.

SUMMARY: This field trip concerns the alluvial fan deposits of the Mt. Toby Conglomerate, the alluvial plain deposits of the Turners Falls Sandstone, and the basalt of the Deerfield diabase. Emphasis is placed upon geomorphology of the fan complex, sedimentary structure, and provenance.

KEYWORDS: general geology

GEOGRAPHIC AREA: Deerfield Basin, Massachusetts

MAPS: Geol: sketch
Misc: paleocurrent

1409 P : WETHERILL, JOHN P., 1827, Observations on the geology, mineralogy, etc. of the Perkiomen Lead Mine: in, Pennsylvania Academy of Natural Sciences of Philadelphia, Journal, v. 5, p. 305-316.

SUMMARY: Brief descriptions are given of the character of the lead-zinc vein with depth. The vein, which occurs within Triassic red beds, consists of galena, sphalerite, copper sulfide, wulfenite, quartz, and barite as well as secondary minerals. A small vein of anthracite within sandstone is noted. The vein is described to a depth of ninety feet and attains thicknesses of several feet.

KEYWORDS: economic geology
lead
zinc
silver
copper
barite

GEOGRAPHIC AREA: Newark Basin, Pennsylvania

1410 P : WHEELER, GIRARD, 1937, The west wall of the New England Triassic lowland: Connecticut Geological and Natural History Survey, Bulletin 58, 73 p.

SUMMARY: Detailed geological field studies along the western margin reveal it as a faulted and unconformable contact. Relationships of faulting to the copper and lead-zinc mineralization at Bristol and Loudville are discussed. Causes of deformation and the pre-Newark peneplane are outlined, and a broad-terrane regional synthesis is advanced.

KEYWORDS: structure
faults
economic geology
lead
zinc
copper

GEOGRAPHIC AREA: Hartford Basin, Deerfield Basin, Connecticut, Massachusetts

MAPS: Geol: sketches

1411 P : WHEELER, GIRARD, 1938, Further evidence of a broad-terrane Triassic: Journal of Geomorphology, v. 1, p. 140-142.

SUMMARY: A well at Duck Island along Long Island intersected Triassic red beds between 600 and 1050 feet. This evidence for buried sediments beneath the Coastal Plain cover provides further evidence that Triassic rocks once covered areas between the presently exposed basinal remnants.

KEYWORDS: buried basins

GEOGRAPHIC AREA: New York (outside of Triassic basin)

1412 P : WHEELER, GIRARD, 1939, Triassic fault-line deflections and associated warping: Journal of Geology, v. 47, p. 337-370.

SUMMARY: A direct relationship is shown to exist between synclinal and anticlinal intrabasinal features and the adjacent border fault morphology. Border fault re-entrants into pre-Triassic rocks are associaated with synclinal warps that are concave toward the fault.

KEYWORDS: structure
faults

GEOGRAPHIC AREA: Regional

MAPS: Geol: sketches
Section: cross sections

1413 A : WHEELER, WALTER H., 1971, A comparison of the parts of the Deep River Triassic Basin of North Carolina with other Eastern Triassic basins: Pennsylvania Academy of Science, Proceedings, v. 45, p. 196.

SUMMARY: The basin differs from others by its: greater weathering, negligible topographic effects by igneous rocks, coal beds, playa-type limestone and chert, extreme fault splintering along the western border, and no lava flows (with one possible exception).

KEYWORDS: general geology

GEOGRAPHIC AREA: Deep River Basin, North Carolina

1414 A : WHEELER, WALTER H., AND TEXTORIS, DANIEL A., 1971, Playa origin of Triassic limestone and chert, North Carolina: Geological Society of America, Abstracts with Programs, v. 3, p. 360.

SUMMARY: (See same authors, 1978.) The limestones are dark, micritic, non-porous, pelletoidal, and algal and chemical in origin. Crystalline calcite has filled pore spaces; and algal structure, ostracodes, and burrows preclude a caliche origin. These central basin playa deposits may be correlated with the Cumnock Fm. of the Sanford Basin.

KEYWORDS: sedimentation

GEOGRAPHIC AREA: Durham Basin, North Carolina

1415 P : WHEELER, WALTER H., AND TEXTORIS, DANIEL A., 1978, Triassic limestone and chert of playa origin in North Carolina: Journal of Sedimentary Petrology, v. 48, p. 765-776.

SUMMARY: 1- to 20-cm thick limestone beds occur in lacustrine mudstone. Beds of dense chert up to 60-cm thick occur and developed as inorganic silica gel precipitates and as replacements of the limestone - originally a calcareous tufa. These deposits formed about the periphery of a 6.5- to 10.5-pH playa lake with Mg/Ca ratios of less than 7. This suggests that the basin's environment fluctuated between wet (coal-bearing) and dry (limestone, chert, caliche) cycles.

KEYWORDS: sedimentation
general geology

GEOGRAPHIC AREA: Durham Basin, North Carolina

MAPS: Geol: sketches

DATA: Photos: photomicrographs

1416 P : WHERRY, EDGAR T., 1908, The Newark copper deposits of southeastern Pennsylvania: Economic Geology, v. 3, p. 726-738.

SUMMARY: The copper sulfide and carbonate occurrences (native copper is rare) occur within the diabase as gold-bearing chalcopyrite intergrown with hornblende, adjacent to diabase in hornfels, and within faults that intersect diabase and adjacent sediments. The lead-zinc veins within gneiss and red Triassic rocks contain minor copper attributed to ore zoning at depth (gneiss-Pb-Zn) and nearer surface sediments (copper). Sediment-hosted copper occurrences, not associated with diabase, also occur. Locations are listed.

KEYWORDS: economic geology
copper
barite
gold
lead
zinc

GEOGRAPHIC AREA: Newark Basin, Pennsylvania

MAPS: Geol: sketch
Misc: locations of occurrences

1417 P : WHERRY, EDGAR T., 1910, Contributions to the mineralogy of the Newark Group in Pennsylvania: Wagner Free Institute of Science, Transactions, v. 7, p. 5-27.

SUMMARY: Studies of the northern edge of the basin south of Jacksonwald indicate the presence of an inner basalt flow and an outer diabase intrusive. The petrography of these rocks is outlined. The contact metamorphic effect upon the red sandstone is the conversion of calcite to epidote and of hematite to magnetite. Datolite, tourmaline, and other secondary minerals associated with the extrusive sheet are considered to be of late-stage magmatic origin.

KEYWORDS: general geology
basalt
mineralogy
petrology
zeolites
metamorphism
hornfels

GEOGRAPHIC AREA: Newark Basin, Pennsylvania, Berks Co.

DATA: Photos: photomicrographs (diabase, basalt)

1418 P : WHERRY, EDGAR T., 1912, Age and correlation of the "New Red" or Newark Group in Pennsylvania: Academy of Natural Sciences of Philadelphia, Proceedings, v. 64, p. 373-379.

SUMMARY: A review of the paleontological composition of the "Newark" rocks indicates that they do not represent late Paleozoic deposition (first suggested by B.S. Lyman), and that a middle-upper Triassic age is indicated. However, lack of fossils in the Brunswick and Stockton Fms. indicates that this age may not be representative of the entire section. Correlation is made among the Great Britain, German, and Newark units.

KEYWORDS: paleontology
general geology
stratigraphy

GEOGRAPHIC AREA: Newark Basin, Gettysburg Basin, Pennsylvania

1419 P : WHERRY, EDGAR T., 1912, Silicified wood from the Triassic of Pennsylvania: Academy of Natural Sciences of Philadelphia, Proceedings, v. 64, p. 366-372.

SUMMARY: Silicified wood fragments occur along the southern basin margin in the arkosic sandstones and conglomerates (Stockton Fm.). Several species are described in detail. Nineteen localities are noted.

KEYWORDS: paleontology

GEOGRAPHIC AREA: Gettysburg Basin, Newark Basin, Pennsylvania

DATA: Photos: photomicrographs

1420 P : WHERRY, EDGAR T., 1913, North border relations of the Triassic in Pennsylvania: Academy of Natural Sciences, Philadelphia, Proceedings, v. 65, p. 114-125.

SUMMARY: The geological relations of the conglomeratic units and the pre-Triassic rocks along the northern margin are discussed, and it is determined that the basin margin represents an unconformity, although local faults are evident. Glaciation in the adjacent Appalachian Mountains resulted in the coarse fanglomerate deposits.

KEYWORDS: structure
sedimentation

GEOGRAPHIC AREA: Newark Basin, Pennsylvania

MAPS: Geol: sketch

1421 P : WHERRY, EDGAR T., 1916, Glauberite crystal-cavities in the Triassic rocks of Eastern Pennsylvania: American Mineralogist, v. 1, p. 37-43.

SUMMARY: Glauberite crystal casts, partially replaced by calcite, are described from near Steinsburg and Spinnerstown and occur in the Brunswick and Lockatong Fms. but not the Stockton Fm. New Jersey localities are also described. An arid climate characterized by rapid evaporation of lakes is considered to result in the formation of glauberite. The presence of halite and not glauberite in the Hartford Basin is attributed to different river water composition.

KEYWORDS: mineralogy
sediments

GEOGRAPHIC AREA: Newark Basin, Pennsylvania, Bucks County

DATA: Photos: specimens

1422 P : WHERRY, EDGAR T., 1916, The Lozenge-shaped cavities in the First Watchung Mountain zeolite deposits: Washington Academy of Science, Journal, v. 6, p. 181-184.

SUMMARY: Rectangular and diamond-shaped crystal cavities in shales and in the zeolites, now partly replaced by secondary minerals, are shown morphologically to represent glauberite and not babingtonite or anhydrite.

KEYWORDS: sediments
basalt
mineralogy
zeolites

GEOGRAPHIC AREA: Newark Basin, New Jersey

1423 PM: WHERRY, EDGAR T., 1941, Triassic system: in, Miller, B.L., ed., Lehigh County Pennsylvania Geology and Geography, Pennsylvania Geological Survey, Fourth Series, Bulletin C39, p. 231-236.

SUMMARY: Brunswick shale and conglomerate, the latter comprised of both limestone and quartzite clasts, occur in the southern part of the county. Diabase intrusions occur, but do not significantly alter the sediments. The northern margin of the basin is considered an unconformable contact. Gentle folding of the strata, with fold axes perpendicular to the basin trend, has occurred.

KEYWORDS: general geology

GEOGRAPHIC AREA: Newark Basin, Pennsylvania, Lehigh County

MAPS: Geol: [1:62,500]

1424 P : WHITCOMB, L., AND ENGEL, J.A., 1934, The probable Triassic age of the Spitzenberg conglomerate, Berks County, Pa.: Pennsylvania Academy of Science, Proceedings, v. 8, p. 37-43.

SUMMARY: A small synclinal hill exposes poorly sorted limestone and sandstone conglomerate as well as cross-bedded sandstone above the Martinsburg Fm. Analysis of the limestone clasts indicates that they are not Cambro-Ordovician in age derived, like the Martinsburg, from the southeast. This, in addition to the rocks' similarity with Newark Group fanglomerates, indicates the hill may represent a Triassic erosional remnant. (The area is now considered the Juniata Fm. of Ordovician age.)

KEYWORDS: general geology

GEOGRAPHIC AREA: Berks County, Pennsylvania, Hamburg Quadrangle

1425 P : WHITCOMB, LAWRENCE, 1942, Spitzenberg conglomerate as a Triassic outlier in Pennsylvania: Geological Society of America, Bulletin, v. 53, p. 755-764.

SUMMARY: At Greenawald, 2.5 miles northeast of Lenhartsville, beds of gray to red arkose and conglomerate occur capping a hill. Although no fossils occur, possible source rocks are present, younger than the Martinsburg Fm., in which this presumed Triassic outlier occurs. (This area is now considered the Juniata Fm. of Ordovician age.)

KEYWORDS: general geology

GEOGRAPHIC AREA: Berks County, Pennsylvania

DATA: Photos: outcrops

1426 P : WHITE, WILLIAM A., 1950, Blue Ridge front - a fault scarp: Geological Society of America, Bulletin, v. 61, p. 1309-1346.

SUMMARY: Detailed studies of the fault zone from Georgia to New Jersey indicate that it is a Late Tertiary normal fault rejuvenated along a pre-existing Triassic fault zone. Many of the exposed Triassic basins occur adjacent to the fault scarp.

KEYWORDS: structure
faults

GEOGRAPHIC AREA: Regional

MAPS: Geol: sketches

1427 T : WHITEHEAD, J.W., 1962, The petrology of the Sanford Basin Triassic sediments, North Carolina: M.S. Thesis, University of Missouri, 174 p.

KEYWORDS: sedimentation
sediments
petrology

GEOGRAPHIC AREA: Sanford Basin, North Carolina

1428 P : WHITEHEAD, W.L., 1916, The paragenesis of certain sulphide intergrowths: Economic Geology, v. 11, p. 1-13.

SUMMARY: Textural examination of the chalcocite-bornite intergrowths from the Bristol Mine, along with published experimental data, indicates that the Bristol chalcocite formed below 91°C. The genesis of the deposit is directly related to "effusion" of diabase near the surface at temperatures between 100°C and 250°C. It is concluded that the chalcocite is later than the primary mineralization and that it formed from the action of colder, descending solutions.

KEYWORDS: economic geology
copper

GEOGRAPHIC AREA: Hartford Basin, Connecticut

DATA: Photos: chalcocite and bornite photomicrographs

1429 P : WHITLOCK, HERBERT P., 1930, A study of the crystallography of the calcites of the New Jersey diabase region: American Museum of Natural History, Bulletin 56, p. 351-377.

SUMMARY: This is a detailed study of the crystallography of the calcite from the zeolite occurrences in basalt and diabase. Crystal drawings and stereographic projections are presented. It is concluded that solutions depositing secondary calcite in diabasic rocks produce a prevailing crystal habit - primarily the negative rhombohedron $(04\bar{4}3)$.

KEYWORDS: basalt
diabase
mineralogy
zeolites

GEOGRAPHIC AREA: Newark Basin, New Jersey

1430 A : WHITTINGTON, DAVID, AND RAGLAND, PAUL C., 1983, Tectonic implications of an apparent Mesozoic radial diabase dike swarm centered in the vicinity of Charleston-Georgetown, South Carolina: Geological Society of America, Abstracts with Programs, v. 15, p. 92.

SUMMARY: Paleomagnetically, the radial swarm is younger than the typical NW-trending dikes of the southern Appalachians, and the former contain higher abundances of LIL elements and higher silica-saturation. It is proposed that the NW set may represent "cratonal rifting of Pangea whereas the radial swarm may represent a later stage of spreading." Dextral shear followed by sinistral shearing between Africa and N. America would not produce the observed set duality.

KEYWORDS: tectonics
diabase

GEOGRAPHIC AREA: Regional

1431 P : WIDMER, KEMBLE, 1965, Geology and ground water resources of Mercer County: New Jersey Geological Survey, Geologic Report Series No. 7, 115 p.

SUMMARY: The geology of the Brunswick, Lockatong, and Stockton Fms., and diabase is outlined, and well data (excluding chemistry) is presented in tabular form by township. Average yields for the four units above are: 15, 9, 20, and 9 gpm (domestic), and 110, 32, 147, no wells (gpm industrial), respectively.

KEYWORDS: general geology
hydrology

GEOGRAPHIC AREA: Newark Basin, New Jersey, Mercer County

MAPS: Geol: (no scale given)
Section: geologic cross sections
Misc: well locations

1432 M : WIER, K., 1977, Preliminary geology of the Richardsville and a portion of the Midland Quadrangles, Fauquier, Culpeper, and Stafford Counties, Virginia: U.S. Geological Survey Open-File Report 77-699.

KEYWORDS: general geology
bedrock geology
structure

GEOGRAPHIC AREA: Culpeper Basin, Virginia

MAPS: Geol: [1:24,000] (in 4 sheets)

1433 F : WILKES, GERALD P., 1982, Geology and mineral resources of the Farmville Triassic Basin, Virginia: Virginia Minerals, v. 28, p. 25-32.

SUMMARY: The basin is bounded by a steep western normal fault and a shallower eastern border fault and contains a western boulder breccia and cobble and pebble conglomerates, a northern arkosic conglomerate, an eastern arkosic sandstone, and a central gray, black, green, and red shale-mudstone unit with coal measures. Coal mining history is outlined, and a road-log is provided to key outcrops.

KEYWORDS: general geology
economic geology
coal

GEOGRAPHIC AREA: Farmville Basin, Virginia

MAPS: Geol: sketches

1434 A : WILKES, GERALD P., AND LASCH, DAVID K., 1979, The Farmville Triassic Basin: an integrated geological/geophysical study: Virginia Journal of Science, v. 30, no. 2, p. 81.

SUMMARY: Traverses perpendicular to the strike of the Triassic sediments were conducted along U.S. Rt. 60 and St. Rd. 636. The profiles imply a complex fault system associated with paleodeposition. In addition to the western, high-angle border fault, the profiles indicate the presence of faults along the eastern margin of the basin.

KEYWORDS: geophysics
gravity
structure

GEOGRAPHIC AREA: Farmville Basin, Virginia

1435 PM: WILLARD, B., AND OTHERS, 1959, Geology and mineral resources of Bucks County, Pennsylvania: Pennsylvania Geological Survey, Bulletin C9, 243 p.

SUMMARY: Discussion of the Mesozoic rocks is presented by D.B. McLaughlin and includes detailed descriptions of the distribution, structure, petrography, and type sections of the Stockton, Lockatong, and Brunswick Formations. E.T. Wherry presents the paleontology (primarily plants), and J.D. Ryan discusses diabase petrography. A small basalt flow is present at Jacksonwald. Barite, lead-zinc, and copper occurrences are outlined.

KEYWORDS: general geology, economic geology, barite, copper, lead, zinc, structure, paleontology, diabase, basalt

GEOGRAPHIC AREA: Newark Basin, Pennsylvania, Bucks Co.

MAPS: Geol: [1:62,500] (1), and local sketch maps

1436 P : WILLARD, BRADFORD, 1956, Triassic fanglomerate provenance: Pennsylvania Academy of Science, Proceedings, v. 30, p. 157-162.

SUMMARY: Unlike the majority of fanglomerates whose provenance was local, the Pebble Bluffs fanglomerate just east of the Delaware River derived its clasts from the Silurian Decker and Green Pond Formations which are present to the NE along the Green Pond Mountain syncline. It is suggested that the syncline may have extended farther to the SW and that the fanglomerates may have transgressed north of the border fault.

KEYWORDS: sedimentation

GEOGRAPHIC AREA: Newark Basin, New Jersey

1437 M : WILLARD, MAX E., 1951, Bedrock geology of the Mount Toby Quadrangle, Massachusetts: U.S. Geological Survey, Geologic Quadrangle Map GQ-8.

KEYWORDS: general geology, economic geology, lead, zinc, barite

GEOGRAPHIC AREA: Deerfield Basin, Massachusetts, Hampshire Co., Franklin Co.

MAPS: Geol: [1:31,680]

1438 M : WILLARD, MAX E., 1952, Bedrock geology of the Greenfield quadrangle, Massachusetts: U.S. Geological Survey, Geologic Quadrangle Map GQ-20.

KEYWORDS: general geology
economic geology
copper

GEOGRAPHIC AREA: Deerfield Basin, Massachusetts, Franklin Co.

MAPS: Geol: [1:31,680]

1439 M : WILLARD, MAX E., 1956, Bedrock geology of the Williamsburg Quadrangle, Massachusetts: U.S. Geological Survey, Geologic Quadrangle Map GQ-85.

KEYWORDS: general geology

GEOGRAPHIC AREA: Deerfield Basin, Massachusetts, Franklin Co., Hampshire Co.

MAPS: Geol: [1:31,680]

1440 A : WILLARD, MAX EMERY, 1941, Triassic floor of deposition north of Holyoke Range, Massachusetts: Geological Society of America, Bulletin, v. 52, p. 1940-1941.

SUMMARY: An intra-basin N-trending buried fault occurs through(?) North Sunderland and divides the basin into a western, deeper, earlier sub-basin, and a later eastern basin characterized by a shallow pre-Triassic floor and the Mount Toby Conglomerate and Leverett breccia.

KEYWORDS: structure

GEOGRAPHIC AREA: Hartford Basin, Deerfield Basin, Massachusetts

1441 T : WILLIAMS, GERALD, 1979, Transition from ductile to brittle deformation at the head of the Deerfield Basin, Bernardston-Leyden area, Massachusetts: M.S. Thesis, University of Massachusetts, 106 p.

KEYWORDS: structure
faults

GEOGRAPHIC AREA: Deerfield Basin, Massachusetts

1442 A : WILSON, ERNEST H., 1919, Barite from Great Notch, N.J.: American Mineralogist, v. 4, no. 1, p. 4.

SUMMARY: The author describes a specimen of basalt from the quarry on which small barite crystals occur, suggesting that the mineral formed early in the zeolite paragenesis. Calcite and prehnite crystals occur on the barite.

KEYWORDS: mineralogy
basalt

GEOGRAPHIC AREA: Newark Basin, New Jersey, Passaic County

1443 P : WILSON, WILLIAM F., AND CARPENTER, P. ALBERT, III, 1975, revised 1981, Region J Geology: a guide for North Carolina mineral resource development and land use planning: North Carolina Geological Survey Section, Regional Geological Series 1, 45 p.

SUMMARY: The characteristics of the Sanford, Cumnock, and Pekin Formations, and the quality of ground water in the Triassic rocks are summarized. Mineral resources in the basin include coal, crushed stone, and clay and shale.

KEYWORDS: hydrology
general geology
economic geology
coal

GEOGRAPHIC AREA: Deep River Basin, North Carolina

MAPS: Geol: bar scale only
Misc: (nonmetallic mineral deposits)

1444 P : WISE, D.U., 1982, New fault and fracture domains of southwestern New England - hints on localization of the Mesozoic basins: in, Farquhar, O.C., ed., Geotechnology in Massachusetts, 1980, University of Massachusetts Graduate School, p. 447-453.

SUMMARY: The distribution of SW New England joint systems and topographic lineament swarms is discussed. A 50-km wide domain of strike-slip and oblique-slip motions projects into the Newark Basin, is superimposed upon the N-trending Berkshires grain, and includes the Hartford, Pomperaug, and Deerfield Basins. This ductile region represents the late Paleozoic Appalachian core region, and it localized the Mesozoic basins.

KEYWORDS: structure
faults
tectonics

GEOGRAPHIC AREA: Regional

MAPS: Misc: joint sets; lineaments

1445 A : WISE, D.U., HOZIK, M.J., GOLDSTEIN, A.G., AND PIEPUL, R.G., 1975, Minor fault motions in relation to Mesozoic tectonics of Southern New England: American Geophysical Union, Transactions, v. 56, p. 451.

SUMMARY: The Conn. Valley displays a pervasive N 30°E joint and fault grain. N 60°W crustal extension developed upon a previous N-S grain which localized the Mesozoic graben. Normal minor-faults occur where the basin margin fault trends N 30°E. Where the basin trends N-S, right-lateral motions and other complex movement occurs.

KEYWORDS: structure
faults

GEOGRAPHIC AREA: Hartford Basin, Connecticut, Massachusetts, Rhode Island

1446 A : WISE, DONALD U., 1980, Discovery of a Mesozoic strike-slip fault domain extending at least 100 km northeast of the Newark Basin: Geological Society of America, Abstracts with Programs, v. 12, p. 89-90.

SUMMARY: A 50-km wide zone of left-lateral strike slip motions superimposed upon the N-S tectonic regional grain extends along the NE projection of the Newark Basin and is Jurassic or younger in age. Within the Hartford (?) Basin a pattern of small-scale extensile faults occurs (sigma 2 = N 30°E). Other joint and fault patterns of the region are outlined.

KEYWORDS: structure
tectonics

GEOGRAPHIC AREA: Newark Basin, Hartford Basin, New Jersey, Connecticut

1447 A : WISE, DONALD U., AND ROBINSON, PETER, 1982, Tectonics of the Mesozoic Connecticut Valley graben: Geological Society of America, Abstracts with Programs, v. 14, p. 96.

SUMMARY: Oblique N 65°W Mesozoic extension resulted in an echelon pair of basins (Hartford-Deerfield) separated by the Amherst horst. Among other structural complexities, left-lateral displacements in response to N-S compression account for the locus of the deepest basin areas, the arcuate basalt ranges, and the rotation of the Farmington block. Other regional strike-slip motions are attributed to pre-Triassic crustal inhomogeneity.

KEYWORDS: structure
tectonics

GEOGRAPHIC AREA: Hartford Basin, Deerfield Basin, Massachusetts, Connecticut

1448 M : WISE, M.A., AND JOHNSON, S.S., 1980, Simple Bouger gravity anomaly map of the Culpeper Basin and vicinity, Virginia: Virginia Division of Mineral Resources, Publication 24.

KEYWORDS: geophysics
gravity

GEOGRAPHIC AREA: Culpeper Basin, Virginia

MAPS: Geophys: gravity [1:125,000]

1449 PM: WOOD, CHARLES R., 1980, Groundwater resources of the Gettysburg and Hammer Creek Formations, Southeastern Pennsylvania: Pennsylvania Geological Survey, Fourth Series, Water Resources Report 49, 87 p.

SUMMARY: Median yields are: Hammer Creek Fm. (shale - 144, quartz conglomerate - 120, and sandstone - 90 gpm), and Gettysburg Fm. (Middletown area shale - 185, other shale - 74, limestone conglomerate - 85, sandstone - 50, and quartz conglomerate - 21 gpm). The pH is low in sandstone and conglomerate, water is of the calcium bicarbonate type; and, except for zinc, trace element concentrations are very low.

KEYWORDS: hydrology

GEOGRAPHIC AREA: Gettysburg Basin, Newark Basin, Pennsylvania

MAPS: Geol: [1:50,000] (in 3 parts)
Misc: well locations; 1:250,000 groundwater hardness

DATA: Chem. (type of data): water

1450 P : WOOD, PERRY R., AND JOHNSTON, HERBERT E., 1964, Hydrology of the New Oxford Formation in Adams and York Counties, Pennsylvania: Pennsylvania Geological Survey, Fourth Series, Ground Water Report W21, 66 p.

SUMMARY: Water chemistry, well depths and yields, and the general geology of the fm. are discussed. Seventy percent of the wells have yields under 10 gpm, with fifteen percent yielding over 20 gpm. Median values for some elements are (in ppm): Si - 20, Ca - 43, bicarbonate - 145, sulfate - 27, nitrate - 27, Mg - 12. Values of pH range from 5.7 to 7.8.

KEYWORDS: hydrology

GEOGRAPHIC AREA: Gettysburg Basin, Pennsylvania

DATA: Chem. (type of data): water

1451 P : WOODWARD, HERBERT P., 1944, Copper mines and mining in New Jersey: New Jersey Department of Conservation and Development, Geologic Series, Bulletin 57, 156 p.

SUMMARY: This extensive work describes the mining history and deposit of the major Triassic occurrences including the Schuyler, East Orange, American, Menlo Park, Flemington, and Griggstown Mines. Chalcopyrite is the dominant ore mineral adjacent to intrusives, with chalcocite and native copper more abundant distally. Deposits occur adjacent to and above diabase but below basalt units. Depositional models are discussed and a magmatic source is favored.

KEYWORDS: economic geology
copper

GEOGRAPHIC AREA: Newark Basin, New Jersey

MAPS: Geol: sketches

1452 P : WOODWORTH, JAY BACKUS, 1902, The Atlantic Coast Triassic coal field: U.S. Geological Survey, 22nd Annual Report, pt. 3, p. 25-53.

SUMMARY: The stratigraphy, structure, mining methods, and character of the coal are outlined for the four basin areas. Coal beds in the Richmond area occur near the base of the basin, are commonly several to as much as 20-feet thick and are bituminous with coke occurring adjacent to diabase. Coal seams in other basins are generally thinner.

KEYWORDS: economic geology
coal

GEOGRAPHIC AREA: Richmond Basin, Farmville Basin, Virginia; Deep River Basin, Dan River Basin, North Carolina

MAPS: Geol: (bar scale) Richmond Basin; sketches
Section: columnar sections
Misc: mines

1453 P : WOOLLARD, G.P., BONINI, W.E., AND MEYER, R.P., 1957, A seismic refraction study of the sub-surface geology of the Atlantic Coastal Plain and continental shelf between Virginia and Florida: University of Wisconsin, Department of Geology, Geophysics Section, 128 p.

SUMMARY: Seismic data, in conjunction with well information, indicate the presence of buried Triassic basins. These include: just east of Petersburg, Va.; an extension of the Florence Basin into Lee County, S.C.; Lakewood, N.J.; Hoke County, N.C.; Worcester and Wicomico Counties, Md.; Bowling Green, Ashland, and Doswell, Va.; Elizabeth City, N.C.; and large areas in Florida and Georgia. The occurrence of such basins is considered extensive and susceptible to seismic misinterpretation.

KEYWORDS: buried basins
geophysics
seismic profiles

GEOGRAPHIC AREA: Regional

MAPS: Geophys: seismic profiles

1454 P : WOOLLARD, GEORGE P., 1941, Geophysical methods of exploration and their application in geological problems in New Jersey: New Jersey Department of Conservation and Development, Bulletin 54, 89 p.

SUMMARY: Included among the geophysical studies are a magnetic survey delineating the extension of the Rocky Hill diabase and the Palisades Sill and the structure of the Triassic in the Plainsboro Area (Mercer County) by seismic survey.

KEYWORDS: geophysics
magnetism
seismic profiles

GEOGRAPHIC AREA: Newark Basin, New Jersey

MAPS: Section: geologic cross section (Plainsboro)
Geophys: seismic stations (Plainsboro); gravity profiles across Rocky Hill diabase

Y

1455 P : YARE, B.S., 1969, Orientation of phenoclasts in a conglomerate deposit from the north border of the Newark-Gettysburg Basin: Pennsylvania Academy of Science, Proceedings, v. 43, p. 166-168.

SUMMARY: Dip magnitude measurements of pebbles within the border conglomerates indicate a mudflow origin.

KEYWORDS: sedimentation

GEOGRAPHIC AREA: Newark Basin, Gettysburg Basin, Pennsylvania

1456 A : YEWISIAK, PAUL P., 1970, Geology of the Culpeper Triassic Basin, Virginia: Geological Society of America, Abstracts with Programs, v. 2, p. 250.

SUMMARY: Uniform westward dips, the western border fault with associated conglomerates, and absence of transected Triassic structures support a half-graben theory. Study of border conglomerates suggests several source areas and deposition centers, with Catoctin greenstone the predominant component.

KEYWORDS: general geology
sedimentation

GEOGRAPHIC AREA: Culpeper Basin, Virginia

1457 P : YOUNG, R.S., AND EDMUNDSON, R.S., 1954, Oolitic limestone in the Triassic of Virginia: Journal of Sedimentary Petrology, v. 24, p. 275-279.

SUMMARY: A six- to nine-inch bed of limestone within gray-green shales of the Manassas sandstone is composed of calcite, illite, chlorite, and talc. Heavy mineral investigation indicates an eastern source area. The oolitic (1-mm diam.) limestone represents shallow, fresh water, local lacustrine deposition indicated by mudcracks. Euhedral pyrite replaces the oolites. (The bed occurs along the E face of a quarry 3.5 mi east of Culpeper on Va. Rt. 3.)

KEYWORDS: sedimentation
sediments
petrology
mineralogy

GEOGRAPHIC AREA: Culpeper Basin, Virginia, Culpeper Co., Culpeper East Quad.

DATA: Photos: outcrops; photomicrographs

Z

1458 T : ZABLOCKI, FRANK S., 1959, A gravity study in the Deep River-Wadesboro Triassic Basin of North Carolina: M.S. Thesis, University of North Carolina.

KEYWORDS: geophysics
gravity

GEOGRAPHIC AREA: Deep River Basin, Wadesboro Basin, North Carolina

1459 M : ZENONE, CHESTER, AND LACZNIAK, R.J., 1984, Ground-water resources of the Culpeper Basin, Virginia and Maryland: simulation of the ground-water system: U.S. Geological Survey Miscellaneous Investigations Report I-1313-F.

KEYWORDS: hydrology

GEOGRAPHIC AREA: Culpeper Basin, Virginia, Maryland

MAPS: Misc: hydrology [1:125,000]

1460 M : ZENONE, CHESTER, AND LARSON, J.D., 1982, Ground-water resources of Fairfax County and vicinity, Va., and some aspects of their development: U.S. Geological Survey Miscellaneous Investigations Map MI-1473.

KEYWORDS: hydrology

GEOGRAPHIC AREA: Culpeper Basin, Virginia

MAPS: Misc: hydrology [1:48,000]

1461 P : ZIEGLER, DANIEL G., 1983, Hydrocarbon potential of the Newark rift system: Eastern North America: Northeastern Geology, v. 5, p. 200-208.

SUMMARY: It is shown that all factors involving the source, explusion, migration, and accumulation of hydrocarbons in the basins are satisfied and similar to other world rift basins that have produced oil. Oil has been recovered in the Richmond and Sanford Basins as well as southern buried basins. An intensive, more thorough exploration is suggested.

KEYWORDS: economic geology
oil

GEOGRAPHIC AREA: Regional

MAPS: Geol: sketches

1462 P : ZIETZ, ISIDORE, AND GRAY, CARLYLE, 1960, Geophysical and geological interpretation of the Triassic structure in Eastern Pennsylvania: U.S. Geological Survey Professional Paper 400-B, p. B174-B178.

SUMMARY: Aeromagnetics across the Buckingham horst in eastern Bucks County reveals a magnetic high corresponding to the Furlong Fault which bounds the southern end of the horst and has a 3000-foot displacement. SE of the fault, the horst basement rocks dip SE, not NW as on the fault's NW side. A vertical, narrow, magnetite-rich body may exist at depth and about 1000 feet NW of the Furlong Fault.

KEYWORDS: geophysics
aeromagnetism
structure
economic geology
iron

GEOGRAPHIC AREA: Newark Basin, Pennsylvania, Bucks Co.

MAPS: Geophys: aeromagnetic; profiles

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