

presence of the spines precludes erosion of the costae.

From each of the ears, two spines arise. An outer, coarse spine is directed posteriorly in the same plane as the lateral margin of the ear. An inner, smaller spine, quite short and slender, is half the distance from the beak to the tip of the ear, and is directed dorsally.

The brachial valve is moderately concave except for the margin which is produced by crowded growth lines which form a shelf-like margin. The width of this marginal shelf is about one-fourth the length of the brachial valve, and it extends along the lateral margins almost to the hinge-line.

Internally, the features of the brachial valve are distinctive. Beginning at the cardinal process, a flange-like ridge extends around the periphery, and the posterior

margin of this marginal flange is crenulate. The median septum is quite low in the posterior portion of the shell, becoming high at the anterior margin of the visceral disc. At the anterior margin of the visceral disc, there is a row of from eight to ten coarse, short spines. These spines are arranged in an arc in front of each brachial impression. A typical specimen is 15 mm. in length, 21 mm. in width, and 10 mm. in thickness.

Discussion.—*Lissomarginifera nuda* differs from *Kozlowskia splendens* (Norwood & Pratten) in that *L. nuda* lacks a sulcus and essentially lacks surface ornamentation. It also has a high median septum that reaches the anterior edge of the visceral disc, whereas *K. splendens* has a low median septum that does not reach the margin of the visceral disc.

Locality.—309.

EXPLANATION OF PLATE 128

- FIGS. 1,2—*Hustedia rotunda*, n. sp. 1, interior showing spire, USC 5077, $\times 1$; 2, interior showing ornamentation of the jugum, USC 5104, $\times 3$.
- 3-7—*Spirifer occiduus* Sadlick. 3, pedicle interior showing thickening along the hinge-line, USC, 5078, $\times 1$; 4,5, brachial exterior brachial interior, USC 5079 $\times 1$; 6,7 pedicle exterior, pedicle interior USC 5080, $\times 1$.
- 8—*Composita subtilita* (Hall). Pedicle exterior, USC 5081, $\times 1$.
- 9-11—*Neospirifer triplicatus* (Hall). 9, pedicle exterior showing mucronate extremities, USC 8052, $\times 1$; 10, pedicle exterior of a portion of an extremely large specimen, USC 5083, $\times 1$; 11, pedicle exterior of a typical specimen, USC 5102 $\times 1$.
- 12—*Nuculana* sp. Left valve of a poorly preserved specimen, USC 5085, $\times 3$.
- 13—*Astartella* sp. Right valve, USC 5084, $\times 3$.
- 14,15—*Conocardium* sp. Left valve, cardinal view of a very small specimen, USC 5086, $\times 3$.
- 16—*Meekospira* sp. Side view, USC 5087, $\times 3$.
- 17—*Leptozyga* sp. Side view, USC 5089, $\times 3$.
- 18—*Pseudorihoceras* sp. Side view, USC 5091, $\times 3$.
- 19—*Platyceras* sp. Side view, USC 5090, $\times 3$.
- 20—*Baylea* sp. Side view, USC 5088, $\times 3$.
- 21—*Spirorbis* sp. Tightly coiled shell, USC 5092, $\times 3$.
- 22—*Amphiscapha* sp. Basal view, USC 5096, $\times 3$.
- 23—*Bellerophon* sp. Back view showing ornamentation, USC 5093, $\times 3$.
- 24—Crinoid cup in which the anal plate is shown within the basal circllet, USC 5097, $\times 1$.
- 25,26—*Ditomopyge* ? sp. 25, pygidium, USC 5098, $\times 1$; 26, a free cheek and a portion of a pygidium, USC 5099, $\times 1$.
- 27—Conularid. External mold, USC 5100, $\times 1$.
- 28—*Dentalium* sp. Side view showing ornamentation, USC 5094, $\times 3$.
- 29—*Plagiogypta* sp. Side view. *Spirorbis* is encrusted on the surface, USC 5095, $\times 1$.
- 30—*Archimedes* sp. Side view of the spire, USC 5101, $\times 1$.

Genus LINOPRODUCTUS Chao, 1927

LINOPRODUCTUS MAGNISPINUS Dunbar &
Condra, 1932
Pl. 126, fig. 2

Linoproductus magnispinus Dunbar & Condra,
1932, p. 244, pl. XXVII, figs. 6-8.

Description.—Shell is elongate with greatest width along hinge-line. Pedicle valve is geniculate and its beak is incurved. Shell is thin and ornamented with numerous lirations. In a typical shell, there are seven or eight lirations in the space of 5 mm. across the middle of the pedicle valve. A few stout spines are scattered over the surface with one or two in the center of a slight mesial sulcus. Five or six spines are on each ear and are smaller than the body spines. The bases of the spines are formed at the anastomosing of three or four lirations, which separate on the anterior side of the spine. Ears are of moderate size and are somewhat angular. Four or five wrinkles appear on each ear but fade away on the anterolateral slopes.

The brachial valve is somewhat concave, although the visceral disc is rather flat. At the trail the valve is sharply geniculate.

A typical specimen is 3.8 cm. in width and 4.6 mm. in length.

Locality.—316.

LINOPRODUCTUS PRATTENIANUS (Norwood
& Pratten, 1855)
Pl. 126, fig. 1

Productus prattenianus Norwood & Pratten, 1855,
p. 17, pl. 1, figs. 10a-d.

Description.—Shell is suboval in outline. Pedicle valve is uniformly convex and almost hemispherical. Greatest width is at the hinge-line. Shell is geniculate at the trail. A typical specimen is 4.8 cm. wide.

Low, rounded costae radiate from the beak and increase by intercalation across the valve. Costae also increase in coarseness towards the anterior slope. In the umbonal region ten or eleven costae occupy a space of 5 mm., whereas seven or eight occupy the same space across the visceral portion of the pedicle valve.

Spines are coarse and erect and uniformly disposed over the pedicle valve in a quin-cinxial pattern. Thirty-two spines are present on the visceral portion of a shell 4.8 cm wide. Spine bases may be formed from

one or more (usually two or three) costae. These costae separate on the anterior edge of the spine base.

Internally the adductor muscle scars are closely spaced, being separated only by a low median ridge. The diductors are widely separated and somewhat tear-shaped, the attenuated portion being directed toward the center of the valve.

Locality.—309.

Suborder SPIRIFERINA
Superfamily SPIRIFERICAE
Family SPIRIFERIDAE
Subfamily SPIRIFERINAE
Genus SPIRIFER Sowerby, 1815
SPIRIFER OCCIDUUS Sadlick, 1960
Pl. 128, figs. 3-7

Spirifer opimus var. *occidentalis* Girty, 1927,
p. 433, pl. 27.

Spirifer occiduus Sadlick, 1960, p. 1210.

Description.—Shell is spiriferoid in shape, the width being a little greater than the length, and the greatest width is at the hinge-line. A shell of average size has the following dimensions: width, 4.2 cm.; length 2.7 cm. The cardinal extremities may be slightly mucronate, but they are usually somewhat rounded.

Eleven to thirteen subangular plications mark the slopes of the pedicle valve. At the umbo, the ribs are simple, but as they begin to expand, they bifurcate and continue over the surface as simple plications. The sulcus contains three to five ribs of which the medial one is commonly rather prominent. The beak is slightly incurved. Brachial fold is well defined, usually having from four to six plications.

Short, stout dental lamellae support the teeth of the pedicle valve but do not extend out onto the floor of the valve. Adductor muscle scars are deeply incised, and the scar itself is usually saggitate in shape. This area is bounded by rounded, almost flabellate diductor scars. The valve is without a median septum.

Incipient deltidal plates border the delthyrium which forms a high narrow triangle. Interarea is broad and flat, the palintrope of which is serrate. The space beneath the interarea of the pedicle valve is usually much thickened.

Brachial interiors are simple without

median septa. There is a thin interarea which is cleft by a broad notothyrium. The latter is bounded by short brachiophores.

Locality.—320, 321.

Genus NEOSPIRIFER Fredericks 1919
NEOSPIRIFER TRIPPLICATUS (Hall, 1852)
Pl. 128, figs. 9-11

Spirifer triplicatus Hall, 1852, Append. E, p. 410.

Description.—Shell is of medium size, typically about 5 to 7 cm. in width and 4 to 5 cm. in length. Outline is subtriangular, and cardinal extremities are sharply defined. A narrow sulcus bounded by two distinct ribs begins at the umbo and fans out into a broad shallow depression on the anterior slope. The ribs bifurcate just anterior to the umbo and increase thereafter by bifurcation. Towards the anterior, the fascicles usually consist of three subrounded ribs which are unequal in size. There are from ten to twelve fascicles present on a mature shell.

Ornamentation of the brachial valve is similar to that of the pedicle valve except that there are commonly one or two fewer fascicles on the brachial valve.

Locality.—309, 327.

Subfamily AMBOCOELIINAE George
Genus CRURITHYRIS George, 1931
CRURITHYRIS PLANOCONVEXA (Shumard,
1855)
Pl. 127, figs. 34,35

Spirifer plano-convexa, Shumard, 1855, p. 202.

Description.—Shell is small, plano-convex with the length and width about equal. Pedicle valve is quite convex, hinge-line short and straight, being about five-eighths of the greatest width of the shell. Beak is high and incurved. Interarea is a high, narrow triangle, the flat surface of which contrasts sharply with the rounded surface of the posterolateral margins. Delthyrium is high and narrow, and bounded on the sides by low flanges. Brachial valve is variably concave, flat or convex.

The surface of both valves appears granular. Dunbar and Condra (1932, p. 345) state that these granules represent minute spine bases.

Discussion.—*C. planoconvexa* is rare in the Ely limestone, only seven specimens being

found among a myriad small shells. These crurithyrids are also somewhat smaller than those recorded from other localities. An average specimen measures 5 mm. in width and 4.5 mm. in width.

Locality.—309.

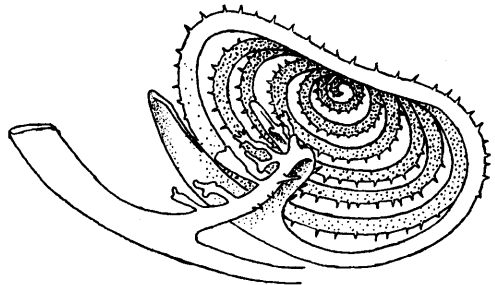
Superfamily ROSTROSPIRICAE
Family RHYNCHOSPIRINIDAE
Genus HUSTEDIA Hall & Clark, 1893
HUSTEDIA ROTUNDA, n. sp.
Pl. 127, figs. 42-45; text-fig. 8

Description.—Shell sub-ovate in outline, greatest width just anterior to middle portion of the shell, greatest thickness just anterior to brachial beak. Anterior margin slightly truncated in some specimens, and a vague sulcus is present on some pedicle valves. The surface is marked by 20 to 24 costellae with an average of 22. Costellae are rounded, equal to the depressions that separate them, and are of uniform size in the center of the shell, decreasing rapidly in size towards the posterolateral margins.

Pedicle valve more convex towards the beak. Beak sub-erect. Foramen terminal, sub-circular. Symphytium small, triangular with the apex truncated by the foramen. Posterior end is parallel with the line of commissure. Internally muscle scars are not visible, and there are no dental lamellae.

The brachial valve is more rounded in outline than the pedicle valve, being almost oval and is slightly less convex. Internally a short median septum extends anteriorly one-fourth the length of the valve and supports a tongue-like cardinal process which is recurved into the pedicle valve.

Internally the spiralia appear as com-



TEXT-FIG. 8—One arm of the spiralia of *Hustedia rotunda*, about $\times 7$.

pressed cones of eight volutions and the outer rims are marked by numerous minute spines. The yoke is highly ornamented with spines and antler-like processes (text-fig. 8).

Dimensions (in mm.) of seven typical shells are as follows:

Length	Width	Thickness	No. of costellae
12.7	9.8	7.4	24
14.1	11.5	9.1	22
11.7	9.1	6.9	22
10.6	9.0	6.8	22
8.0	6.7	4.8	24
9.9	7.9	6.6	20

Discussion.—Well preserved specimens of *Hustedia rotunda* are easily distinguished from other Pennsylvanian species of that genus. *Hustedia rotunda* differs from *H. miseri* Mather in that the latter has "about 20 . . . plications," whereas *H. rotunda* has an average of 22. The costellae are coarse and of equal strength in the central portion of the shell, decreasing markedly in size towards the lateral margins. The most striking characteristic of this species, however, is the almost circular outline of the brachial valve, separating it from any other species of *Hustedia*, which consistently have elongate outlines. Rounded costae of *Hustedia rotunda* also serve to distinguish it from *H. miseri* which has markedly angular costae. *Hustedia mormoni* may be differentiated from *H. rotunda* by the smaller number of costae in *H. mormoni*.

Locality.—309.

HUSTEDIA MISERI subsp.

GIBBOSA, n. subsp.

Pl. 127, figs. 38-41

Description.—Shell oval in outline, somewhat incurved toward the beak. Anterior end and anterolateral margins tend to be truncated causing the oval outline in some specimens to appear polygonal. A vague sulcus is present on the pedicle valve without a corresponding fold on the brachial valve. Twenty to twenty-four rounded costellae are present on both valves. These costellae are coarse in the middle of each valve and decrease progressively in size towards the lateral margins.

The pedicle valve increases in convexity towards the beak. Beak sub-erect. Foramen terminal, subcircular. Symphytium small,

subtriangular, posterior portion slightly incurved towards the pedicle interior. Anterior portion lies in a plane with the line of commissure.

Brachial valve is oval and slightly less convex than the pedicle valve. Internally this species resembles *Hustedia rotunda*.

Discussion.—This species of *Hustedia* is distinguished from *H. rotunda* by its coarser costae, uniform decrease in size of costae towards lateral margin and more nearly oval brachial valve; from *H. miseri* and *H. mormoni* by its rounded and more numerous costae and more gibbous nature of the valves.

Locality.—309.

Family ATHYRIDAE

Subfamily ATHYRIDINAE

Genus CLEIOTHYRIDINA Buckman, 1906

CLEIOTHYRIDINA ORBICULARIS

(McChesney, 1860)

Pl. 127, figs. 36,37

Athyris orbicularis McChesney, 1860, p. 47.
Cleiothyridina orbicularis (McChesney), Dunbar & Condra, 1932, p. 359, pl. XLII, figs. 1-4.

Description.—Shell is almost equally bi-convex, sub-oval in outline. Anterolateral and posterolateral margins tend to be somewhat straight, however, causing outline to be slightly angular. Greatest width is just posterior to the middle of the shell; greatest thickness is about in the center of the shell. Anterior margin may be truncated, and a vague sulcus may be present on the pedicle valve.

Pedicle valve is more gibbous than the brachial valve. Pedicle beak is incurved and erect with a small circular foramen at the tip. Deltidal plates are not seen, and palintrope is small.

Surfaces of both valves are marked with irregularly spaced, concentric lamellae. The anterior margins of the lamellae are produced into minute spines, causing well preserved specimens to appear almost fuzzy.

The largest specimen observed in the collection is 13.5 mm. in length, 15.2 mm. in width and 8.1 mm. thick. Several specimens approach this size and some fragments indicate that definitely larger specimens exist; however, the average length is somewhat smaller than 15 mm.

Locality.—309.

Genus COMPOSITA Brown, 1849

COMPOSITA ARGENTEA (Shepard, 1838)

Pl. 127, figs. 31-33

Terebratula argentea Shepard, 1838, p. 152, fig. 8.

Description.—Shell small, suboval in outline, greatest width about mid-region. Length approximately equal to width. Valves are nearly equally convex, with brachial valve being perhaps more so. Pedicle beak is low and incurved; in many shells the beak is only slightly more prominent than that of the brachial valve. The foramen is often obscure, but when present it is small and oval. There is no interarea. The surfaces of both valves are characterized by closely spaced, concentric growth lines. The anterior commissure is gently sinuate, reflecting a shallow pedicle sulcus and an almost obsolete brachial fold.

Dimensions of an average specimen are as follows: length, 16.5 mm.; width, 16 mm.; height 17 mm.; thickness 11 mm.

Discussion.—This writer follows the arguments of Dunbar and Condra in using the name *C. argentea* to distinguish small, subcircular compositas. Shells of this description occur commonly in the basal Ely, and it is felt that the species can be distinguished readily.

Locality.—313.

COMPOSITA SUBTILITA (Hall, 1852)

Pl. 128, fig. 8

Terebratula subtilita Hall, 1852, p. 409, pl. IV, figs. 1a-2c.*Composita subtilita* (Hall), Dunbar & Condra, 1932, p. 363, pl. XLIII, figs. 7-13.

Description.—Shell oval, greatest width is anterior to the midregion of the shell, width is almost two-thirds the length. Pedicle beak is prominent, incurved and obscures the brachial beak. Pedicle valve bears a deep sulcus at the anterior margin where it is almost uniformly rounded. Toward the central part of the valve, the sulcus becomes narrow and shallow and remains so until it reaches the umbonal region.

A narrow fold beings near the beak of the brachial valve and continues almost imperceptibly across the central portion of the valve. Near the anterior margin, the anterolateral margins sweep down sharply toward the pedicle valve, thus forming a very prominent fold just at the anterior margin.

The anterior of the shell is emarginate.

Concentric growth lines are irregularly spaced over the surface of both valves.

An average specimen has the following dimensions: length, 27 mm.; width, 25 mm.; thickness, 16 mm.

Locality.—313.

Superfamily PUNCTOSPIRIFERAE

Family SPIRIFERINIDAE

Genus PUNCTOSPIRIFER North, 1920

Internally, the pedicle valve bears a high median septum and short, strong dental lamellae. In the brachial valve the jugum is slender and V-shaped with its apex directed posteriorly and into the pedicle valve.

PUNCTOSPIRIFER CAMPESTRIS (White, 1874)

Pl. 127, figs. 22-29

Spiriferina spinosa var. *campestris* White, 1874, p. 21.*Spiriferina octoplicata* Sowerby, White, 1877, p. 139, pl. X, figs. 8a-8c.

Diagnosis.—Shell biconvex, greatest width at or near hingeline, cardinal extremities may be either rounded or angular. Interarea is a low, broad triangle, longitudinally concave.

Pedicle valve is more gibbous than the brachial valve. The beak is incurved, small and pointed. From the beak arise four subrounded plications, the others arising indistinctly from either side of the beak. In a shell measuring 27 mm. wide and 18.8 mm. long, twelve costae lie on either side of the sulcus. The floor of the sulcus is distinctly flattened.

The brachial valve is smaller than the pedicle and is less gibbous. There are six costae on either side of the mesial fold. In various mature specimens, this number varies from five to six. The angularity of the costae is inconsistent as well, so that a gradation from rounded to angular may be seen. The surface of both valves is ornamented with concentric, irregularly spaced growth lines. These lines may be obsolete in the early stages, but when they are present, they usually show rounded cardinal extremities even if the later ones are angular. Short spines may be present on the anterior third of both valves.

Discussion.—This species of *Puncto*

spirifer differs from *P. transversus* in that *P. transversus* has numerous, evenly spaced growth lines and the mesial fold is bilobed; from *P. spinosus* in that the latter has evenly spaced, rounded growth lines, a semicircular periphery, and is much smaller in size than *P. campestris*; and from *P. kentuckeyensis* in that *P. kentuckeyensis* possesses evenly spaced growth lines and a small plication in the bottom of the sulcus.

Locality.—309.

PUNCTOSPIRIFER TRANSVERSUS

(McChesney, 1860)

Pl. 127, fig. 30

Spirifer transversa McChesney, 1860, p. 42.

Spiriferina transversa (McChesney), 1915, p. 92, pl. XIII, figs. 7, 8.

One specimen of *Punctospirifer transversus* was discovered in the Ely Limestone. The surface ornamentation and the small ridge in the pedicle sinus seem to place this *Punctospirifer* unmistakably in the species *P. transversus*. *P. transversus* is usually associated with Mississippian fauna. Mather, however (1915, p. 192), reported it from Morrowan rocks in Arkansas. It is here reported from younger Pennsylvanian rocks than heretofore.

Locality.—324.

Phylum MOLLUSCA

Class PELECYPODA

Several small pelecypods are present in the collections from the lower Ely Limestone. These specimens are poorly preserved and somewhat rare, being found at only one locality (USC 313). Three of these pelecypods are referred to the following genera:

Genus ASTARTELLA Hall, 1858

ASTARTELLA sp.

Pl. 128, fig. 13

Genus NUCULANA Link, 1807

NUCULANA sp.

Pl. 128, fig. 12

Genus CONOCARDIUM Bronn, 1834

CONOCARDIUM sp.

Pl. 128, figs. 14-15

Class SCAPHOPODA

Two scaphopods were collected from the lower portion of the section at USC locality

313. They are referred to two common Pennsylvanian genera.

Genus DENTALIUM Linnaeus, 1758

DENTALIUM sp.

Pl. 128, fig. 28

Genus PLAGIOGLYPTA Pilsbry, 1898

PLAGIOGLYPTA sp.

Pl. 128, fig. 29

Class GASTROPODA

Gastropods are much more commonly represented in the Ely Limestone than are the pelecypods, but they occur at only a few places; they are most common at USC locality 313. Since almost all of the shells are small, it is assumed that they represent a sorting phenomenon rather than an ecological association. One genus, *Baylea*, occurs rather commonly with *Amphiscapha* in silicified strata in the upper part of the Ely at USC locality 309. However, the shells are still quite small, averaging only about 5 mm. in length. A few large specimens of a species of *Euomphalus* are present in the collection; however, these are not silicified and occur only as fragments. The most common of the genera present are listed below. Some specimens are referred only tentatively to a genus.

Genus MEEKOSPIRA Ulrich and

Scofield, 1897

MEEKOSPIRA sp.

Pl. 128, fig. 16

Genus? LEPTOZYGA Knight, 1930

LEPTOZYGA sp.

Pl. 128, fig. 17

Genus BAYLEA Koninck, 1883

BAYLEA sp.

Pl. 128, fig. 20

Genus PLATYCERAS Conrad, 1840

PLATYCERAS sp.

Pl. 128, fig. 19

Genus AMPHISCAPHA Knight, 1942

AMPHISCAPHA sp.

Pl. 128, fig. 22

Genus EUOMPHALUS, Sowerby, 1814

EUOMPHALUS sp.

Not figured

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MANUSCRIPT RECEIVED JUNE 26, 1961

Genus *BELLEROPHON* Montfort, 1808

BELLEROPHON sp.

Pl. 128, fig. 23

Class CEPHALOPODA

A few orthoceracones were collected with silicified fossils from USC locality 313. One specimen is here referred to the genus *Pseudorthoceras* on the basis of a slight curvature of the adapical region.

Genus *PSEUDORTHOCERAS* Girty, 1911

PSEUDORTHOCERAS sp.

Pl. 128, fig. 18

Phylum ANNELIDA

Class CHAETOPODA

Genus *SPIROBIS* Lamarck

SPIROBIS sp.

Pl. 128, fig. 21

Phylum ARTHROPODA

Class TRILOBITA

Order OPISTHOPARIDA

Genus *DITOMOPYGE* Newell, 1931

DITOMOPYGE? sp.

Pl. 128, figs. 25, 26

Four pygidia and a portion of a free cheek represent the trilobites collected from the Ely Limestone. A specimen of average size has 15 axial segments and 11 pleural segments. The pygidial segments are spinose and the axial lobe strongly elevated. The pleural lobes are bounded by a distinct, narrow flange. These specimens bear some resemblance to *Paladin* as well as to *Ditomopyge*.

Locality.—313.

Phylum ECHINODERMATA

Subphylum PELMATOZOA

Class CRINOIDEA

The dorsal cup of a primitive inadunate crinoid was collected from the lower part of the Ely. In this specimen there are three anal plates, and the radial is actually in the basal circlet. This Ely specimen resembles *Priasocrinus* and *Plaxocrinus*; however, in those two genera, the anals are well out of the basal circlet. This condition would seem to indicate an earlier evolutionary stage and probably represents an undescribed genus. Inasmuch as the specimen is without arms and is the only one in the collection, it is not described.

Locality.—315.

Columnals

Crinoid columnals occur commonly in the lower part of the Ely and are present throughout the entire sequence.

REGISTER OF LOCALITIES

- 309—SW $\frac{1}{4}$, NE $\frac{1}{4}$, NW $\frac{1}{4}$, sec. 6, T16N, R59E, Illipah quadrangle. Tributary to Cottonwood Creek. Zone of silicified fossils lies about 100 ft. stratigraphically above *Chaetetes-Profusulinella* zone at fork in dry tributary to Cottonwood Creek.
- 310—NW $\frac{1}{4}$, sec. 6, T16N, R59E. *Chaetetes-Profusulinella* zone strikes north perpendicular to the canyon and crops out just below the fork of the creek below locality 309.
- 311—Center of sec. 6, T17N, R59E, Illipah quadrangle. A silty bed crops out at the summit of the ridge about 312.
- 312—Center, E $\frac{1}{2}$, sec. 12, T17N, R58E, Illipah quadrangle. A massive limestone with nodular chert and few fossils crops out above a broad covered slope. The outcrop may be reached by climbing the hill east of the intersection of Hamilton road and U. S. Highway 50. The broad slope lies just above the top of the Ely Limestone.
- 313—Center, S $\frac{1}{2}$, sec. 10, T16N, R58E, Illipah quadrangle. Fossils occur abundantly on the talus slope on the southeast wall of Harris Canyon.
- 314—Center, S $\frac{1}{2}$, sec. 10, T16N, R59E, Illipah quadrangle. Fossils occur at the rim of the west side of Harris Canyon, about fifty paces north of locality 313.
- 315—Summit of Mokomoke ridge northwest of Hamilton and north of the Harris Canyon road. Sec. 8, T16N, R58E, Illipah quadrangle.
- 316—White Pine County, Nevada. Limestone with wood grain texture exposed in a road cut on the east side of Hamilton road 900 feet above prominent ridge of Diamond Peak Quartzite. E $\frac{1}{2}$, sec. 32, T17N, R58E, Illipah quadrangle.
- 317—SE $\frac{1}{4}$, sec. 27 (projected), T17N, R61E, Reipetown quadrangle. From a bluff of limestone along the crest of the Egan Range, 200 yards north of the rounded peak.
- 318—On a spur south of Dutch John Mountain near the top of the hill and at the foot of the most prominent bluff. The spur can be reached by going 2.0 miles west on Stewart's Ranch road from the junction of U. S. Highway 93 and the Atlantic Mining District road, then bearing west at the curve of the road to Kixmiller Summit for 0.8 miles. Northwest corner sec. 34, T6N, R56E, Lincoln County, Nevada.
- 319—Limestones and shales reached by going 0.2 mile north of Skunk Spring, then west up to the creek bed 0.3 mile to a dry falls. Fossils occur in the topmost bed of the falls. Photo 38U-34, Confusion Range, Millard County, Utah.

- 320—Near Preston, White Pine County, Nevada, in NE $\frac{1}{4}$, sec. 14, T14N, R61E, as shown on Ely Grazing District map. About one mile south of the intersection of the Ely-Preston road and U. S. Highway 6.
- 321—Sec. 10, T13N, R61E, north of Preston, White Pine County, Nevada.
- 322—NW $\frac{1}{4}$, sec. 17, T6N, R63E, Lincoln Co., Nev. Flat lying beds west of east side of range between Trough Canyon and Horse Spring, southeast of Sunnyside, Nevada.
- 323—North end of Fox Mountains in limestone beneath volcanics north of road. Photo 2-90, E $\frac{1}{2}$, sec. 13, T4N, R61E, south of Sunnyside, Nye County, Nevada.
- 324—Grant Range in sec. 30, T6N, R59E, Nye Co., Nevada.
- 325—Southern Egan Range, near NE corner sec. 26, T6N, R62E (Fairchild photo 1-17), Lincoln County, Nevada.
- 326—North of Timber Pass Road, near locality 327, on the west side of the southern Egan range, surrounded by volcanics. Photo 2-111.
- 327—Timber Pass Mt., East of White River Valley near the junction of White Pine, Lincoln, and Nye Counties, Nevada, in T10N, R62E.
- 328—Southern Egan Range, Lincoln Co., Nevada. T8N, R62E, north of Sunnyside, Nevada.
- 361—Low bluff of limestone crossing north or main fork of creek a few hundred feet east of locality 309 and about 250 feet above the top of the Ely Limestone. Center, N $\frac{1}{2}$, sec. 6, T16N, R59E, Illipah quadrangle, White Pine County, Nevada.

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