



COMMITTEE ON PUBLICATION

George E. Lindsay, Chairman
Edward L. Kessel, Editor

OCCASIONAL PAPERS

OF THE

California Academy of Sciences

No. 102, 18 pages.

December 27, 1972

Catalog of Specimens in the Type Collection
of the Department of Geology,
California Academy of Sciences

BRACHIOPODA

By

Barry Roth

California Academy of Sciences

Golden Gate Park

San Francisco, California 94118

SAN FRANCISCO

PUBLISHED BY THE ACADEMY

1972

OCCASIONAL PAPERS
OF THE
CALIFORNIA ACADEMY OF SCIENCES

No. 102, 18 pages.

December 27, 1972

Catalog of Specimens in the Type Collection
of the Department of Geology,
California Academy of Sciences

BRACHIOPODA

By

Barry Roth

*California Academy of Sciences
Golden Gate Park
San Francisco, California 94118*



INTRODUCTION

This is the third part of a catalog of the primary and secondary types in the collection of the Department of Geology, California Academy of Sciences. The first part, dealing with the Cephalopoda, was published in 1970 as Occasional Paper no. 82 of the California Academy of Sciences; the second, covering the Echinodermata, was issued in 1972 as no. 91 of the same series.

Each specimen listed in this catalog falls into one of the following categories:

Primary Types (after the 1961 International Code of Zoological Nomenclature)

Holotype—the single specimen designated or indicated as “the type specimen” of a nominal species-group taxon at the time of the original publication.

Paratype—every specimen in a type series, other than the holotype.

Cotype—a term formerly used for either syntype or paratype. The International Commission on Zoological Nomenclature does not recommend use of this term.

Syntype—every specimen in a type series in which no holotype has been designated.

Virtual Syntype—a specimen which is known to have been examined and utilized by the author as part of the type series, but which was not so indicated at the time of original publication. Use of this term is not specified by the International Code.

Secondary Types

Hypotype—a subsequently described or figured specimen that adds significantly to the knowledge of the species-group taxon.

Plesiotype—an obsolete term for hypotype.

Plastotypes

The prefix “plasto-” used in conjunction with one of the above mentioned type categories indicates a replica of a type in another collection.

CATALOG FORMAT

References to specimens are listed alphabetically by species-group name. Data for each reference are arranged as follows:

species Author, **Genus (Subgenus)** Type and type number
 Reference: author (if not original reference), year, publication, pagination, illustrations, month and day (in parentheses).
 Locality description: age, formation, abstract of locality, county, state or country.

Editorial comments are enclosed in brackets. No attempt has been made to update or revise generic assignments or to indicate synonymy, but cross references are supplied for specimens mentioned in print under two or more different names. The species-group catalog is followed by a list of generic and subgeneric names used in the catalog.

The compiler wishes to acknowledge the assistance of the late Dr. Leo G. Hertlein, Curator (Emeritus) of Invertebrate Paleontology, and Mr. John Caton, Assistant, Department of Geology, California Academy of Sciences.

This work has been supported by National Science Foundation Grant Number 19367.

BRACHIOPODA

albida Hinds, **Glottidia** Hypotypes 7239–7240
 Hertlein & Grant, 1944, Publ. Univ. Calif. at Los Angeles, Math. & Physic. Sci., vol. 3, p. 12, pl. 1, figs. 5 [7239], 7 [7240] (November 4).
 Recent: off Redondo Beach, Los Angeles County, 25 fathoms [7240]; San Diego, San Diego County [7239], California.

albida Hinds, **Glottidia** Hypotype 13079
 Hertlein & Grant, 1960, Mem. San Diego Soc. Nat. Hist., vol. 2, part 2a, p. 89, pl. 19, fig. 23 (July 7).
 Pliocene, San Diego Formation, south slope of Soledad Mountain, San Diego County, California.

- alexi** Hertlein & Grant, **Eohemithiris** Plasto-Holotype 7256
 Paratypes 7257-7260
 Plasto-Paratype 7261
 1944, Publ. Univ. Calif. at Los Angeles, Math. & Physic. Sci., vol. 3, p. 55, pl. 3, figs. 4 [7261], 7-9 [7256], text figs. 10a-d [7256] (November 4).
 Eocene: Domengine, Agua Media Creek, Temblor Range, Kern County [7256-7260]; Capay Formation, 2 miles north of Putah Creek, 4¾ miles northwest of Winters, Yolo County [7261], California.
- alia** Hall & Whitfield, **Spirifera (Spiriferina?)** Plasto-Holotype 12052
 1877, U.S. Geol. Explor. Fortieth Parallel, vol. 4, part 2, p. 281, pl. 6, fig. 17 (April).
 Triassic, 1½ miles south of Dun Glen Pass, Pah-Ute [Stillwater] Range, Churchill County, Nevada.
- arnoldi** Hertlein & Grant, **Terebratalia** Holotype 7313
 Paratypes 7314-7315
 1944, Publ. Univ. Calif. at Los Angeles, Math. & Physic. Sci., vol. 3, p. 119, pl. 11, figs. 1-3 [7313], 10-11, 13 [7314], 12, 14-15 [7315] (November 4).
 Middle Pliocene, center of southwest ¼ of Section 23, T. 3 N., R. 18 W., S.B.B. & M., Tapo Canyon area, Ventura County, California.
- arnoldi** Hertlein & Grant, **Terebratalia** Hypotype 13082
 Hertlein & Grant, 1960, Mem. San Diego Soc. Nat. Hist., vol. 2, part 2a, p. 92, pl. 19, fig. 30 (July 7).
 Pliocene, San Diego Formation, Pacific Beach, San Diego County, California.
- astoriana** Dall, **Hemithiris** Hypotype 7266
 Hertlein & Grant, 1944, Publ. Univ. Calif. at Los Angeles, Math. & Physic. Sci., vol. 3, p. 43, pl. 4, fig. 1 (November 4).
 Miocene, Smith Point, one mile west of Astoria, Clatsop County, Oregon.
- audebarti** Broderip, **Glottidia** Hypotype 7242
 Hertlein & Grant, 1944, Publ. Univ. Calif. at Los Angeles, Math. & Physic. Sci., vol. 3, p. 16, pl. 1, figs. 3-4 (November 4).
 Recent, Baja California, Mexico.
- augusta** Hall & Whitfield, **Terebratula** Plasto-Hypotype 12013
 White, 1879, U.S. Geol. & Geog. Surv. Terr., Bull., vol. 5, no. 1, art. 5, p. 108 (February 28).
 Jurassic-Triassic, about 18 miles west of Idaho-Wyoming boundary and 5 miles south of John Gray's Lake, southeastern Idaho.
- averilli** Anderson, **Terebratella** Holotype 8591
 Paratype 8592
 1938, Geol. Soc. America Spec. Paper, no. 16, pp. 65, 110, pl. 9, figs. 10 [8591], 11 [8592] (November 30). [Cited on p. 65 as "*Terebratula averilli*".]

Lower Cretaceous, Barr zone, lower Horsetown Group, Mitchell Creek, Shasta County, California.

blackwelderi Smith, **Rhynchonella** Plasto-Holotype 11313

1927, U.S. Geol. Survey, Prof. Paper no. 141, p. 122, pl. 102, figs. 1-3.

Upper Triassic, Karnic, south bank of Yukon River, one mile above mouth of Nation River, Alaska.

californianus Koch, **Laqueus** Plasto-Hypotypes 13084-13084a

Hertlein & Grant, 1960, Mem. San Diego Soc. Nat. Hist., vol. 2, part 2a, p. 96, pl. 20, figs. 1-3 [13084], 5-7 [13084a] (July 7).

Pliocene, San Diego Formation, clay quarry at end of Arroyo Drive, San Diego, California.

caurina Gould, **Terebratalia transversa** Hypotypes 7334-7337

Hertlein & Grant, 1944, Publ. Univ. Calif. at Los Angeles, Math. & Physic. Sci., vol. 3, p. 138, pl. 15, figs. 7 [7335], 12-13 [7336], 15 [7337], 16 [7334] (November 4).

Recent: San Pedro, Los Angeles County [7335-7337]; San Pedro Bay, Los Angeles County [7334], California.

caurina Gould, **Terebratalia transversa** Plasto-Hypotypes 7338-7341

Hertlein & Grant, 1944, Publ. Univ. Calif. at Los Angeles, Math. & Physic. Sci., vol. 3, p. 138, pl. 9, figs. 9 [7339], 10, 12 [7338]; pl. 12, figs. 2, 8 [7340]; pl. 21, figs. 12, 14 [7341] (November 4). [Plasto-Hypotype 7340, see also Rhynchonellid new species, Loel & Corey, 1932.]

Oligocene, lower Astoria, one mile west of Oakville, Grays Harbor County, Washington [7339]; lower Miocene, Vaqueros Formation, San Emigdio Mountains, Kern County [7340]; upper Miocene, Santa Margarita Formation, Reliz Canyon, Monterey County [7338]; lower Pleistocene, Sidebotham Sand Pit, south of Lomita, Los Angeles County [7341], California.

caurina Gould, **Terebratalia transversa** Sowerby var.

Hypotypes 7377-7377a

Weaver, 1942 [1943], Univ. Washington Publ. Geol., vol. 5, part 1, p. 15; part 3, pl. 2, figs. 2 [7377], 3 [7377a] (December 31).

Upper Eocene (?), one mile south of Quilcene on west shore of bay, Jefferson County, Washington.

chapini Smith, **Dielasma** Plasto-Holotype 11321

1927, U.S. Geol. Survey, Prof. Paper no. 141, p. 123, pl. 102, figs. 4-6.

Upper Triassic, Karnic, south bank of Yukon River, opposite mouth of Nation River, Alaska.

cooperella Hertlein & Grant, **Cyclothyris** Syntypes 617-617a

1944, Publ. Univ. Calif. at Los Angeles, Math. & Physic. Sci., vol. 3, p. 63, footnote (November 4). [New name for *Waldheimia imbricata* Cooper, 1894, not Tenison-Woods, 1865.]

Cretaceous, La Jolla, San Diego County, California.

- coreyi** Smith, *Spiriferina* Plasto-Holotype 11316
1927, U.S. Geol. Survey, Prof. Paper no. 141, p. 124, pl. 95, fig. 12.
Upper Triassic, *Tropites subbullatus* zone, Hosselkus limestone, Brock
Mountain, Shasta County, California.
- coreyi** Hertlein & Grant, *Terebratula* Plasto-Holotype 7275
Paratypes 7276-7277
1944, Publ. Univ. Calif. at Los Angeles, Math. & Physic. Sci., vol. 3, p. 87, pl. 4,
figs. 12-15 [7275], 16 [7276], text fig. 21 [7275] (November 4).
Lower Eocene, Martinez Formation, south side of Simi Valley, Ventura
County, California.
- crossei** Davidson, *Terebratulina* Hypotypes 7286-7287
Hertlein & Grant, 1944, Publ. Univ. Calif. at Los Angeles, Math. & Physic. Sci., vol. 3,
p. 68, pl. 17, figs. 3, 6, 10 [7287], text fig. 16, [7286] (November 4).
Recent: Japan [7286]; off Redondo Beach, Los Angeles County, California,
60 fathoms [7287].
- cumingii** Broderip, *Discinisca* Hypotype 7244
Hertlein & Grant, 1944, Publ. Univ. Calif. at Los Angeles, Math. & Physic. Sci., vol. 3,
p. 27, text figs. 3a-c (November 4).
Recent, Point Abrejos, Baja California, Mexico.
- cumingii** Broderip, *Discinisca* Hypotype 7245
Hertlein & Grant, 1944, Publ. Univ. Calif. at Los Angeles, Math. & Physic. Sci., vol. 3,
p. 27, pl. 16, figs. 2, 4 (November 4).
Pliocene, Merced Formation, Felt Lake, about one mile southwest of Stanford
University, Santa Clara County, California.
- densleonis** Anderson, *Rhynchonella* Paratype 38
1902, Proc. Calif. Acad. Sci., 3rd ser., Geol., vol. 2, no. 1, p. 72, pl. 7, figs. 157, 158
[holotype lost in San Francisco fire of 1906] (December 24).
Cretaceous, Horsetown, Shasta County, California.
- dibbleei** Hertlein & Grant, *Hemithiris* Holotype 7262
Paratype 7263
1944, Publ. Univ. Calif. at Los Angeles, Math. & Physic. Sci., vol. 3, p. 46, text figs.
5a-c [7262], 6a-c [7263] (November 4).
Upper or middle Eocene, Sierra Blanca(?) Formation, canyon west of Oso
Canyon, north of Santa Ynez River, Santa Ynez Quadrangle, Santa
Barbara County, California.
- diegensis** Hertlein & Grant, *Laqueus vancouveriensis* Holotype 7355
Paratype 7354
1960, Mem. San Diego Soc. Nat. Hist., vol. 2, part 2a, p. 97, pl. 20, figs. 9-11 [7355],
13-15 [7354] (July 7). [See also *Laqueus vancouveriensis* Davidson, Hertlein &
Grant, 1944.]
Pliocene, San Diego Formation, Pacific Beach, San Diego County, California.

- dubitanda** Cooper, **Megerlia** Syntypes 616, 616a-c
1894, Calif. State Mining Bureau, Bull. no. 4, part 5, p. 50, pl. 3 [not pl. 4 as cited in text],
figs. 48-49 [616] (September).
Cretaceous, La Jolla and base of Point Loma, San Diego County, California.
- durrelli** Anderson, **Terebratula** Holotype 8596
1938, Geol. Soc. America Spec. Paper, no. 16, p. 95, pl. 9, fig. 16 (November 30).
Lower Cretaceous, Barremian, middle Horsetown Group, Fiddler Creek,
10 miles south of Ono, Shasta County, California.
- etchegoini** Hertlein & Grant, **Terebratalia arnoldi** Holotype 7309
Paratypes 7310-7312
1944, Publ. Univ. Calif. at Los Angeles, Math. & Physic. Sci., vol. 3, p. 122, pl. 10, figs. 5
[7310], 9 [7309], 10 [7311], 11 [7312] (November 4).
Pliocene, Etchegoïn, Section 26, T. 22 S., R. 16 E., M.D.B. & M., Coalinga
district, Fresno County, California.
- frontalis** Middendorff, **Diestothyris** Hypotype 7308
Hertlein & Grant, 1944, Publ. Univ. Calif. at Los Angeles, Math. & Physic. Sci., vol. 3,
p. 114, text figs. 26a-c (November 4).
Recent, Japan.
- gigantea** Martin, **Gigantella** Plasto-Hypotype 2793
Hanna & Hertlein, 1941, Calif. State Div. Mines, Bull. 118, preprint of part 2, p. 166,
figs. 60:18-60:19 (August).
Lower Carboniferous, Baird Formation, west bank of McCloud River, above
Baird fishery, Shasta County, California.
- halli** Dall, **Frieleia** Hypotype 7267
Hertlein & Grant, 1944, Publ. Univ. Calif. at Los Angeles, Math. & Physic. Sci., vol. 3,
p. 58, pl. 4, figs. 6-7, text fig. 11 (November 4).
Recent, San Diego Bay, San Diego County, California.
- hamiltonense** Smith, **Dielasma** Plasto-Holotype 11322
1927, U.S. Geol. Survey, Prof. Paper no. 141, p. 123, pl. 102, figs. 14-16.
Upper Triassic, Karnic, Hamilton Bay, Kupreanof Island, Alaska.
- hannana** Anderson, **Terebratula** Holotype 8593
Paratype 8594
1938, Geol. Soc. America Spec. Paper, no. 16, p. 95, pl. 9, figs. 14 [8593], 15 [8594]
(November 30).
Lower Cretaceous, Barremian, middle Horsetown Group, McCarthy Creek,
near crossing of the Paskenta-Lowry Road, Tehama County, California.
- hannibali** Hertlein & Grant, **Discinisca cumingii** Plasto-Holotype 7246
Plasto-Hypotype 7246a
1944, Publ. Univ. Calif. at Los Angeles, Math. & Physic. Sci., vol. 3, p. 29, pl. 16, figs.
7-8, 11 (November 4).

Oligocene, lower Astoria Formation, west shore of Oak Bay, 1–2 miles south of Portage Spit, between Port Townsend and Port Ludlow, Jefferson County, Washington.

hemphilli Dall, **Terebratalia** Plasto-Holotype 10305

Hypotype 7320

Hertlein & Grant, 1944, Publ. Univ. Calif. at Los Angeles, Math. & Physic. Sci., vol. 3, p. 123, pl. 9, figs. 3–4 [10305]; pl. 10, figs. 1–2 [7320] (November 4).

Pliocene: Arroyo Buero [Burro], Santa Barbara County [10305]; Torrey Canyon, Ventura County [7320], California.

hemphilli Dall, **Terebratalia** Hypotype 13083

Hertlein & Grant, 1960, Mem. San Diego Soc. Nat. Hist., vol. 2, part 2a, p. 93, pl. 19, fig. 27 (July 7).

Pliocene, San Diego Formation, Pacific Beach, San Diego County, California.

howardi Smith, **Rhynchonella** Plasto-Holotype 11314

1927, U.S. Geol. Survey, Prof. Paper no. 141, p. 122, pl. 96, figs. 16–18.

Upper Triassic, *Tropites subbullatus* zone, Hosselkus limestone, Brock Mountain, Shasta County, California.

humboldtensis, Gabb, **Terebratula** Plasto-Hypotypes 12053–12054

Hall & Whitfield, 1877, U.S. Geol. Explor. Fortieth Parallel, vol. 4, part 2, p. 282, pl. 6, figs. 22–23 [12053], 24 [12054] (April). [Plasto-Hypotypes 12053 and 12054 are casts of USNM 12533, cited as “Cotypes” in U.S. Nat. Mus. Bull. 53, part 1, p. 652.]

Triassic, near Dun Glen Pass, Pah-Ute [Stillwater] Range, Churchill County, Nevada.

imbricata Cooper, **Waldheimia** Syntypes 617–617a

1894, Calif. State Mining Bureau, Bull. no. 4, part 5, p. 51, pl. 3 [not pl. 4, as cited in text], figs. 50 [617], 51 [617a] (September). [See *Cyclothyris cooperella* Hertlein & Grant, 1944.]

Cretaceous, La Jolla, San Diego County, California.

jenkinsi Hertlein & Grant, **Discinisca** Holotype 7247

1944, Publ. Univ. Calif. at Los Angeles, Math. & Physic. Sci., vol. 3, p. 30, pl. 16, figs. 5–6 (November 4).

Pliocene, Etchegoin, Standard Oil Company of California, Randolph Well No. 1, Section 14, T. 27 S., R. 23 E., M.D.B. & M., Kern County, California.

jordani Hertlein & Grant, **Terebratalia** Holotype 7321

Paratypes 7322–7323

1944, Publ. Univ. Calif. at Los Angeles, Math & Physic. Sci., vol. 3, p. 125, pl. 12, figs. 1, 3–4, 6–7 [7321] (November 4).

Pliocene, about one kilometer from the shore at Punta Santa Antonita, Baja California, Mexico.

- julicum** Bittner, **Dielasma** Plasto-Hypotype 11318
Smith, 1927, U.S. Geol. Survey, Prof. Paper no. 141, p. 123, pl. 96, figs. 12–13.
Upper Triassic, *Tropites subbullatus* zone, Hosselkus limestone, Brock Mountain, Shasta County, California.
- kennedyi** Dall, **Terebratalia** Virtual Plasto-Syntypes 10306–10307
Hertlein & Grant, 1944, Publ. Univ. Calif. at Los Angeles, Math. & Physic. Sci., vol. 3, p. 125, pl. 13, figs. 1–2 [10306], 3–4 [10307] (November 4). [See also *Waldheimia kennedyi* Dall, 1874.]
Pliocene, Cedros Island, Baja California, Mexico.
- kennedyi** Dall, **Waldheimia** Virtual Plasto-Syntypes 10306–10307
1874, Proc. Calif. Acad. Sci., 1st ser., vol. 5, part 2, p. 299 (December). [Separate published March 26. See also *Terebratalia kennedyi* Dall, Hertlein & Grant, 1944.]
Miocene [Pliocene], Cerros [Cedros] Island, Baja California, Mexico.
- kiensis** Dall & Pilsbry, **Terebratulina** Hypotype 7288
Hertlein & Grant, 1944, Publ. Univ. Calif. at Los Angeles, Math. & Physic. Sci., vol. 3, p. 71, text figs. 18a–c (November 4).
Recent, off San Diego, California, 50 fathoms.
- kiensis** Dall & Pilsbry, **Terebratulina** Plasto-Hypotype 7289
Hertlein & Grant, 1944, Publ. Univ. Calif. at Los Angeles, Math. & Physic. Sci., vol. 3, p. 71, text figs. 17a–b (November 4).
Upper Pliocene, Hilltop Quarry, Los Angeles County, California.
- latissima** Sowerby, **Cycolothyris** Hypotype 7290
Hertlein & Grant, 1944, Publ. Univ. Calif. at Los Angeles, Math. & Physic. Sci., vol. 3, p. 62, text figs. 14a–c (November 4).
Cretaceous, upper Greensand, Tournay, Belgium.
- loeli** Hertlein & Grant, **Discinisca** Plasto-Holotype 7248
Plasto-Paratype 7249
Paratypes 7250–7252
1944, Publ. Univ. Calif. at Los Angeles, Math. & Physic. Sci., vol. 3, p. 35, pl. 2, fig. 19 [7248], text figs. 4a–b [7248] (November 4).
Miocene, Temblor, San Joaquin Hills, Orange County, California.
- lowei** Hertlein & Grant, **Argyrotheca** Paratypes 7306–7307
1944, Publ. Univ. Calif. at Los Angeles, Math. & Physic. Sci., vol. 3, p. 104 (November 4).
Recent, off Angel de la Guardia Island, Gulf of California, Mexico, 20 fathoms.
- milesi** Smith, **Spirigera** Plasto-Holotype 11317
1927, U.S. Geol. Survey, Prof. Paper no. 141, p. 125, pl. 96, figs. 10–11.
Upper Triassic, *Tropites subbullatus* zone, Hosselkus limestone, Brock Mountain, Shasta County, California.

- oakvilleensis** Weaver, *Terebratula* Holotype 544
 1912, Washington Geol. Survey, Bull., no. 15, p. 79, pl. 13, fig. 107 (August 1).
 Lower Miocene [Oligocene], Blakeley Formation, about one mile west of
 Oakville, Grays Harbor County, Washington.
- oakvillensis** Weaver, *Terebratulina* Holotype 544
 Weaver, 1942 [1943], Univ. Washington Publ. Geol., vol. 5, part 1, p. 15; part 3, pl. 1,
 fig. 8 (December 31). [See also *Terebratula oakvilleensis* Weaver, 1912.]
 Lower middle Oligocene, Lincoln Formation, one mile west of Oakville, Grays
 Harbor County, Washington.
- obsoleta** Dall, *Terebratalia occidentalis* Hypotypes 7327–7328
 Hertlein & Grant, 1944, Publ. Univ. Calif. at Los Angeles, Math. & Physic. Sci., vol. 3,
 p. 131, pl. 12, figs. 9–10 [7327], 11 [7328] (November 4).
 Miocene, Temblor, corner of Fifth and Duane Streets, Astoria, Clatsop
 County, Oregon.
- obsoleta** Dall, *Terebratalia occidentalis* Hypotype 7330
 Hertlein & Grant, 1944, Publ. Univ. Calif. at Los Angeles, Math. & Physic. Sci., vol. 3,
 p. 131, text figs. 28a–c (November 4).
 Recent, off Santa Catalina Island, Los Angeles County, California, 30
 fathoms.
- occidentalis** Whiteaves, *Kingena* Plasto-Holotype 10356
 1903, Geol. Surv. Canada, Mesozoic Fossils, vol. 1, part 5, p. 404, pl. 51, figs. 7–7a (July).
 Upper Cretaceous, Trent River, Vancouver Island, British Columbia, Canada.
- occidentalis** Dall, *Terebratalia* Hypotype 7324
 Hertlein & Grant, 1944, Publ. Univ. Calif. at Los Angeles, Math. & Physic. Sci., vol. 3,
 p. 127, pl. 10, fig. 3 (November 4). [See also *Terebratalia occidentalis* Dall, Hertlein
 & Grant, 1960.]
 Pliocene, Pacific Beach, San Diego County, California.
- occidentalis** Dall, *Terebratalia* Plasto-Hypotype 7325
 Hypotype 7326
 Hertlein & Grant, 1944, Publ. Univ. Calif. at Los Angeles, Math. & Physic. Sci., vol. 3,
 p. 127, pl. 17, figs. 2, 5, 8, 11, 12 [7326], text fig. 27 [7325] (November 4).
 Recent: off Santa Catalina Island, Los Angeles County, California [7325];
 Gorda Banks area, Baja California, Mexico, 75 fathoms [7326].
- occidentalis** Dall, *Terebratalia* Hypotypes 7324, 13080–13081
 Hertlein & Grant, 1960, Mem. San Diego Soc. Nat. Hist., vol. 2, part 2a, p. 94, pl. 19, figs.
 16 [13080], 22 [13081], 31 [7324] (July 7). [Hypotype 7324, see also *Terebratalia*
occidentalis Dall, Hertlein & Grant, 1944.]
 Pliocene, San Diego Formation: northeast corner of India and Thorn Streets,
 San Diego [13080]; Pacific Beach [7324, 13081], San Diego County,
 California.

- occidentalis** Dall, ?**Terebratalia** aff. Hypotype 7376
Weaver, 1942 [1943], Univ. Washington Publ. Geol., vol. 5, part 1, p. 16; part 3, pl. 2, fig. 4 (December 31).
Upper Eocene (?), one mile south of Quilcene on west shore of bay, Jefferson County, Washington.
- ovula** Anderson, **Terebratella** Holotype 8597
1938, Geol. Soc. America Spec. Paper, no. 16, p. 94, pl. 9, figs. 17–18 (November 30).
Lower Cretaceous, Neptune zone, upper Horsetown Group, east branch of Hulen Creek, Shasta County, California.
- palmeri** Dall, **Glottidia** Hypotype 7243
Hertlein & Grant, 1944, Publ. Univ. Calif. at Los Angeles, Math. & Physic. Sci., vol. 3, p. 17, pl. 1, fig. 10 (November 4).
Recent, San Felipe, east coast of Baja California, Mexico.
- perrini** Hertlein & Grant, **Discinisca** Plasto-Holotype 6094
Plasto-Paratype 6094a
1944, Publ. Univ. Calif. at Los Angeles, Math. & Physic. Sci., vol. 3, p. 36, pl. 2, figs. 14 [6094], 15 [6094a] (November 4). [See also *Discinisca* species Loel & Corey, 1932.]
Lower Miocene, Vaqueros, upper Anderson Creek Canyon, Section 7, T. 30 S., R. 18 E., M.D.B. & M., San Luis Obispo County, California.
- piriformis** Suess, **Terebratula?** Plasto-Hypotype 11319
Smith, 1927, U.S. Geol. Survey, Prof. Paper no. 141, p. 124, pl. 96, figs. 14–15.
Upper Triassic, *Tropites subbullatus* zone, Hosselkus limestone, Brock Mountain, Shasta County, California.
- pittensis** Smith, **Spiriferina** Plasto-Holotype 11309
Plasto-Paratype 11310
1927, U.S. Geol. Survey, Prof. Paper no. 141, p. 124, pl. 95, figs. 10 [11309], 11 [11310].
Upper Triassic, *Spiriferina* zone, Hosselkus limestone, Brock Mountain, Shasta County, California.
- psittacea** Gmelin, **Hemithiris** Hypotypes 7264–7265, 7272
Hertlein & Grant, 1944, Publ. Univ. Calif. at Los Angeles, Math. & Physic. Sci., vol. 3, p. 46, pl. 3, figs. 12–13 [7264], 15–16 [7265]; pl. 21, fig. 13 [7272]; text figs. 7a–c [7265], 8a–d [7264] (November 4).
Recent: Unalaska, Alaska [7264]; Puget Sound, Washington, 25 fathoms [7265, 7272].
- psittacea** Gmelin, **Hemithiris** Hypotype 7271
Hertlein & Grant, 1944, Publ. Univ. Calif. at Los Angeles, Math. & Physic. Sci., vol. 3, p. 46, pl. 21, figs. 10–11 (November 4).
Lower Miocene (?), Eastbench Creek, west side of Icy Bay, Yakataga district, Alaska.

- psittacea** Gmelin, **Hemithiris** sp., cf. **H.** Hypotype 13131
 Zullo, 1969, Proc. Calif. Acad. Sci., 4th ser., vol. 36, no. 12, p. 352, fig. 21 (April 10).
 Pleistocene, sea cliff about $\frac{3}{4}$ mile southwest of town of Bandon, Coos County,
 Oregon.
- quaylei** Hertlein & Grant, **Terebratalia arnoldi** Plasto-Holotype 7317
 Paratypes 7318–7319
 1944, Publ. Univ. Calif. at Los Angeles, Math. & Physic. Sci., vol. 3, p. 122, pl. 17, figs.
 1, 4, 7 [7317] (November 4).
 Upper Miocene, Santa Margarita Formation, Section 13, T. 25 S., R. 10 E.,
 M.D.B. & M., Bradley Quadrangle, San Luis Obispo County, California.
- reagani** Hertlein & Grant, **Hemithiris** Plasto-Holotype 7268
 Paratypes 7269–7270
 1944, Publ. Univ. Calif. at Los Angeles, Math. & Physic. Sci., vol. 3, p. 54, pl. 3, figs.
 14, 17 [7268], text figs. 9a–c [7268] (November 4). [See also *Hemithyris* species A
 Weaver, 1942.]
 Oligocene, “Help-Me-Jack Rock”, Port Hadlock, Townsend Bay, Jefferson
 County, [7268]; lower Oligocene, $\frac{1}{4}$ mile north of Woodmans, Quimper
 Peninsula [7269–7270, not “near Quilcene, Jefferson County”, as cited in
 text], Washington.
- retusa** Linnaeus, **Terebratulina** Hypotype 7291
 Hertlein & Grant, 1944, Publ. Univ. Calif. at Los Angeles, Math. & Physic. Sci., vol. 3,
 p. 73, pl. 6, figs. 2–3 (November 4).
 Recent, England.
- richardsoni** Smith, **Rhynchonella** Plasto-Holotype 11312
 1927, U.S. Geol. Survey, Prof. Paper no. 141, p. 123, pl. 96, figs. 19–21.
 Upper Triassic, *Tropites subbullatus* zone, Hosselkus limestone, Brock
 Mountain, Shasta County, California.
- rosittana** Bittner, **Halorella** Hypotype 12356
 Engel, 1959, Calif. State Div. Mines, Bull. no. 146, p. 20, fig. 3:2 (October 1).
 Upper Triassic, about 3 miles north of Bald Peak, Riverside County, Cali-
 fornia.
- semisimplex** White, **Terebratula** Plasto-Cotype [-Syntype] 12008
 1879, U.S. Geol. & Geog. Surv. Terr., Bull., vol. 5, no. 1, art. 5, p. 108 (February 28).
 Jurassic–Triassic, about 18 miles west of Idaho–Wyoming boundary and 5
 miles south of John Gray’s Lake, southeastern Idaho.
- simiensis** Waring, **Kingena** Plasto-Holotype 4962
 1917, Proc. Calif. Acad. Sci., 4th ser., vol. 7, no. 4, p. 73, pl. 12, fig. 11 (July 30).
 Lower Eocene, Martinez Formation, Martinez area, Simi Hills, Ventura
 County, California.

- simiensis** Waring, **Kingena?** Plasto-Hypotype 7367
 Hertlein & Grant, 1944, Publ. Univ. Calif. at Los Angeles, Math. & Physic. Sci., vol. 3,
 p. 153, text figs. 33a-d (November 4).
 Lower Eocene, Martinez Formation, south side of Simi Valley, Ventura
 County, California.
- skidegatensis** Whiteaves, **Terebratula** Plasto-Holotype 10358
 1900, Geol. Surv. Canada, Mesozoic Fossils, vol. 1, part 4, p. 301, pl. 37, figs. 6-6a
 (November).
 Cretaceous, east end of Maud Island, Queen Charlotte Islands, British
 Columbia, Canada.
- smithi** Arnold, **Terebratalia** Plasto-Holotype 7331
 1903, Mem. Calif. Acad. Sci., vol. 3, part 2, p. 93, pl. 17, fig. 9 (June 27).
 Pliocene, Deadman Island, San Pedro, Los Angeles County, California.
- sookensis** Clark & Arnold, **Terebratella?** Plasto-Holotype 4867
 Plasto-Paratype 4868
 1923, Univ. Calif. Publ., Bull. Dept. Geol. Sci., vol. 14, no. 5, p. 176, pl. 36, figs. 4 [4868],
 5a-b [4867] (November 6).
 Upper Oligocene or lower Miocene, Sooke Formation, mouth of Fossil Creek,
 2 miles west of Sherringham Point, Jordan River, Vancouver Island,
 British Columbia, Canada.
- [species], Brachiopoda "Hypotypes" 2474-2476
 [These specimens were not mentioned or figured, but accompanied the material figured
 by Dickerson, 1922, Philippine Jour. Sci., vol. 20, no. 2 (February).]
 Pliocene, Philippine Islands?
- species undetermined Meek, **Discina** Plasto-Hypotypes 12020-12021
 1877, U.S. Geol. Explor. Fortieth Parallel, vol. 4, part 1, p. 99, pl. 10, figs. 3-3a (April).
 [See also *Discina utahensis* Meek, 1877.]
 Upper Triassic, Weber Cañon, Wasatch Range, Utah.
- species Loel & Corey, **Discinisca** Plasto-Plesiotypes [-Hypotypes] 6094-6094a
 1932, Univ. Calif. Publ., Bull. Dept. Geol. Sci., vol. 22, no. 3, p. 277, pl. 64, figs. 11
 [6094a], 12 [6094] (December 31). [See also *Discinisca perrini* Hertlein & Grant,
 1944.]
 Lower Miocene, *Turritella inczana* zone, Vaqueros Formation, upper Ander-
 son Creek Canyon, Section 7, T. 30 S., R. 18 E., San Luis Obispo County,
 California.
- species Tegland, **Hemithyris?** Plasto-Hypotype 7296
 1933, Univ. Calif. Publ., Bull. Dept. Geol. Sci., vol. 23, no. 3, p. 142 (October 11).
 Oligocene, Blakeley Formation, Restoration Point, Bainbridge Island, Kitsap
 County, Washington.

- species A Weaver, **Hemithyris** Hypotypes 7372–7372a, 7373
 [incorrectly cited in
 text as “paratype”],
 7373a [not 7375a as
 cited in text]
- 1942 [1943], Univ. Washington Publ. Geol., vol. 5, part 1, p. 12; part 3, pl. 2, figs. 12
 [7373a], 13 [7372a], 14, 17 [7372], 15 [7373] (December 31). [These specimens
 cited as “Paratypes” of *Hemithyris reaganii* by Hertlein & Grant, 1944, p. 54.]
- Upper Eocene (?), one mile south of Quilcene on west shore of bay, Jefferson
 County, Washington.
- species Dickerson, **Rhynchonella**(?) Plasto-Hypotype 7316
 1914, Univ. Calif. Publ., Bull. Dept. Geol., vol. 8, no. 6, p. 122, pl. 7, fig. 1 (May 13).
 [As *Rhynchonella* (?) on pp. 95, 107, and 158.] [See also *Terebratula* species
 Hertlein & Grant, 1944.]
- Eocene, Martinez Group, southeast of Lower Lake, Section 11, T. 12 N.,
 R. 7 W., Lake County, California.
- new species Loel & Corey, Rhynchonellid Plasto-Plesiotype [-Hypotype] 7340
 1932, Univ. Calif. Publ., Bull. Dept. Geol. Sci., vol. 22, no. 3, p. 277, pl. 64, fig. 10
 (December 31). [See also *Terebratula transversa caurina* Gould, Hertlein & Grant,
 1944.]
- Lower Miocene, Vaqueros Formation, Section 19, T. 10 N., R. 20 W., San
 Emigdio district, Kern County, California.
- species Hertlein & Grant, **Terebratalia** Plasto-Hypotype 7274
 1944, Publ. Univ. Calif. at Los Angeles, Math. & Physic. Sci., vol. 3, p. 143, pl. 5, fig. 8
 (November 4). [See also Terebratuliniid, new species? Loel & Corey, 1932.]
- Miocene, Vaqueros, between Lechuza and Cienega Canyons, western Santa
 Monica Mountains, Los Angeles County, California.
- new subspecies Clark & Arnold, **Terebratalia transversa** Sowerby
 Plasto-Hypotype 4872
 1923, Univ. Calif. Publ., Bull. Dept. Geol. Sci., vol. 14, no. 5, p. 176, pl. 32, fig. 4
 (November 6).
- Upper Oligocene or lower Miocene, lower Astoria Formation, one to 1½
 miles west of Owens Point, Port San Juan, Vancouver Island, British
 Columbia, Canada.
- species Hertlein & Grant, **Terebratula** Plasto-Hypotype 7316
 1944, Publ. Univ. Calif. at Los Angeles, Math. & Physic. Sci., vol. 3, p. 88, pl. 5, fig. 4
 (November 4). [See also *Rhynchonella* (?) species Dickerson, 1914.]
- Eocene, “*Meretrix dalli* zone”, Martinez Formation, Lower Lake, Lake
 County, California.

- new species? Loel & Corey, *Terebratuliniid* Plasto-Plesio-type
 [-Hypotype] 7274
 1932, Univ. Calif. Publ., Bull. Dept. Geol. Sci., vol. 22, no. 3, p. 277, pl. 64, fig. 9
 (December 31). [As "Terebratulid, new species?" on p. 408. See also *Terebratalia*
species Hertlein & Grant, 1944.]
 Lower Miocene, Vaqueros Formation, between Lechuza and Cienega canyons,
 western Santa Monica Mountains, Los Angeles County, California.
- strigata* Broderip, *Discinisca* Hypotype 7255
 Hertlein & Grant, 1944, Publ. Univ. Calif. at Los Angeles, Math. & Physic. Sci., vol. 3,
 p. 36, pl. 16, fig. 17; pl. 18, fig. 6 (November 4).
 Recent, between Taboga Island and Uraba Island, Bay of Panama, Panama,
 3–9 fathoms.
- tejonensis* Stanton, *Terebratulina* Hypotype 7292
 Hertlein & Grant, 1944, Publ. Univ. Calif. at Los Angeles, Math. & Physic. Sci., vol. 3,
 p. 75, text fig. 19 (November 4).
 Lower Eocene, about 10,000 feet south along coast and 9,000 feet east of
 Kinton Point, Santa Cruz Island, Santa Barbara County, California.
- tejonensis* Stanton, *Terebratulina* Plasto-Hypotype 7305
 Dickerson, 1914, Univ. Calif. Publ., Bull. Dept. Geol., vol. 8, no. 6, p. 73, pl. 7, fig.
 2b(?) (May 13).
 Eocene, Martinez Group, 1½ miles south of Somersville, Section 16, T. 1 N.,
 R. 1 E., M.D.B. & M., Contra Costa County, California.
- tolmani* Hertlein & Grant, *Eogryphus* Plasto-Holotype 7278
 Paratypes 7279–7282
 1944, Publ. Univ. Calif. at Los Angeles, Math. & Physic. Sci., vol. 3, p. 89, pl. 5, figs. 1–3,
 7 [7278], text fig. 22 [7278] (November 4).
 Eocene, Domengine, upper Las Lajas Formation, Las Lajas Canyon, north
 of Simi Valley, Ventura County, California.
- transversa* Sowerby, *Terebratalia* Hypotype 7332
 Hertlein & Grant, 1944, Publ. Univ. Calif. at Los Angeles, Math. & Physic. Sci., vol. 3,
 p. 135, pl. 21, figs. 8–9 (November 4).
 Lower Miocene(?), Eastbench Creek, west side of Icy Bay, Yakataga district,
 Alaska.
- transversa* Sowerby, *Terebratalia* Hypotypes 7333, 7368–7369
 Hertlein & Grant, 1944, Publ. Univ. Calif. at Los Angeles, Math. & Physic. Sci., vol. 3,
 p. 135, pl. 8, figs. 10, 15–16 [7368]; pl. 9, figs. 1–2 [7369], 5–6 [7333] (November 4).
 Recent: Griffin Bay, Puget Sound [7333]; Puget Sound [7368–7369],
 Washington.
- unguicula* Carpenter, *Terebratulina* Hypotypes 7297, 7299, 7329
 Hertlein & Grant, 1944, Publ. Univ. Calif. at Los Angeles, Math. & Physic. Sci., vol. 3,
 p. 79, pl. 5, figs. 9–10 [7329]; pl. 6, fig. 6–7 [7297]; pl. 17, fig. 9 [7299] (November 4).

- Recent: between Reed Rock and Brown Island, Puget Sound, 50 fathoms, [7299]; Puget Sound, Washington, 25 fathoms [7297]; San Diego, California [7329].
- unguicula** Carpenter, *Terebratulina* Hypotype 7298
Hertlein & Grant, 1944, Publ. Univ. Calif. at Los Angeles, Math. & Physic. Sci., vol. 3, p. 79, pl. 6, fig. 1 (November 4).
Miocene, 4 miles north of Yaquina Head, Lincoln County, Oregon.
- utahensis** Meek, *Discina* Plasto-Cotypes [-Syntypes] 12020-12021
1877, U.S. Geol. Explor. Fortieth Parallel, vol. 4, part 1, p. 99, pl. 10, figs. 3-3a (April).
[See also *Discina* species undetermined Meek, 1877.]
Upper Triassic, Weber Cañon, Wasatch Range, Utah.
- vancouverensis** Davidson, *Laqueus* aff. Hypotypes 7371, 7371a-c
Weaver, 1942 [1943], Univ. Washington Publ. Geol., vol. 5, part 1, p. 17; part 3, pl. 2, figs. 5 [7371], 6 [7371a] (December 31).
Upper Eocene (?), one mile south of Quilcene on west shore of bay, Jefferson County, Washington.
- vancouveriensis** Davidson, *Laqueus* Hypotypes 7354-7355
Hertlein & Grant, 1944, Publ. Univ. Calif. at Los Angeles, Math. & Physic. Sci., vol. 3, p. 147, pl. 13, figs. 6, 10 [7354], 7, 9 [7355] (November 4). [See also *Laqueus vancouveriensis diegensis* Hertlein & Grant, 1960.]
Pliocene, San Diego Formation, Pacific Beach, San Diego County, California.
- vancouveriensis** Davidson, *Laqueus* Hypotypes 7356-7357
Hertlein & Grant, 1944, Publ. Univ. Calif. at Los Angeles, Math. & Physic. Sci., vol. 3, p. 147, pl. 17, figs. 15, 17 [7356], 16 [7357] (November 4).
Recent, off Forrester Island, Alaska, 70 fathoms.
- vancouveriensis** Davidson, *Laqueus californicus*
Plesiotype [Hypotype] 2091
Jordan & Hertlein, 1926, Proc. Calif. Acad. Sci., 4th ser., vol. 15, no. 14, p. 426, pl. 27, fig. 7 (July 22).
Pliocene, southeast side of Cedros Island, Baja California, Mexico.
- variety B Weaver, *Terebratulina unguicula* Carpenter Hypotype 7375
1942 [1943], Univ. Washington Publ. Geol., vol. 5, part 1, p. 15; part 3, pl. 1, fig. 11 (December 31). [See also *Terebratulina unguicula weaveri* Hertlein & Grant, 1944.]
Upper Eocene(?), one mile south of Quilcene on west shore of bay, Jefferson County, Washington.
- waringi** Hertlein & Grant, *Terebratulina tejonensis*
Plasto-Holotype 7293
Plasto-Paratypes 7294-7295
1944, Publ. Univ. Calif. at Los Angeles, Math. & Physic. Sci., vol. 3, p. 77, pl. 5, figs. 12-13 [7295], 14-15 [7294], 16, 21 [7293] (November 4).

Eocene, between headwaters of San Lorenzo River and Pescadero Creek, Santa Cruz Quadrangle, San Mateo County, California.

- washingtoniana** Weaver, **Rhynconella** Holotype 7374
Paratype 7374a
1912, Washington Geol. Survey, Bull., no. 15, p. 55, pl. 5, figs. 44 [7374a], 45 [7374] (August 1).
Upper Eocene, Cowlitz Formation, bank of Cowlitz River, 1½ miles east of Sopenah (Little Falls), Lewis County, Washington.
- washingtoniana** Weaver, **Terebratulina** Hypotypes 7300–7302
Hertlein & Grant, 1944, Publ. Univ. Calif. at Los Angeles, Math. & Physic. Sci., vol. 3, p. 83, pl. 5, figs. 11 [7300], 18 [7301], 22 [7302] (November 4).
Upper Eocene, Cowiltz Formation, west bank of Cowlitz River, about 1½ miles east of Vader, Lewis County, Washington.
- weaveri** Hertlein & Grant, **Terebratulina unguicula** Holotype 7303
Plasto-Paratype 7304
1944, Publ. Univ. Calif. at Los Angeles, Math. & Physic. Sci., vol. 3, p. 81, pl. 6, figs. 4–5 [7304], 8–9 [7303], text figs. 20a–d [7303] (November 4). [See also *Terebratulina unguicula* variety B Weaver, 1942.]
Oligocene, one mile south of Quilcene on west shore of bay, Jefferson County, Washington.
- whitneyi** Gabb, **Peregrinella** Plasto-Hypotype 7273
Hertlein & Grant, 1944, Publ. Univ. Calif. at Los Angeles, Math. & Physic. Sci., vol. 3, p. 66, pl. 4, figs. 8, 11, 17 (November 4).
Cretaceous, Sulphur Creek, Colusa County, California.
- whitneyi** Gabb, **Rhynchonella** Plasto-Hypotype 4941
Waring, 1914, Calif. State Mining Bureau, map folio accompanying Bull. no. 69, inside front cover, pl. 1, fig. 5 (October).
Lower Cretaceous, Knoxville Formation, Sulphur Creek, Colusa County, California.
- willetti** Hertlein & Grant, **Miogryphus** Holotype 7361
Paratypes 7358–7360, 7362–7364
1944, Publ. Univ. Calif. at Los Angeles, Math. & Physic. Sci., vol. 3, p. 95, pl. 11, figs. 4, 7 [7360], 5–6, 8 [7361], 9 [7358] (November 4).
Miocene, Temblor, west side of San Miguelito Creek, about 6.4 kilometers south of Lompoc, Santa Barbara County, California.
- winnemae** Smith, **Rhynchonella** Plasto-Holotype 11320
1927, U.S. Geol. Survey, Prof. Paper no. 141, p. 123, pl. 96, figs. 22–24.
Upper Triassic, *Tropites subbullatus* zone, Hosselkus limestone, Brock Mountain, Shasta County, California.

ynezensis Hertlein & Grant, **Eogryphus tolmani** Holotype 7283

Paratypes 7284-7285

1944, Publ. Univ. Calif. at Los Angeles, Math. & Physic. Sci., vol. 3, p. 90, pl. 18, figs. 5, 12-13 [7283], 18 [7284] (November 4).

Upper or middle Eocene, Sierra Blanca (?) Formation, canyon west of Oso Canyon, north of Santa Ynez River, Santa Ynez Quadrangle, Santa Barbara County, California.

yukonensis Smith, **Spiriferina** Plasto-Holotype 11315

1927, U.S. Geol. Survey, Prof. Paper no. 141, p. 124, pl. 101, figs. 13-14.

Upper Triassic, Karnic, south bank of Yukon River, $\frac{1}{8}$ mile northeast of mouth of Nation River, Alaska.

LIST BY GENERA

Argyrotheca lowei	Halorella rosittana
Brachiopoda species	Hemithyris astoriana
	dibbleei
	psittacea
Cyclothyris cooperella	cf. psittacea
latissima	reagani
	Hemithyris species A
	Hemithyris? species
Dielasma chapini	
hamiltonense	
julicum	Kingena occidentalis
Diestothyris frontalis	simiensis
Discina species undetermined	Kingena? simiensis
utahensis	
Discinisca cumingii	Laqueus californianus
hannibali	diegensis
jenkinsi	aff. vancouverensis
loeli	vancouveriensis
perrini	
species	Megerlia dubitanda
strigata	Miogryphus willetti
	Peregrinella whitneyi
Eogryphus tolmani	
ynezensis	Rhynchonella blackwelderi
Eohemithyris alexi	densleonis
	howardi
Fricleia halli	richardsoni
	whitneyi
	winnemae
Gigantella gigantea	
Glottidia albida	Rhynchonella? species
audebarti	Rhynchonellid new species
palmeri	Rhynchonella washingtoniana

Spirifera (Spiriferina?) alia	Terebratula augusta
Spiriferina coreyi	coreyi
pittensis	durrelli
yukonensis	hannana
Spirigera milesi	humboldtensis
	oakvilleensis
	semisimplex
	skidegatensis
	species
Terebratalia arnoldi	Terebratula? piriformis
caurina	Terebratulina crossei
etchegoini	kiiensis
hemphilli	retusa
jordani	tejonensis
kennedyi	unguicula
new subspecies	variety B
obsoleta	waringi
occidentalis	washingtoniana
quaylei	weaveri
smithi	
species	
transversa	
?Terebratalia aff. occidentalis	Terebratulid new species?
Terebratella averilli	
ovula	
Terebratella? sookensis	Waldheimia imbricata
	kennedyi

