

next tributary upstream. The material, though "float," apparently washed out of the lower bed of the "Virginia" St. Marys Formation, which outcrops along this beach. Lauck W. Ward, 1961, on loan from Warren C. Blow, Paleontology and Stratigraphy Branch, USGS. Three immature specimens of *Callinectes*. Two females with broad sternites and triangular abdomen exposed; (A) a half-grown individual with fragmented abdomen distorted (abdomen length about 29 mm from posterior edge of exposed segment 3 to estimated tip of telson); (B) a much smaller individual with incomplete abdomen (abdomen length about 12 mm from posterior edge of exposed segment 3 to estimated tip of telson); (C) cephalothorax of an immature individual about 45 mm wide, with broad sternal plates as well as areolations of carapace suggesting *C. sapidus*, frontal and anterolateral teeth missing, abdomen unexposed, shape of telson suggesting a female.

USGS 25275. "Road fill" NW side of Virginia hwy. 360, along both sides of Manquin Creek, King William Co., Va. Material is "spoil" thought to be derived from nearby road cut(s) during construction of addition to hwy. 360. Age unknown, probably Yorktown Formation; Late Miocene. Lauck W. Ward, 1961, on loan from Warren C. Blow, Paleontology and Stratigraphy Branch, USGS. Large, complete right palm (dorsal length about 30 mm), propodal finger, and mold of dactyl broken out of a concretion; palm heavily ridged, facets between ridges reticulated as in *C. reticulatus* (internal mold of hand), but remnants of exoskeleton externally smooth except for granules on ridges; portion of finger remaining resembling *Callinectes* with proximal enlarged tooth on dactyl and molar apparatus on propodal finger. The palm is compressed in preservation, but appears as broad in restoration as a modern *Callinectes*.

USGS 3859. Pleistocene (Miocene?), "tongued up in the Rappahannock River near the Chesapeake Bay by an oysterman" and sent to the Smithsonian Institution in 1902 by W. McD. Lee. Flattened partially crushed central portion of an adult male *C. sapidus*, including part of carapace with regions exposed and sternum with abdomen missing. The dark color of the specimen only suggests similarity to other Pleistocene (Miocene?) material from the area of origin, for exact horizon is unknown.

USNM 371729, Pleistocene, Broadwater, Va., R. Phillips. A large adult male fragment consist-

ing of a deformed carapace (length 67, width at base of lateral spines 127 mm) along with a right cheliped lacking fingers. The chela is disarticulated. Shape of abdomen, carapace, and carpus of cheliped with no internal spine indicate *C. sapidus*.

Seven lots from the Pleistocene, Wailes Bluff, St. Marys Co., Md., treated in part by Rathbun (1935) and Blake (1953), are similar to Modern *C. sapidus* but lack definitive characters.

USNM 145356. Talbot Formation, Bd. 1 (of Mansfield), 1937, S. F. Blake. Immature male with carapace and sternum exposed.

USNM 146701. Frank Burns, 1886, Stn. No. 2032. Portion of left minor dactyl and right propodal finger.

USNM 371726. Talbot Formation, L. W. Stephenson, W. C. Mansfield, and W. P. Popenoe, 26 June 1925, (10902). Portion of left propodal finger and hand, and nearly intact right propodal finger.

USNM 371727. Talbot Formation, W. C. Mansfield, 8-12 June 1920 (8932). Fragments of a left chela (propodus), tips of two fingers, and fragments of a minor chela.

Uncatalogued lot. (Bd. 1), R. J. Taylor, 15 June 1941. Mostly fragments of four right propodal fingers, six left propodal fingers, and one complete right dactyl.

Uncatalogued lot. (Bd. 1), R. J. Taylor, 15 June 1941. Three immature female and one immature male fragmentary sterna.

Uncatalogued lot. Pamlico Formation, W. E. Salter. Two dactyls from right and left chelae.

Five lots from Pleistocene, Cape May and Atlantic Counties, N.J., similar to modern *C. sapidus*.

USNM 371930. Cape May Formation, Stone Harbor, H. G. Richards. A short section of finger.

USNM 371933, Cape May Formation, Two Mile Beach, H. G. Richards. A short, stocky propodal finger with well developed molar complex.

USNM 371934. Cape May Formation, Two Mile Beach, H. G. Richards. Five central portions of right propodal fingers of half- to full-grown individuals, three central portions of left propodal fingers of comparable size, two proximal portions of probable left dactyls of large crabs, and three other pieces possibly broken from above.

USNM 371936. Cape May Formation, Two Mile Beach, H. G. Richards. Tooth row and tooth sockets on finger, probably a dactyl.

Uncatalogued lot. Brigantine I., Atlantic Co., H. B. Roberts, May 1953. A large, somewhat crushed right chela with proximal half of fingers.

Remarks.—Resolution of the taxonomic confusion surrounding the correct name for *C. sapidus* by Holthuis (1962) greatly simplifies both discussion of the species' systematic history and variability over its range. From Latreille's (1825) description, it is apparent that the original material from Philadelphia (possibly not the actual site of collection) indeed represented the "typical" form from eastern North America. Holthuis' selection of a lectotype from this material and Williams' (1965) restriction of the type locality to "east coast of the United States" support the facts as well as they can be known today. Search of the collection at ANSP revealed no specimens of *C. sapidus* that date from the time of Latreille, and it is almost certain that specimens on which he based his description are lost. There is no need now to designate a new type specimen, indeed selection of a neotype would not be in keeping with the spirit of the International Code (Art. 75), for no complex zoological problem now depends upon a specimen for its solution in this case.

The earliest "scientific" treatment of the species (Bosc, 1802) was more a natural history account than a description, the name *Portunus hastatus* being taken from a description paraphrased from J. C. Fabricius (1798) that applied to the European species originally described as *Cancer hastatus* by Linnaeus (1767).

I consider the whole *C. sapidus* complex to be a single species which has diverged into ill defined populations in certain portions of its range. The "acutidens" form predominates over most of the latitudinal range, but there are variations. Among these are "typical" features that reach their most pronounced expression in the population along the east coast of the United States. Taxonomic thinking of biologists has been clouded by the fact that the form originally described was the North American variant which became the standard against which all comparisons were made.

Callinectes sapidus is the member of the genus which has most successfully invaded the Temperate Zone, and in this respect it may be that speciation into forms associated with temperature regimes is progressing, but the process is not yet complete enough that morphological separation is distinct.

Material.—Total: 460 lots, 1,500+ specimens.

Specimens listed in Rathbun (1930) from USNM (45656 and 26092 not found), MCZ, and BMNH.

USNM. 284 lots, 1,060+ specimens, including the following not cited above plus 7 lots and 13 specimens from undetermined localities and 2 lots of fingers from Indian mounds.

UNITED STATES

Massachusetts: 122952, Deadneck, Cotuit, Barnstable Co., 1 July 1949, 1 ♂, 3 ♀ (juv), H. E. Winn.

New York: 63260, Sing Sing [Ossing], no date, 1 ♂, 1 ♀, A. K. Fisher.

New Jersey: 63177, 63178, 63181, off New England Creek, 19 Oct. 1929, 2 ♂, 1 ♀ (juv), H. G. Richards. 63179, 1 mi off Dennis Creek, 13 Aug. 1929, 3 juv, H. G. Richards. 77006, 77041, Dennis Cove, 13 and 25 Aug. 1929, 61 juv, H. G. Richards. 77007, 77040, Barnegat Bay, Lavalette, 15 Aug. 1931, 2 ♂, 3 ♀, 4 juv, H. G. Richards.

Delaware: 77037, Delaware Bay near Woodland Beach, no date, 1 ♂ (juv), Coltam and Saylor. 63180, Mispillion River, 10 July 1929, 1 ♂ (juv), H. G. Richards. 77039, Mispillion Cove, 26 Aug. 1931, 3 ♂ (juv), H. G. Richards.

Maryland: 92452, Wye River, 16 Aug. 1951, 1 ♂, M. Sandoz. 113230, Sullivan Cove, Severn River, 31 Aug. 1966, 1 ♂, deformed chela, B. Truett. 77036, Lake Ovington, near Bay Ridge, 19 July 1936, 3 ♂, 2 ♀ (juv), C. R. Aschemeir. 76996, mouth Patuxent River, Solomons I., 16 July 1934, 2 ♀ (juv), P. Bartsch. 77033, Coster, about 3 mi N Solomons I., no date, 1 ♂, deformed chela, B. Coster. 67646, Coster, no date, 1 ♀, albino, W. Everett. 76148, Point Lookout, 9 Sept. 1932, 1 ♀ (juv), E. Bowles. 77004, Ridge, St. Marys Co., 26 Apr. 1930, 1 ♂ (juv), W. H. Ball. 76129, Blakistone I., 9 Sept. 1932, 1 ♀ (juv), E. Bowles. 66326, Herring Creek (Lower Potomac), 31 July 1929, 5 ♀ (juv), B. A. Bean. 66328, 77000, Riverside, 21 Nov. 1912, 2 ♂, 3 juv, U.S. Bur. Fish. 66614, Cobb I., Rock Point, Potomac River opposite Colonial Beach, 14 Aug. 1931, 1 ♂, E. D. Reid, W. L. Brown, and W. Pike. 75448, Analoan I., Potomac River at Georgetown, D.C., 11 Sept. 1930, 2 ♂, W. Reynold. 81473, 81474, Crisfield, 7 Oct. 1941, 41 juv, W. L. Schmitt. 95733, off Smiths I., 20 Aug. 1953, 1 ♂, partial albino, J. M. Ingley.

Virginia: 61146, Tangier, Dec. 1927, 1 deformed chela, J. Parks. 76998, Smiths I., 5 July 1935, 4 juv, W. H. Ball. 77034, Smiths I., Northampton

Co., 6 July 1935, 1 ♂, Lombino. 63320, Cape Charles, no date, 1 ♂, 1 ♀ (juv), H. G. Richards. 112857, Chesapeake Bay (believed to be in southwest middle grounds area), 15 Oct. 1964, 1 ♂, H. A. Martin. 67739, Elizabeth River, Portsmouth, 16 June 1933, 1 ♂, deformed chela, W. L. Hughes. 81483, Craney Island Lab., Norfolk, no date, 1 ♀ (juv), F. F. Ferguson. 81485, U.S. Public Health Serv., Craney I., Norfolk, Aug. 1940, 1 ♀, F. F. Ferguson. 76184, Virginia Beach, 4 July 1932, 2 carapaces (dry), G. E. Brandt.

North Carolina: 107137, Currituck Sound, 15 Nov. 1960, 1 ♂ (juv), J. A. Kerwin. 122964, Currituck Sound, no date, 1 ♂ (juv), J. R. Davis. 60601, Hatteras, May 1927, 67 ♂, 23 ♀, A. J. Poole and R. Kellogg. 107477, approx. ½ mi S Silver Lake Inlet and Ocracoke Village, 6 Aug. 1958, 2 ♀, col. unknown. 62462, Gallant Point, Beaufort Harbor, 13 Sept. 1928, 3 ♀ (juv), Schmitt and Shoemaker. 76999, Beaufort, no date, 1 ♂, col. unknown. 77002, Newport R. above "narrows," Beaufort, 3 Apr. 1931, 1 ♂ (juv), S. F. Hildebrand. 77003, Beaufort, 29 Sept. 1929, 1 ♂ (juv), Hobbs and Maloney.

South Carolina: 17191, South or North Carolina, no date, 1 ♀, *Fish Hawk* Stn. 6850.

Florida: 99892, Sewall Point, Martin Co., 27 Feb. 1955, 1 ♂ (juv), D. K. Caldwell, et al. 122944, Deep Lake, Miami, 5 Apr. 1952, 2 ♂, H. Field and Y. Lazor. 122949, Little Duck Key on S side of Rt. 1, Dade Co., 21 Dec. 1962, 1 juv, E. Kotkas and R. Chandler. 122950, Beach area and tidal flats on S ridge of Bahia Honda Key, Monroe Co., 3 Aug. 1965, 1 juv, N. R. Foster and D. G. Smith. 71606, S side of County Road, Key West, 13 Nov. 1922, 1 juv, Stephenson. 77038, Marquesas Keys, 11 Aug. 1931, 7 juv, A. S. Pearse. 77031, between Long and Bush Key, Tortugas, 26 July 1931, 1 ♀, A. S. Pearse. 77030, Tortugas, 25 June 1931, 1 ♂, W. L. Schmitt. 122958, Charlotte Harbor, 13 Sept. 1939, 1 ♀ (juv), USFWS Launch 58, hauls 1, 2, 3. 122953, Sarasota near Cape Haze Marine Lab., 26 Jan. 1966, 1 ♀, 4 juv, R. F. Cressey and R. H. Brown. 122954, Sarasota, near Cape Haze Marine Lab., 27 Jan. 1966, 2 juv, R. F. Cressey and R. Brown. 71654, Sarasota Bay, summer 1930, 4 juv, W. W. Wallis. 122943, Homasassa Springs, 30 Mar. 1946, 1 ♂, Herald and Strickland. 122929, Hernando Co., Gulf of Mexico, Gulf Beach and March outlet to Gulf at Pine I., 8 mi NW Weekiwachee Springs, 7 Apr. 1955, 2 ♂, 3 ♀ (juv), R. D. Suttkus and Sylvia A. Earle. 77566, Cedar Key, 25 Jan. 1938, 1 ♂, 15 juv, C. R. Aschmeier. 98085, Choctawatchee Bay,

no date, 1 deformed chela, col. unknown. 122951, Florosa, Okaloosa Co., 3 Dec. 1941, 4 ♂ (juv), W. F. Blair. 66753, Florida, no date, 1 ♂, 1 ♀, Ross Allen.

Alabama: 81480, Big Lake, Gulf State Park, 14 Oct. 1939, 1 ♂, col. unknown.

Mississippi: 85543, Mississippi Sound, east end, 1 Sept. 1947, 1 ♂, J. W. Ward, et al. 122947, inside Petit Bois I., Mississippi Sound, 20 Apr. 1967, 1 ♂, 2 ♀, *George M. Bowers* Stn. 4, 5.5 m. 122938, Simmons Bayou trib. to Davis Bay, 2 mi SE Ocean Springs, 2 Aug. 1957, 1 ♂ (juv), R. D. Suttkus. 90299, S side of Cat I., Mississippi Sound, 9 Aug. 1949, 1 ♀ (juv), col. unknown. 2028, Washington [Adams Co.], no date, 1 ♂, Wailes. 77035, coast, May 1937, 1 ♀, J. S. Dolley.

Louisiana: 69676, Ycloskey [Bernard Parish], 10 June 1934, 2 ♀, J. N. Gowanloch. The following from Point aux Herbes, Lake Pontchartrain, 122940, 15 July 1955, 4 ♂, 18 ♀ (juv), R. R. Lubritz. 122939, 22 June 1955, 83 juv, R. R. Lubritz. 122927, 4 June 1955, 80+ juv, R. D. Suttkus. 122926, 4 June 1955, 1 ♂, 1 ♀ (soft), R. D. Suttkus. 122928, W Pearl River immediately above, N of Mill Bayou, St. Tammany Parish, 11 Aug. 1955, 1 ♀, M V *Lyman* Stn. 136. 122934, ¼ mi up West Pearl River from mouth, St. Tammany Parish, 11 Aug. 1955, 1 ♀, M V *Lyman* Stn. 138. 122933, Lake Pontchartrain, Salt Bayou, 9 June 1955, 10 juv, R. D. Suttkus. 122935, 2.5 mi NW Salt Bayou on Pearl River, St. Tammany Parish, 11 Aug. 1955, 1 ♀, M V *Lyman* Stn. 143. 122936, ¼ mi SE West Pearl River Bridge, Lake Pontchartrain, St. Tammany Parish, 11 Aug. 1955, 1 ♂, M V *Lyman* Stn. 144. 122930, Lake Pontchartrain, first point W Liberty Bayou, 9 June 1955, 2 juv, M V *Lyman* Stn. 18. 122931, St. Joe Channel [Lake Pontchartrain], 21 June 1954, 2 parasitized, Patursan and Peterson. 97992, Lake Pontchartrain just S mouth of Tanipahoa River, 17 Oct. 1953, 11 ♂, 2 ♀, R. M. Carnell. 96990, Lake Pontchartrain, no date, 1 ♀ parasitized, col. unknown. 96322, Rigolets, Lake Pontchartrain, 29 Oct. 1953, 1 ♀ deformed carapace, L. Eddy. 122932, Rigolets at Lake Borgne, 7 June 1955, 1 ♀ (juv), R. D. Suttkus. 122960, Lake Pontchartrain at mouth of Tchefuncta River, St. Tammany Parish, 1 Apr. 1948, 2 ♀, R. M. and M. K. Bailey. 122945, Lake Pontchartrain, Aug. 1962, 1 ♂, J. Q. Burch. 64145, off Breton I., Nov. 1930, 1 ♂, S. Springer. 122963, 3-6 mi ESE of SW Pass, 16 Feb. 1934, 1 ♂, T. C. D., M. J. L., and W. W. A. 122959, [S of Plaquemines Parish] 29°01'N, 89°33'W, 8 July 1938, 1 ♀, *Pelican* Stn. 77-2. 105317, Baratavia Bay, Jefferson

Parish, 27 Feb. 1960, 1 ♂, 4 ♀ (parasitized), E. H. Behre. 122937, Grand Isle, 3 Feb. 1957, 1 ♂, 1 ♀, R. D. Suttikus. 122961, [off Caillou Bay] 28°39.5'N, 91°04.5'W, 11 July 1938, 1 ♀, *Pelican* Stn. 81-2. 122962, on 9-fathom line between Ship to Trinity Shoal Buoy, 28°39.5'N, 91°04.5'W, 11 July 1938, 3 ♀, *Pelican* Stn. 81-2. 122956, 28°51.5'N, 91°33'W to 28°56.5'N, 91°50'W, 11 July 1938, 2 ♂, 2 ♀, *Pelican* Stn. 82-1 to 82-5. 5509, Louisiana, 1883, 2 ♂, 1 ♀, R. W. Shufeldt.

Texas: 78397, Galveston Bay, Galveston Co., 16 Apr. 1939, 3 ♀, C. E. Burt. 122957, Galveston, 4 May 1941, 1 ♂, 3 ♀ (2 juv), J. L. Baughman. 122955, Galveston south of ferry landing, 27 Aug. 1965, 1 ♀ (juv), J. McCain. 122948, south end, west side new Galveston-Houston causeway, Galveston, 24 Aug. 1965, 1 juv, J. C. McCain. 122946, 17 mi S, 7 mi E Alvin, Brazoria Co., 28 July 1952, 1 ♂, S. Alvin. 122942, Freeport, 12 May 1940, 1 ♀ (ov), J. L. Baughman. 122941, Alligator Head, Matagorda Bay, no date, 13 juv of ♀ form parasitized (dry), J. D. Mitchell. 81479, Aransas Pass, 8 July 1941, 1 ♂, 2 ♀ (soft and 2 parasitized), J. L. Baughman. 99243, Laguna Madre, 15 mi N of Port Isabel, 24 Jan. 1956, 2 juv, col. unknown. 71663, Texas, no date, 1 ♂, C. T. Reed. 81475, Texas, no date, 1 ♂ (juv), col. unknown.

JAMAICA

120626, Fresh River headwaters, N end of Caymanas Plantation, St. Catherine Parish, 7 Apr. 1959, 1 ♂, Hart, G. Thomas, R. Bengry, Thornton.

PUERTO RICO

80667, no date, 1 ♀ (recently ov, bearing jar label 'nov. var?'), S. T. Danforth. 77044, Río Canovanillas, Canovanas [18°23'N, 65°55'W], 16 Feb. 1934, 2 ♂, S. F. Hildebrand.

VIRGIN ISLANDS

The following from St. Croix: 71524, Fairplain, no date, 1 ♂, 1 ♀ (juv), H. A. Beatty. 71794, Fairplain Stream, Dec. 1934, 1 ♀ (juv), H. A. Beatty. 72337, Fairplain Stream, 1935-36, 1 juv (soft), H. A. Beatty. 72356, Fairplain stream below bridge, 1935-36, 2 ♂, H. A. Beatty. 77032, on sea coast, Rust-op-Twist, no date, 1 ♀, H. A. Beatty.

GUATEMALA

123096, Atlantic at Punta Marrabique, N of Puerto Barrios, 1 May 1947, 1 ♂, R. R. Miller. 123097, Lago de Izabal, 26 Apr. 1947, 1 ♂, Miller et al.

COSTA RICA

113278, Tortuguero, May 1964, 1 ♂, 1 ♀, D. P. Kelso.

PANAMA

77043, Gatun Locks, C.Z., 21 Feb. 1935, 12 juv, S. F. Hildebrand.

VENEZUELA

The following from Golfo de Venezuela: 123099, 11°46'N, 71°16'W, 6 Oct. 1965, 1 ♀, *Oregon* Stn. 5670. 123095, 11°33'N, 71°31'W, 6 Oct. 1965, 1 ♀ *Oregon* Stn. 5672. 123100, 11°27'N, 71°39'W, 6 Oct. 1965, 4 ♀, *Oregon* Stn. 5673. 80649, Lago de Los Pájaros, 1 km above Lago de Maracaibo, 30 Apr. 1942, 2 ♂, L. P. Schultz. 80650, Lago de Maracaibo, 20 Feb. 1942, 2 ♀ (juv), L. P. Schultz. 80651, Lago de Maracaibo, 7-9 Apr. 1942, 2 ♂, L. P. Schultz. 80652, Cáno de Sagua, 25 km N Sinamaica, 12 Mar. 1942, 3 ♀, L. P. Schultz.

BRAZIL

Rio de Janeiro: 77042, Recreio dos Bandeirantes, 9-16 Feb. 1935, 1 chela, D. M. Cochran. Santa Catarina: 123098, Nov. 1965, 1 ♀ (juv), Jones-Lowe.

URUGUAY

99848, Roca Arroya de Balizas [= Valizes?], Jan.-Feb. 1953, 2 ♀, R. Vaz-Ferreira.

AHF. 6 lots, 10 specimens.

UNITED STATES

Florida: Pompano Beach, Sept. 1943, 1 ♀, E. R. T. Marco I., Collier Co., 10 Mar. 1946, 1 ♀ (juv), *Velero* A87-46. Santa Rosa Sound at Camp Navarre, 12 May 1949, 2 ♂, Stn. LM4-49.

Louisiana: Lake Borgne, 27 Aug. 1954, 1 ♀, R. Darnell.

MEXICO

Veracruz: Drainage ditch 5 mi W Veracruz, 19 Aug. 1949, 1 ♀ (juv), B. W. Halstead. Boca del Río, 9 Aug. 1949, 1 ♂, 3 ♀, B. W. Halstead.

AMNH. 19 lots, 26 specimens, including 4 lots with no data.

UNITED STATES

Massachusetts: 1002, Chappaquiddick I., Martha's Vineyard, 28 July 1909, 1 ♂ (dry), R. W. Miner.

New York: 221, New York Harbor, no date, 1 ♂, 1 ♀, L. P. Gratacap. 6267, Mastic, Long Island, Aug. 1930, 1 ♂, J. T. Nichols. 9856, Hudson River opposite Spuyten Duyvil, Sept. 1945, 1 deformed chela, J. Dvorak. 9778, Sheepshead Bay, N.Y. City, 1944, 1 ♂, H. Savalli. 6316, Freeport, Long Island, 5 Oct. 1930, 1 ♀, F. Limekiller. 6258, Inner Harbor, Cold Spring, Long Island, 26 July 1930, 1 ♂, C. H. Curran. 983, Fort Schuyler, N.Y. City, no date, 1 ♂, and extra chelae, E. Forshan.

New Jersey: 6491, Newark Bay, foot 27 St., Bayonne, 28 Aug. 1931, 1 ♂ (deformed chela), K. Wangler. 6653, Barnegat Bay, no date, deformed right chela (dry), col. unknown.

Florida: Lake Worth, July-Aug. 1945, 1 ♀, W. G. Van Name and A. H. Verrill. 10249, Destin, 29 July 1948, 6 juv, L. A. Burry.

BAHAMAS

Nassau and Andros I., Mar.-Apr. 1930, 1 ♀, Bacon-Miner Exped. and International Exped. to Andros.

CUBA

1024, 1913, 1 juv, J. T. Nichols.

PUERTO RICO

2787, Tallaboa [18°00'N, 66°43'W], 29 July 1914, 1 ♂ (juv), R. W. Miner.

ANSP. 26 lots, 41 specimens.

UNITED STATES

North America: 35, [Delaware Bay], no date, 1 ♀ (dry) Blanding.

New Jersey: 2798, along coast, no date, 2 ♀ (dry), W. M. Wood. 2933, Ventnor, Aug. 1928, 1 deformed chela (dry), R. D. Benson, Jr. 3659, Great Egg Harbor, no date, 1 ♂ (dry), S. Ashmead. 3604, Point Breeze, Delaware River, no date, carapace, F. L. LeCompte. Delaware River, 30 July 1951, 2 ♂, 1 ♀, J. Bates.

Maryland: Potomac River at Popes Creek, Charles Co., Aug. 1966, 3 ♂, 1 ♀ (juv), S. L. H. Fuller. Potomac River ¼ mi above Lower Cedar Pt., WNW Morgantown, Charles Co., Aug. 1966, 3 ♀ (juv), S. L. H. Fuller. 3492, Chesapeake Bay, no date, 1 ♂ (dry), from U.S. Explor. Exped.

Virginia: York River, 31 May 1956, 1 ♀, F. A. Aldrich. York River, 2 June 1956, 3 ♀ (1 ov), F. A. Aldrich. York River, 21 Sept. 1956, 1 ♂, 1 ♀, F. A. Aldrich. James River, 17 June 1957, 1 ♂, F. A. Aldrich.

North Carolina: 4873, Fort Macon, 2 ♀, Yarrow.

Florida: 3481, Key West, no date, 1 ♀ (juv), S. Ashmead. 3569, Manatee River, no date, 1 ♂ (dry), S. Ashmead.

Texas: Houston-Galveston Ship Canal, July 1954, 1 ♂, 1 ♀ (juv), F. A. Aldrich. Cow Bayou, trib. of Sabine River, Orange Co., 11 Aug. 1962, 1 ♂, C. W. Hart, Jr. Sabine River, Orange Co., 9 Aug. 1962, 2 ♂, C. W. Hart, Jr. Sabine River, N of Sabine I., Orange Co., 13 Aug. 1962, 2 ♂, C. W. Hart, Jr.

CUBA

4697, Cojimar near La Habana, 10 July 1940, 2 ♀, R. A. McLean.

DOMINICAN REPUBLIC

3519, no date, 1 ♂ (dry), W. M. Gabb. 2957, no date, 1 ♀ (dry), W. M. Gabb.

PUERTO RICO

3179, off Guánica Harbor, no date, 1 ♂ (dry), Fowler.

PANAMA

1305, no date, 1 ♀ (juv), McNeil Exped.

BRAZIL

3514, no date, 3 ♂ (dry), T. B. Wilson.

BMNH. 15 lots, 28 specimens.

UNITED STATES

Connecticut: 98.5.7.312, Long Island Sound, 1 ♂, 1 ♀, Norman. 80.26, New Haven, 1 ♀, Norman.

New Jersey: 98.5.7.317/18, 3 ♂, 1 ♀ (juv) Verrill and Smith. Unreg., Cape May, 1 ♂ (dry) vi/9, J. K. Townsend. Unreg., 1 ♀ (juv, dry) vi/6.

Maryland: 1964.9.7.13, Chesapeake Biological Lab. Pier, Solomons, 1 ♂ (juv), F. J. Schwartz and A. C. Edwards. 1964.9.7.14/16, Patuxent River at Evans pier, Solomons, 1 ♂, 1 ♀ (juv), A. C. Edwards and F. J. Schwartz.

Florida: 1966.12.5.555/557, coast of Everglades Park, 3 juv, U. Miami, Inst. Mar. Sci. 1966.12.5.667, 1 ♂, Univ. Miami, Inst. Mar. Sci. 1966.12.5.666, 1 ♂, Univ. Miami, Inst. Mar. Sci. 1966.12.5.668/671, 4 juv, Univ. Miami, Inst. Mar. Sci.

TOBAGO

1925.1.28.11/12, 1 ♂, 1 ♀, P. L. Guppy.

TRINIDAD

1940.7.8.15, 1 ♂, A. K. Totton.

BRAZIL

Unreg. 1 ♀ (juv, dry) vi/6, col. unknown.

MCZ. 42 lots, 159 specimens.

BERMUDA

5122, no date, 1 ♀ (juv), Bickmore.

UNITED STATES

Massachusetts: 322, Cohasset, 1922, 1 ♀, J. A. Murphy. 5110, Naushon I., Buzzards Bay, 1873, 2 ♀, W. Faxon. 333, Pocasset, 1919, 1 ♀, J. A. Cushman.

Connecticut: 5563, New London, no date, 2 ♂, 3 ♀, G. G. Hammond, Aug. 1876. 8510, New London, no date, 3 ♂, 10 ♀, G. G. Hammond, 1876.

New York: 332, Fishers I., 1874, 1 ♀ (ov), Hyatt and Rathbun. 5471, 1 ♂, 2 ♀, L. Agassiz, 1859.

New Jersey: 5112, Somers Point [N shore across from Ocean City], no date, 3 ♂, 3 ♀, W. Stimpson, recd. Oct. 1864. 5212, Somers Point, no date, 50 juv, W. Stimpson, recd. Dec. 1864.

Maryland: 5117, Baltimore, 1860, 2 ♂, A. Hyatt.

North Carolina: 11351, 2 mi SE Roanoke I., 19 Dec. 1940, 1 ♂, R. Foster. 11353, 5 mi SW Nags Head, near Roanoke I., Dec. 1940, 1 ♂ (juv), R. Foster. 5113, Beaufort, no date, 3 ♂, 3 ♀ (juv), A. S. Bickmore.

South Carolina: 5116, Waccamaw, no date, 1 ♀, L. Agassiz. The following from Charleston: 5114, no date, 2 ♂, 2 ♀, L. Agassiz (part of Ordway's material). 5202, no date, 2 ♂, 12 ♀, col. unknown. 8751, no date, 1 ♂, 1 ♀, T. Lyman.

Georgia: 5201, May 1859, 1 ♂, T. S. Allanson.

Florida: 5205, June 1859, 1 ♀, G. Wurdemann. 8752, no date, 6 ♂, col. unknown. 11936, Key West, May 1940, 2 juv, J. R. Miller. 5118, Tortugas, 2 ♂, Jacques, from Peabody Acad. Sci. Nov. 1885. 5203, Fort Jefferson, Tortugas Is., no date, 2 ♂, col. unknown. 10163, Sanibel I., Mar. 1938, 3 ♂, 3 ♀, F. A. Chace, Jr. 5119, Charlotte Harbor, 1 ♂, L. Gibbs, recd. 13 Feb. 1861. 8334, Lemon Bay and Gulf, Englewood, Sarasota Co., Jan.-Apr. 1935, 2 ♂, 2 ♀, 3 juv, D. J. Zinn.

Alabama: 5204, Mobile, no date, 1 ♂, 1 ♀, 2 juv, L. Agassiz.

Mississippi: 11942, Ship I. off Biloxi, June 1941, 1 juv, J. R. Miller.

Louisiana: 12046, Bayou La Fourche near Shriever, June 1941, 1 ♂, J. R. Miller.

Texas: 5120, no date, 1 ♂, G. Wurdemann. 5121, Galveston, 1871, 1 ♀, Boll.

CUBA

5123, La Habana, no date, 1 ♂, S. Garman. 10887, Cienfuegos [22°09'N, 80°27'W], 19 Feb. 1938, 1 ♀, Harvard-Havana Exped.

HAITI

5213, Jérémie. Apr. 1865, 1 ♂, 1 ♀, D. F. Weinland.

MEXICO

Yucatán: 8623, Progreso, 1904, 1 ♂, L. J. Cole.

BRAZIL

The following from Rio de Janeiro: 5126, no date, 1 ♂, Thayer Exped., recd. 1865. 5127, no date, 1 ♂, Thayer Exped. Estado de Rio Grande do Sul: 4699, Rio Grande, June 1861, 1 ♂, Harrington.

MNB. 1 lot, 1 specimen.

BRAZIL

Santa Catarina: 57, Ponta do Farol, São Francisco do Sul, 1 ♀, recd. July 1901.

MNHNP. 1 lot, 1 specimen, plus 3 specimens in old dry collection.

FRANCE

Rochefort, 1900, 1 ♂, from M. Vieuille.

RMNH. 49 lots, 109+ specimens.

UNITED STATES

East coast of N America, Sept. 1836, 1 ♂, 1 ♀, G. Troost.

Connecticut: 401, New Haven, no date, from Smithsonian Inst.

New York: 13790, Shinnecock Bay, Long Island, Oct. 1955, 4 juv, A. Perlmutter.

New Jersey: 15253, Creek at Stone Harbor, Cape May Co., 8 May 1960, 2 ♀, juv, J. L. Scheltema.

Delaware: 11407, 11408, Delaware Bay, juv, date and col. unknown. 11344, Delaware Bay about 1 mi off Lewes, Sussex Co., 27 Apr. 1957, 1 ♀, L. B. Holthuis.

Maryland: 14616, Mouth of Potomac River, Point Lookout, St. Marys Co., 20 Mar. 1960, 2 ♀, J. L. Scheltema. 9827-9832, Chesapeake Bay, series of juv from 6 localities, date and col. unknown. 9833, mouth of harbor at Snowhill Landing, Snowhill, Worcester Co., 30 Sept. 1952, 1 ♂, juv, L. B. Holthuis. 9836, northern portion of Chincoteague

Bay, N of Snowhill, Worcester Co., 29 Sept. 1952, 1 ♂, 1 ♀, L. B. Holthuis. 9837, Johns Creek at mouth of St. Leonards Creek in cove of Patuxent River, W of Lusby, Calvert Co., 16 May 1953, 1 ♀, L. B. Holthuis.

Virginia: 9838, Harborton, Accomack Co., 28 Sept. 1952, 1 ♀, L. B. Holthuis.

Florida: The following from Biscayne Bay—21351, off Rickenbacker Causeway, 1 Feb. 1965, 1 ♀, J. A. Cabrera and L. B. Holthuis. 23432, near Mathesan Hammock S of Miami, 3 Jan. 1965, 1 ♂, juv., L. B. Holthuis. 21346, S of Rickenbacker Causeway, Miami, 4 Feb. 1965, 1 ♀ (ov), L. B. Holthuis. The following from Bear Cut near Marine Lab., Virginia Key—24258, 1 Sept. 1965, 1 juv., J. A. Cabrera and L. B. Holthuis. 24259, 22 Dec. 1964, 1 juv., L. B. Holthuis. 18710, 2-9 Sept. 1963, 1 ♀, L. B. Holthuis. 15635, Marco Beach S of Marco, washed ashore by hurricane Donna, 12 Sept. 1960, 1 ♀, L. B. Holthuis. 15634, mangroves near Marco Beach S of Marco, 12 Sept. 1960, 1 ♀ (juv.), L. B. Holthuis.

PUERTO RICO

23465, Rio Guánica, 15 Sept. 1963, 1 ♂, 1 ♀, P. W. Hummelinck.

TRINIDAD

23404, mouth of Diego Martin River [5 mi NNW Port of Spain], 1965-66, 2 ♂, H. O. von Hagen. 17738, Matura, NE coast of island, 19 June 1961, 1 ♂, I. Kristensen.

CURAÇAO

11881, Waaigat, Willemstad, 30 Jan. 1957, 2 ♀, L. B. Holthuis.

NETHERLANDS

23434, Friesland, washed ashore, 7 May 1967, 2 ♂, 1 ♀, T. P. Broerse. 24754, southern North Sea 25 mi NW Ijmuiden [14 mi WNW Amsterdam], 19 Jan. 1968, 1 ♀, Rijks. Inst. Visserij Onderzoek. Beach at Dishoek between Flissingen and Zoutelande, Zeeland, 20 Jan. 1967, a large right swimming leg (dry), G. R. Heerebout. Washed ashore at Vlissingen in cooked condition, Aug. 1950, carapace of adult ♀ (dry), A. C. Visser.

GREECE

Delta area of Axiós and Gallikós near Pírgos, Thessaloníki, 15 June 1964, part of ♀ carapace and abdomen, from shallow water in *Salicornia* fields, from fisherman, W. J. Wolff and M. Loosjes. 18689,

fishmarket in Thessaloníki, from Gulf of Thessaloníki, 14 Mar. 1963, 1 ♀, R. Kinzelbach. Beach at Strimonikós Kólpos (= Gulf of Orfani) near Aspróvalta, about 15 km W Tsgezi (= Iraklitsa), 10 Mar. 1963, 2 rather worn carapaces (dry), R. Kinzelbach. 13082, Aegean Sea near harbor of Pórto Lágo, 29 June 1959, 2 ♀, C. Swennen.

TURKEY

21148, on S coast near Silifke (Seleucia), 19 Aug. 1964, 1 ♀, Turkey Excursion, 1964 from Hamburg Mus. 13137, E coast of Akyatan Lagoon 45 km S Adana, 18 May 1959, 4 ♂, 2 ♀.

ISRAEL

The following from Naaman River S of Acre: 18829, mouth of River, 2 Feb. 1955, 1 ♂ (juv.), A. Perlmutter. 13795, near Acre, 13 Oct. 1955, 2 juv., A. Perlmutter. 13794, same, 17 Aug. 1955, 1 ♀, E. Gottlieb. 17840, between railroad bridge and mouth, 30 Apr. 1962, 2 ♂, 3 ♀, L. B. Holthuis. Mouth of river, 30 April 1962, carapace and chelae of 2 or more individuals (dry), L. B. Holthuis. 18832, Lagoon on Kishon River, N of Haifa, 31 Jan. 1955, 1 ♀, Sea Fish Res. Stn., Haifa. 10722, Mouth of Tiphlis River near Tantura, about half-way between Cesarea and Atlit, 26 Oct. 1955, 1 ♂ encrusted with *Chelonibia patula* (Ranzani), A. Perlmutter. 13793, Mouth of Hefzibah [Hadera?] River near Hadera, 21 Nov. 1951, 1 ♀ (juv.), E. Gottlieb. 13792, Hefzibah, 21 Nov. 1951, 1 ♀ (juv.), E. Gottlieb. 13791, Alexander River near mouth [S Hadera], 20 Dec. 1955, 1 ♀ (juv.), E. Gottlieb.

SADZ-B. 7 lots, 27 specimens.

BRAZIL

Rio de Janeiro: 3240, Atafona, 12 July 1963, 10 ♂, 8 ♀, N. Meneses. 1721, Atafona, 1964, 1 ♂, N. Meneses. 950, S. João da Barra, Nov. 1911, 1 ♀, E. Garbe.

São Paulo: 1814, Santos, 11 Sept. 1962, 1 ♀, G. Melo. 1727, Guarujá, Jan. 1920, 1 ♀, Hempel.

Santa Catarina: 664, Itajaí, Dec. 1914, Luederwaldt.

Rio Grande do Sul: 3234, Praia de Torres, 5 Oct. 1964, 1 ♂, 2 ♀ (1 ov), J. Bertoletti.

UNC-IMS. 8 lots, 34+ specimens.

UNITED STATES

Delaware: 1853, Near Port Mahon, 1 July 1954, 2 ♀, H. J. Porter.

North Carolina: 2246, West Bay near Cedar I., Pamlico Sound, Carteret Co., 21 July 1969, 2 ♀ (ov), includes smallest mature ♀ on record, from fisherman. 821, Neuse River near New Bern, Craven Co., 24 July 1957, 1 ♂ (juv), Tagatz and Dudley. 738, Neuse River at Smith Farm, near North Harlowe, Craven Co., 1 Oct. 1957, 3 ♂, 1 ♀, juv, Judy and Dudley. 739, Neuse River at North Harlowe, 26 July 1957, 3 ♀ (juv), Tagatz and Dudley. 820, Pivers Island near Beaufort, Carteret Co., 27 May 1957, 1 ♂, 4 ♀ (juv), Talbot and Fischler. 913, off Beaufort Inlet, 26 Nov. 1959, 4 ♀ (3 ov), covered with *Chelonibia*, H. J. Porter.

PUERTO RICO

2136, Fresh water canal, 5 km S Lajas, 10 Feb. 1967, 3 ♂, 1 ♀ juv.

YPM. 1 lot, 1 specimen.

BRAZIL

6399, Rio Grande, 7 June 1860, 1 ♂ bearing *Chelonibia*, G. Harrington.

Supplementary literature records.—Nova Scotia (Piers, 1923); Maine and Nova Scotia (Scattergood, 1960); Bermuda (Verrill, 1908a, b); Laguna Madre de Tamaulipas, Mexico (Hildebrand, 1957); Alvarado, Veracruz, Mexico (Contreras, 1930); Dominica (Chace and Hobbs, 1969); Lago de Maracaibo and Golfo de Venezuela (Taissoun, 1969); Quenquén, Buenos Aires, Argentina [?] (Boschi, 1964); Elbe estuary, Germany (Kühl, 1965); Netherlands and North Sea localities (Holthuis, 1969); mouth of Gironde, France (Amanieu and Dantec, 1961); Gulf of Spezia and Genoa Harbor, Italy (Tortonese, 1965); northern Adriatic lagoons, Italy (Holthuis, 1961 [review]); Greece and parts of eastern Mediterranean (Serbetis, 1959); Beirut, Lebanon (George and Athanassiou, 1965); Buḥayrat Idkū and Buḥayrat Manzilah, Egypt (Banoub, 1963).

QUESTIONABLE SPECIES

Rathbun (1907) described *Callinectes alexandri* from Papeete, Tahiti, and Suva, Fiji Islands, on basis of two juveniles, and later (1911) noted a small mature male from Cragados, Carajos [Shoals, Mascarene Islands, Indian Ocean]. Stephenson and Campbell (1959) synonymized this confusing form with *Portunus pelagicus* (Linn.), commenting on its close similarity to

members of *Callinectes* and temporarily questioning the validity of *Callinectes*. Later Stephenson et al. (1968) accepted the generic status quo. Stephenson (1968) confirmed his recognition of *Callinectes* and, after examination of Rathbun's specimens of *C. alexandri*, reidentified the Tahiti and Fiji material as *P. sanguinolentus* (Herbst) and the Indian Ocean specimen as *P. pelagicus*. The history of these bleached specimens emphasizes the difficulty in identifying some juvenile portunid material.

Chen (1933) described *Callinectes platei* on basis of a small male (length 14, width 29 mm), and *C. alcocki* on basis of a small ovigerous female (length 10.5, width including lateral spines 16 mm) from Tuticorin [Madras, India]. There is no sure way to identify these forms because specimens from the Plate collection are apparently no longer in existence. From the descriptions and figures, the two species possibly represent male and female of the same form, a small portunid with internal carpal spine. This alone is enough to remove them from *Callinectes*. Moreover, no known *Callinectes* is ovigerous at the tiny size of this female.

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Errata

Figure 18, p. 706. Letters for parts a and b should be reversed. (a = C.
marginatus, b = C: similis.)

p. 722. Under heading for Callinectes marginatus. 18a, change to 18b.

p. 731. Under heading for Callinectes similis. 18b, change to 18a.

p. 717. Col. 1, line 2, change Paleocene to Paleogene.