

STUDIES ON THE FAUNA OF CURAÇAO AND OTHER  
CARIBBEAN ISLANDS: No. 113.

NOTES ON ANTILLEAN NOTONECTIDAE

by

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Since the publication on Notonectidae of the Antilles (NIESER 1967), the author received various Notonectidae for identification. Material from the region considered here (Antilles, Central and N. America) came from the following sources: more material from the various voyages of Dr. P. WAGENAAR HUMMELINCK to the West Indies; unidentified material from the Copenhagen, Leiden and Oxford Musea and the Zoological Institute at Leningrad.

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The following abbreviations indicate the institute or collection where the material is deposited:

- K Zoological Museum at Copenhagen;
- L Leiden Museum;
- Len Zoological Institute at Leningrad;
- O University Museum at Oxford;
- S Reference collection at Dept. of Systematics, Zoological Laboratory, Utrecht;
- U Zoological Museum at Utrecht.

Synonymy is restricted, especially as regards the species treated in my 1967 publication.

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TABLE 3.

SPECIES AND LOCALITIES OF THE NOTONECTIDAE DISCUSSED IN THIS PAPER

Species	Idaho	Florida	México D.F.	Cuba	St. Thomas	St. John	St. Croix	St. Martin	Barbuda	Marie-Galante	Iles-des-Saintes	Grenada	Trinidad	Bonaire	Curacao
<i>Notonecta indica</i> . . . . .		x	x		x		x				x				
<i>indicoidea</i> . . . . .			x												
<i>irrorata</i> . . . . .	x														
<i>undulata</i> . . . . .		x													
<i>Buena</i>															
<i>antigone</i> . . . . .							x	x							x
<i>albida</i> . . . . .														x	
<i>gracilis</i> . . . . .					x	x	x	x		x		x			
<i>omani</i> . . . . .			x												
<i>pallens</i> . . . . .						x									
<i>pallipes</i> . . . . .										x					
<i>platycnemis</i> . . . . .				x		x									
<i>scimitra</i> . . . . .				x	x		x	x	x					x	x
<i>truxali</i> . . . . .													x		

**Notonecta indica** Linnaeus, 1771*Notonecta indica* LINNAEUS, 1771, p. 534 ("West Indies").*Notonecta indica*; HUNGERFORD 1930, p. 130.*Notonecta indica*; HUNGERFORD 1933, p. 113-117, pl. 1 fig. 2, pl. 13 fig. 3.*Notonecta indica*; NIESER 1967, p. 166-167, fig. 49-51.

U.S.A.; MÉXICO; GUATEMALA; COSTA RICA; COLOMBIA; VENEZUELA; CUBA; JAMAICA; GRAND CAYMAN; HISPANIOLA; PUERTO RICO; ST. THOMAS; ST. CROIX; ST. MARTIN; ST. BARTHÉLEMY; BARBUDA; MARIE-GALANTE; ILES-DES-SAINTES!; BARBADOS; CURAÇAO.

MÉXICO: D. F., Buena Vista, XII.1926, 1♀ (Antipovitsh, Len; bearing a label: *Notonecta indica* L. det. by H. B. Hungerford).

ST. THOMAS: St. Thomas, 1877, 5♂, 1♀, 1 lv (lgt. Baron Eggers, K).

- ST. CROIX: Christianssted, Southgate Pond, 26.II.1906, 1♂, 2♀, 1 lv (lgt. Th. Mortensen, K).  
 ILES-DES-SAINTES: Terre-de-haute, mare haute, alt. 40 m, *Sta.* 760, 6.II.1964, 1♂, 1♀, 3 lv (lgt. Hummelinck, S).

A common and wide-spread species in the Gulf-Region.

### **Notonecta indicoidea** Hungerford, 1927

- Notonecta indicoidea* HUNGERFORD, 1927, p. 250 (México).  
*Notonecta indicoidea*; HUNGERFORD 1933, p. 123-124, pl. 2 fig. 2; pl. 14 fig. 8.  
*Notonecta indicoidea*; ANCONA 1937, p. 239-241, fig. 32, 33.

MÉXICO, Distrito Federal, Hidalgo.

- MÉXICO: D.F., Buena Vista, XII.1926, 1♀ (Antipovitsh, Len; bearing a label: *Notonecta americana* det. by H. B. Hungerford).

### **Notonecta irrorata** Uhler, 1879

- Notonecta irrorata* UHLER, 1879, p. 443.  
*Notonecta irrorata*; HUNGERFORD 1933, p. 92-95, pl. 1 fig. 1, pl. 10 fig. 4, pl. 16 fig. 1.  
*Notonecta irrorata*; RICE 1942, p. 56-57, pl. 1 fig. 1, pl. 2, fig. 1, 7.  
*Notonecta irrorata*; HUTCHINSON 1945, p. 604.  
*Notonecta irrorata*; PENN & ELLIS 1949, p. 159.  
*Notonecta irrorata*; JACZEWSKI 1958, p. 891-895.  
*Notonecta irrorata*; ROBACK, 1958, p. 7.  
*Notonecta irrorata*; WILSON, 1958, p. 144.

CANADA, Quebec, Ontario; U.S.A., eastern part.

- U.S.A.: Florida, Alachua Co., IX.1936, 1♀ (L).

### **Notonecta undulata** Say, 1832

- Notonecta undulata* SAY, 1832, p. 39.  
*Notonecta undulata*; HUNGERFORD, 1930, p. 138.  
*Notonecta undulata*; HUNGERFORD, 1933, p. 117-123, pl. 1 fig. 3, pl. 9 fig. 3, pl. 10 fig. 3, pl. 13 fig. 1.  
*Notonecta undulata*; RICE 1942, p. 57, pl. 1 fig. 2, pl. 2 fig. 2, 10.  
*Notonecta undulata*; HUTCHINSON 1945, p. 604.  
*Notonecta undulata*; PEARCY 1953, p. 199.  
*Notonecta undulata*; RICE 1954, p. 105-132.  
*Notonecta undulata*; MARKS 1958, p. 138-153.  
*Notonecta undulata*; ROBACK 1958, p. 7.

- Notonecta undulata*; WILSON 1958, p. 144.  
*Notonecta undulata*; USINGER 1963, p. 198.  
*Notonecta undulata*; BALDUF 1964, p. 2-4.  
*Notonecta undulata*; SCUDDER 1965, p. 39.

Common in southern CANADA and the northern part of the U.S.A.

U.S.A.: Idaho, Boise Ada Co., 18.VII.1952, 2♂, 1♀ (L. B. Holthuis, L).

In the southern states of the U.S.A. this species is replaced gradually by *N. indica* L. (HUNGERFORD 1933, WILSON 1958), which can be very much alike. The clasper of the genital capsule of the male (Fig. 178), however, separates *N. undulata* easily from *N. indica*, which is in general somewhat stouter.

KEY FOR IDENTIFICATION OF MALES OF BUENOA  
 occurring in the Lesser Antilles east of Puerto Rico and north of  
 Guadeloupe.

- 1a. Stridulatory area of fore femur sword shaped, about as long as three quarters of the width of fore femur at same level, consisting of approximately 60 sclerotized ridges . . . . .  
 . . . . . *B. scimitra* Bare
- 1b. Stridulatory area on fore femur distinctly shorter . . . . . 2
- 2a. Rostral prong about as long as or slightly shorter than third rostral segment. Ocular index small, varying from 0.12-0.08. Fore femur with 3-4 small pegs at apex . . . *B. gracilis* Truxal
- 2b. Rostral prong distinctly longer than third rostral segment . . . . . 3
- 3a. Tylus (the more or less swollen base of rostrum) inflated with wide median impression, so that the edges form blunt carinas . . . . . *B. albida* (Champion)
- 3b. Tylus not with wide median depression . . . . . 4
- 4a. Greater species, length 6.5 mm or more . . . . . 5
- 4b. Smaller species, length less than 6 mm. . . . . 6
- 5a. Stridulatory area on fore femur absent, length 8.5 mm or more . . . . . *B. macrophthalmia* (Fieber)

- 5b. Stridulatory area on fore femur present, length about 8 mm or less. . . . . *B. antigone antigone* (Kirkaldy)
- 6a. Length about 4.7 mm. Length of pronotum about 1.5 times or less the length of head (measured along median longitudinal axis) . . . . . *B. confusa* Truxal
- 6b. Length 4.6 mm or more. Length of pronotum about 1.6 or more times the length of head, in specimens under 5 mm this ratio is more than 2.0 . . . . . 7
- 7a. Pronotum not or faintly tricarinate. Fore femur gradually tapering towards apex, length of femur more than three times its width at apex. Rostral prong originating about halfway the third rostral segment (Fig. 180) . . . *B. pallens* (Champion)
- 7b. Pronotum distinctly tricarinate. Fore femur not gradually tapering towards apex, length of femur less than three times its width at apex. Rostral prong originating near distal end of third rostral segment (Fig. 181-182). . . . . 8
- 8a. Rostral prong in side view projecting before the anterior border of third rostral segment (Fig. 182). Posterior margin of pronotum not or very slightly excavate. Ratio length of pronotum: length of head about 2.5 . . . . . *B. platycnemis* (Fieber)
- 8b. Rostral prong in side view not projecting before the anterior margin of third rostral segment (Fig. 181). Posterior margin of pronotum distinctly excavated. Ratio length of pronotum: length of head about 3 . . . . . *B. pallipes* (Fabricius)

Of the species treated in this key, two have not yet been recorded actually on the islands considered: *B. confusa* has a wide range, Canada, U.S.A., over Florida to Grand Cayman and Grenada; *B. macrophthalma* is known from Cuba, Hispaniola, Jamaica and Puerto Rico (TRUXAL 1953).

### ***Buenoa antigone antigone* (Kirkaldy, 1899)**

*Buenoa antigone* KIRKALDY, 1899, p. 30 (Jamaica).

*Buenoa antigone antigone*; TRUXAL 1953, p. 1376-1379, fig. 42.

*Buenoa antigone antigone*; NIESER 1967, p. 168-171, fig. 53, 60, 70, 75.

MÉXICO; GUATEMALA; VENEZUELA; BRASIL; ECUADOR; PERÚ; BOLIVIA; PARAGUAY; ARGENTINA; CUBA; GRAND CAYMAN; CAYMAN BRAC; JAMAICA; HISPANIOLA, Haïti; PUERTO RICO; ST. CROIX; ST. MARTIN; MARIE-GALANTE; MARGARITA; BLANQUILLA; BONAIRE; CURAÇAO; ARUBA.

ST. CROIX: St. Croix, 23.VIII.1912, 2♀ (H. Faye, K.); trough at Canaän, *Sta. 684A*, 10.VI.1955, 2♂, 2♀ (Hummelinck, S).  
 ST. MARTIN: Crab Hole Cistern, 530a, 2.VI.1955, 1♀ (Hummelinck, S).  
 CURAÇAO: Pos Cajoeda, Knip, 399, 17.VIII.1948, 1♂ (Hummelinck, S).

### **Buena albida** (Champion, 1901)

*Anisops albidus* CHAMPION, 1901, p. 371-373.  
*Buena albida*; TRUXAL 1953, p. 1412-1414.  
*Buena albida*; NIESER 1967, p. 171-174, fig. 52, 61, 67, 79.

U.S.A.; MÉXICO; CUBA; PUERTO RICO; ST. MARTIN; MARIE-GALANTE; BLANQUILLA; BONAIRE; CURAÇAO; ARUBA.

BONAIRE: Lima, Tanki Caranja, *Sta. 630*, 27.III.1955, 15♂, 15♀ (Hummelinck, S).

### **Buena gracilis** Truxal, 1953

*Buena gracilis* TRUXAL, 1953, p. 1439-1442.  
*Buena gracilis*; NIESER 1967, p. 178-180, fig. 56, 59, 63, 71, 76.

MÉXICO; HONDURAS; PANAMÁ; VENEZUELA; PERÚ; CUBA; JAMAICA; PUERTO RICO; ST. THOMAS!; ST. JOHN!; ST. CROIX; ST. MARTIN; ST. BARTHÉLEMY; BARBUDA; GUADELOUPE; LA DÉsirADE, MARIE-GALANTE; BARBADOS; GRENADA; BONAIRE; CURAÇAO; KLEIN CURAÇAO; ARUBA.

ST. THOMAS: St. Thomas, 1♂ (Sjösted, K).  
 ST. JOHN: St. Jean, 31.VII.1892, 4♂, 1♀ (Meinert, K).  
 ST. CROIX: Christianssted, Southgate Pond, 26.II.1906, 1♂, 1♀ (Th. Mortensen, K).  
     Canaän stream, *Sta. 683*, 10.VII.1955, 1♂, 1♀ (Hummelinck, S).  
 ST. MARTIN: Slob of St. Peter, 537, 31.I.1964, 1♂ (Hummelinck, S).  
 MARIE-GALANTE: Mare Médecinié, Meynard, 753, 31.I.1964, 2♀ (Hummelinck, S).  
 GRENADA: Grenada, 12-26.V.1891, 5♂, 4♀, several lv (Meinert, K).

**Buenoa omani** Truxal, 1953

*Buenoa omani* TRUXAL, 1953, p. 1426–1428, fig. 37, 58 (U.S.A., México).

U.S.A., California; MÉXICO, Sonora, Tamaulipas, Jalisco, Hidalgo, Micoacán, Distrito Federal, Morelos, Puebla, Oaxaca, Chiapas.

MÉXICO: D.F., México City, 12.IV.1927, 1♂, 5♀ (Antipovitsh, Len).

These specimens have been compared with some specimens from California, identified by Dr. F. S. TRUXAL (Los Angeles) and kindly sent by him. In his key (TRUXAL 1953, p. 1369) this species runs over:

2. Rostral prong longer than third rostral segment . . . . . 3  
The present male, however, has the rostral prong equal to third rostral segment.

This species is characterized in the male by the stridulatory area on the front femur (Fig. 133) which consists of 4–6 widely spaced thick ridges. The stridulatory comb of 16–17 teeth of about equal thickness and the rostral prong (Fig. 134) can be used to confirm the identification.

**Buenoa pallens** (Champion, 1901)

*Anisops pallens* CHAMPION, 1901, p. 374.

*Buenoa pallens*; TRUXAL 1953, p. 1414–1418, fig. 5, 11, 55.

MÉXICO; GUATEMALA; COSTA RICA; PANAMÁ; COLOMBIA; BRASIL; ECUADOR; PERÚ; CHILE; GRAND CAYMAN; ST. THOMAS; ST. JOHN!; ST. CROIX; GUADELOUPE; DOMINICA; GRENADA; TRINIDAD.

ST. JOHN: St. Jean, 31.VII.1892, 28♂, 10♀, several lv (Meinert, K).

This species is at first sight very similar to *B. pallipes* and *B. platycnemis*. The rostral prong (Fig. 180), however, separates *B. pallens* easily from *B. pallipes* and *B. platycnemis*.

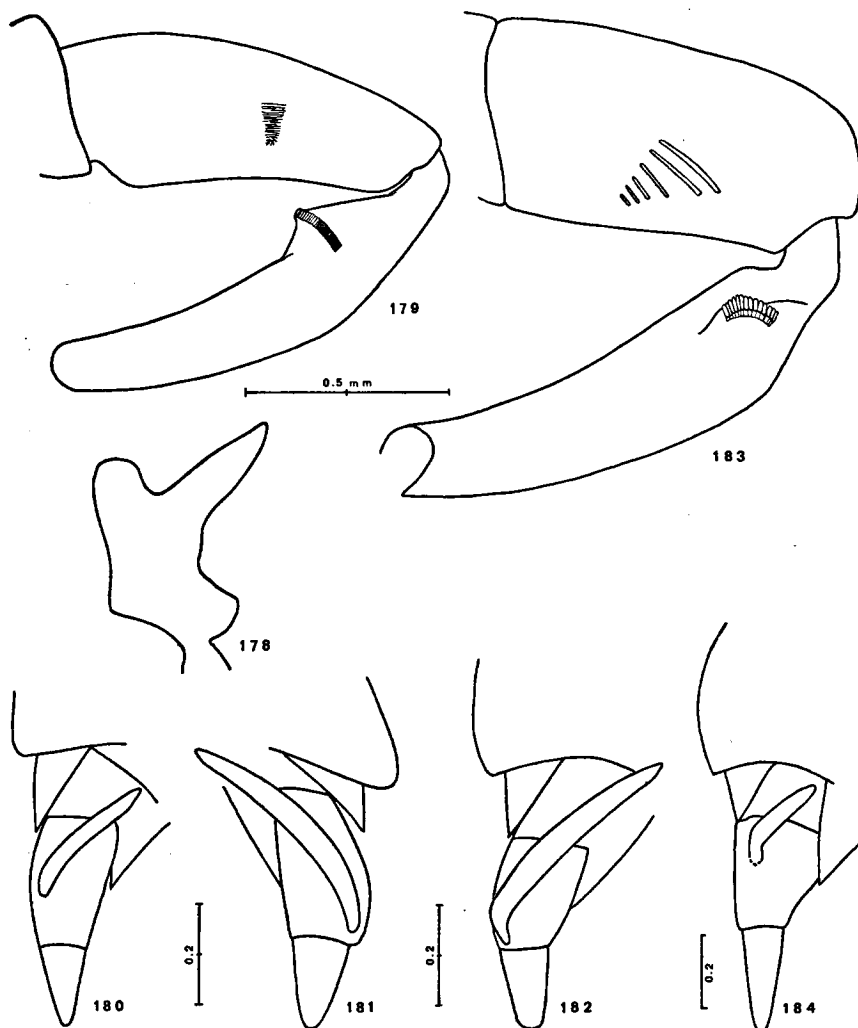


Fig. 178. *Notonecta undulata*, male, from Idaho, clasper of genital capsule.  
 Fig. 179. *Buenoa pallens*, male, from St. John, fore femur and tibia.  
 Fig. 180-182. Rostrum of male *Buenoa*: 180, *B. pallens* from St. John; 181, *B. pallipes* from Barbuda; 182, *B. platycnemis* from St. John.  
 Fig. 183-184. *Buenoa omani*, male, from México, D.F.: 183, fore leg; 184, rostrum.



**Buenoa pallipes** (Fabricius, 1803)

*Notonecta pallipes* FABRICIUS, 1803, p. 103.

*Buenoa pallipes*; TRUXAL 1953, p. 1418-1421, fig. 56.

*Buenoa pallipes*; NIESER 1967, p. 182-184, fig. 55, 65, 72, 77.

HAWAII; MÉXICO; HONDURAS; COSTA RICA; COLOMBIA; PERÚ; PARAGUAY; CUBA; JAMAICA; PUERTO RICO; ST. THOMAS; ST. JOHN; GUADELOUPE; LA DÉsirADE; ILES-DES-SAINTES!; ST. VINCENT; BARBADOS.

ILES-DES-SAINTES: Terre-de-haute, mare haute, alt. 40 m, *Sta.* 760, 6.III.1964, 2♂, 1♀ (Hummelinck, S).

This species is at first sight very similar to *B. pallens* and *B. platycnemis*. The rostral prong (Fig. 181) easily separates it from *B. pallens*. The differences between *B. pallipes* and *B. platycnemis* are given in the key.

**Buenoa platycnemis** (Fieber, 1851)

*Anisops platycnemis* FIEBER, 1851, p. 485.

*Buenoa platycnemis*; TRUXAL 1953, p. 1421-1426, fig. 57.

*Buenoa platycnemis*; NIESER 1967, p. 181-182, fig. 58, 64, 69, 80.

U.S.A.; MÉXICO; COSTA RICA; PANAMÁ; CANAL ZONE; COLOMBIA; VENEZUELA; BRASIL; PERÚ; CUBA; GRAND CAYMAN; JAMAICA; HISPANIOLA, Haïti; MONA; PUERTO RICO; ST. THOMAS; ST. JOHN!; ST. CROIX; ST. MARTIN; MARIE-GALANTE; LA DÉsirADE; MARTINIQUE; BONAIRE; CURAÇAO.

CUBA: Consolación del Sur, 5.VI.1930, 5♂, 11♀ (Natenson, Len).

ST. JOHN: St. Jean, 31.VII.1892, 13♂, 12♀, several lv (Meinert, K).

This species is very similar to *B. pallens* and *B. pallipes*, see under those species for comparative notes.

**Buenoa scimitra** Bare, 1925

*Buenoa scimitra* BARE, 1925, p. 226-228, fig. 1.

*Buenoa scimitra*; TRUXAL 1953, p. 1404–1409, fig. 52.

*Buenoa scimitra*; NIESER 1967, p. 174–178, fig. 57, 62, 68, 74.

U.S.A.; MÉXICO; CUBA; JAMAICA; PUERTO RICO; ST. THOMAS!;  
ST. CROIX!; ST. MARTIN; BARBUDA; MARIE-GALANTE; BARBADOS;  
TRINIDAD; BONAIRE; CURAÇAO; ARUBA.

ST. THOMAS: St. Thomas, 1877, 1♂ (Baron Eggers, K).

ST. CROIX: Christianssted, Southgate Pond, 26.II.1906, 1♂, 1♀ (Th. Mortensen, K).

ST. MARTIN: Pond at Point Blanche, *Sta. 528A*, 5.VI.1955, 1♂ (Hummelinck, U);

Crab Hole Cistern, *530a*, 2.VI.1955, 1♂, 1♀ (Hummelinck, S).

BARBUDA: Pool at Warden's, *676*, 5.VII.1955, 1♂ (Hummelinck, U).

BONAIRE: Pos Baca Grandi, *379*, 2.IX.1948, 3♂ (Hummelinck, S); Salinja near

Pos Caranja, *630*, 27.III.1955, 9♂, 6♀ (Hummelinck, S).

CURAÇAO: Tanki Martha Koojsje, *397e*, 2.III.1955, 6♂ (Hummelinck, S).

### ***Buenoa truxali* Nieser, 1968**

*Buenoa truxali* NIESER, 1968, p. 128–130, fig. 131–134 (Suriname).

SURINAME; TRINIDAD!.

TRINIDAD: Aripo Savanna, pools in ruts along track through forest, 22.II.1967,  
7♂, 4♀ (J. Darlington, Hope Dept. Entomology, Oxford).

### REFERENCES

- ANCONA, L. H., 1937. Contribución al conocimiento de los Hemípteros acuáticos del Valle del Mezquital. *Ann. Inst. Biol. México* 8: 217–253.
- BARE, C. O., 1925. A new species of *Buenoa* (Hem. Notonectidae). *Ent. News* 36: 225–228, 1 pl. excl.
- BALDUF, W. V., 1964. Numbers of ovarioles in the Heteroptera. *Proc. Ent. Soc. Wash.* 66: 2–4.
- CHAMPION, G. C., 1901. *Biologia Centrali Americana, Rhynchota Heteroptera* 2, 416 pp.
- FABRICIUS, J. C., 1803. *Systema Rhynchotorum*, 314 pp.
- IEBER, F. X., 1851. Rhynchotographien III. Die Gruppe der Notonectae. *Abh. Königl. Böhm. Ges. Wiss.* 7: 469–486.
- HUNGERFORD, H. B., 1927. A new Notonecta from Mexico. *Bull. Brookl. Ent. Soc.* 22: 250.
- HUNGERFORD, H. B., 1930. A report on the nomenclature of some neotropical Notonecta, with the description of some new species. *Bull. Brookl. Ent. Soc.* 25: 138–143.

- HUNGERFORD, H. B., 1933. The genus *Notonecta* of the world. *Univ. Kansas Sci. Bull.* 21: 1-195.
- HUNGERFORD, H. B., 1940. Results of the Oxford University Cayman Islands Expedition of 1938 (Aquatic Hemiptera). *Ent. Month. Mag.* 76: 255-256.
- HUTCHINSON, G. E., 1945. On the species of *Notonecta* (Hemiptera-Heteroptera) inhabiting New England. *Trans. Connect. Acad. Arts Sci.* 36: 599-605.
- HYNES, H. B. N., 1948. Notes on the aquatic Hemiptera-Heteroptera of Trinidad and Tobago, B.W.I., with a description of a new species of Martarega B. White (*Notonectidae*). *Trans. R. Ent. Soc. London* 99: 341-360.
- JACZEWSKI, T., 1958. Notes on some species of the genus *Notonecta* L. (*Het. Notonectidae*). *Acta Zool. Cracow* 2 (36): 891-895.
- KIRKALDY, G. W., 1899. On some aquatic Rhynchota from Jamaica. *Entomologist* 32: 28-30.
- LINNAEUS, C., 1771. *Mantissa Plantarum* 2 [p. 534, description of *Notonecta indica*] (n.v.).
- MARKS, E. P., 1958. A comparative study of the foregut of several aquatic Hemiptera. *J. Kansas Ent. Soc.* 31: 138-153.
- NIESER, N., 1967. Heteroptera of the Netherlands Antilles-VI. *Notonectidae*. *Stud. Fauna Curaçao* 24: 157-189.
- PENN, G. H. & ELLIS, L. L., 1949. Notes on aquatic Hemiptera from Lafayette and Marshall Counties, Mississippi. *Fla. Ent.* 32: 158-159.
- RICE, L. A., 1942. Notes on biology and species of the three genera of *Notonectidae* found at Reelfoot Lake, Tennessee. *J. Tenn. Acad. Sci.* 17: 55-67.
- RICE, L. A., 1954. Observations on the biology of ten *Notonectoid* species found in the Douglas Lake, Michigan Region. *Amer. Midl. Nat.* 51: 105-132.
- ROBACK, S. S., 1958. New records of aquatic Heteroptera from the United States and Canada. *Trans. Amer. Ent. Soc.* 84: 1-11.
- SAY, T., 1832. *Descriptions of new species of heteropterous Hemiptera of North America*. New Harmony, 39 pp.
- SCUDDER, G. G. E., 1965. The *Notonectidae* (Hemiptera) of British Columbia. *Proc. Ent. Soc. Brit. Colum.* 62: 38-41.
- TRUXAL, F. S., 1953. A revision of the genus *Buenoa* (Hemiptera, *Notonectidae*). *Univ. Kansas Sci. Bull.* 35: 1351-1523.
- UHLER, P. R., 1879. Notices on the Hemiptera-Heteroptera in the collection of the late T. W. Harris, M.D. *Proc. Boston Soc. Nat. Hist.* 19: 365-446.
- USHINGER, R. L. 1963. Aquatic Hemiptera; in: R. L. USHINGER (Ed.), *Aquatic Insects of California*: 182-228.
- WILSON, C. A., 1958. Aquatic and semiaquatic Hemiptera of Mississippi. *Tulane Stud. Zool.* 6: 115-170.