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**PSEUDOSCORPIONS OF THE GENUS APHELOLPIUM (PSEU-  
DOSCROPIONIDA, OLPIIDAE) FROM CURAÇAO, ARUBA AND  
BONAIRE**

by

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ABSTRACT

TOOREN, D. VAN DEN, 1995. Pseudoscorpions of the genus *Aphelolpium* (Pseudoscorpionida, Olpiidae) from Curaçao, Aruba and Bonaire. *Studies Nat. Hist. Caribbean Region* 72. Amsterdam, 1995: 69-97.

A large number of new localities of the pseudoscorpion *Aphelolpium scitulum* Hoff, 1964 from Curaçao, Aruba and Bonaire, are reported. The great intraspecific variation in material of this species from Curaçao and Aruba has been documented. A second species has been recognized: *A. brachytarsus* sp. nov., occurring on Aruba.

**Key words:** Pseudoscorpions, Olphidae, *Aphelolpium scitulum*, *A. brachytarsus*, sp. nov., Curaçao, Aruba, Bonaire.

INTRODUCTION

The numerous zoological collecting trips made in the Caribbean by Dr. P. WAGENAAR HUMMELINCK ever since 1930, yielded an extensive material of pseudoscorpions – belonging to 9 families – from 30 islands and 5 localities on the northern South American mainland. Part of it has been studied by BEIER (1936) and WAGENAAR HUMMELINCK (1948). BEIER described 4 new species: *Pachyolpium arubense* (Olpiidae) from Aruba, *Garypus bonairensis* (Garypidae) from Bonaire, *Apocheiridium caribicum* (Cheiridiidae) from Curaçao and *Dolichowithius abnormis* (Withiidae) from Venezuela. HUMMELINCK described 3 new species and 1 subspecies: *Pseudochthonius arubense* (Chthoniidae)

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and *Garypus bonairensis realini* (Garypidae) from Aruba, *Tyrannochthonius curazavius* (Chthoniidae) and *Pachychitra curazavia* (Syarinidae) from Curaçao.

By courtesy of Dr. WAGENAAR HUMMELINCK the remaining (greater) part of the collection was put at my disposal. Almost 70% of total specimens appeared to be representatives of the family Olpiidae, and it was decided to choose this family for detailed study first.

In the present contribution the species *Aphelolpium scitulum* HOFF, 1964 from 19 localities in Curaçao and 15 in Aruba has been studied. Moreover, it occurred in 14 localities on Bonaire, 1 locality on Klein Bonaire and 1 on Klein Curaçao. A new species has been described from Aruba: *Aphelolpium brachytarsus* sp. nov. The material has been deposited in the Department of Entomology of the Zoologisch Museum, University of Amsterdam.

## METHODS

Measurements recorded in this study have been taken with a calibrated eye-piece micrometer on specimens cleared in beechwood creosote and mounted in Canada balsam on permanent slides, as described by CHAMBERLIN (1931: 23-25). The body (but not both pedipalps, both chelicerae, one first leg and one fourth leg), was treated before mounting with 10% potassium hydroxide solution. All drawings have been made with the aid of a camera lucida.

Abbreviations used to indicate tactile setae (T) on palpal fingers (after CHAMBERLIN 1931: 138): movable finger (exterior surface): *t* = terminal, *st* = subterminal, *sb* = sub-basal, *b* = basal; fixed finger (exterior surface): *et* = exterior terminal, *est* = exterior subterminal, *esb* = exterior sub-basal, *eb* = exterior basal; fixed finger (interior surface): *it* = interior terminal, *ist* = interior subterminal, *isb* = interior sub-basal, *ib* = interior basal.

## SYSTEMATICS

### Family OLPIIDAE Chamberlin, 1930

Diagnosis (after CHAMBERLIN 1930: 588-590): Carapace only rarely significantly triangular. Abdomen but little broader than posterior margin of cephalothorax and with subparallel sides. Coxal area never widened posteriorly. Pleural membrane smoothly and evenly plicate. Movable finger of chelicera with a single sub-apical lobe or tooth, never multi-denticulate, although the lobe itself may rarely be obscurely divided into at most 2 or 3 parts. Teeth of serrula interior basally fused, forming a membranous plate

or velum. Venom apparatus developed in both fixed and movable fingers; no venedens receptor being developed on either finger. Vestitural setae of palpal femur and tibia prominent, and always slenderly acute. Both forelegs and hindlegs with 2 tarsal segments. Subterminal setae invariably simple and acute.

### Genus *Aphelolpium* Hoff, 1964.

**Diagnosis** (after HOFF 1964: 31-32): Carapace considerably longer than wide, with 4 well-developed eyes. Tergites of central part of abdomen with 8 setae, occasionally an anomalous tergite with 10 setae. Tracheal trunks not proximally inflated. Chelicera with flagellum of 2 blades and with subapical lobe of movable finger large, tooth-like, and often terminally subdivided. Pedipalp with femur and tibia not especially stout, chelal hand very stout, fingers relatively long and slender. Subbasal tactile seta on dorsum palpal femur. Venom duct long. Fixed finger with nodus ramosus basal to tactile seta *ist*. No clavate sensory seta near distal end of either chelal finger. Fixed finger with tactile seta *et* very near end of finger, *it* and *ist* within about distal fifth of finger, *est* near midpoint or a little proximal to midpoint of finger and tactile setae *isb*, *ib*, *esb* and *eb* located near base of finger. Movable finger with tactile seta *t* subdistal in position, with *st* farther from *t* than from *sb*. First leg with pars basalis nearly twice as long as pars tibialis.

Up to now 3 species have been assigned to the genus *Aphelolpium*:

1. *A. scitulum* Hoff, 1964, from Jamaica, based on 8 males, 6 females and several nymphs.
2. *A. cayanum* Muchmore, 1979, from Florida, based on 6 males and 1 female.
3. *A. thibaudi* Heurtault & Rebière, 1983, from the Lesser Antilles (Marie-Galante and Martinique), based on 2 males, 1 tritonymph and 1 protonymph.

Summary of some measurements (in mm) and counts (both expressed in ranges) as given in the original descriptions of the three species assigned to the genus *Aphelolpium*:

	<i>A. scitulum</i>	<i>A. cayanum</i>	<i>A. thibaudi</i>
Body length			
♂♂	1.95-2.45	1.81-1.97	1.30-1.425
♀♀	2.30-2.95	2.50	unknown
Length palpal femur			
♂♂	0.575-0.675	0.51-0.55	0.336-0.386
♀♀	0.65-0.74	0.58	unknown
Number of teeth on fixed finger			
♂♂	25-30		25
♀♀	26-32	24-28*	unknown
Number of teeth on movable finger			
♂♂	20-23	18-19	not recorded
♀♀	21-25	21 (?)	unknown

\* males and female summarized.

### *Aphelolpium scitulum* Hoff, 1964

The identification is based upon HOFF (1964). In spite of a few differences, the specimens examined apparently agree on many points with his very detailed description of *A. scitulum*. The small points of difference are marked in palpal and pedal proportions, especially in the female. The characteristic pattern in which the tactile setae on the chelal finger are arranged is as described for the genus. However, it appears that in both sexes the tactile setae *it*, *est* and *t* are on the average inserted slightly closer to the fingertip (*i.e.*, to the base of the apical tooth on the outside curve). Possibly this is connected with the fact that in both sexes the palpal movable finger is somewhat shorter. A final check of the material against the holotype male (Figs. 1a, 3a), a paratype female (Figs. 2a, 3d), one tritonymph and one deutonymph, suggests however that the differences probably fall within the geographic variation of the species.

**Material examined** (localities fully described by WAGENAAR HUMMELINCK 1940: 22-42; 1953: 11-28; 1981: 61; station numbers in italics; slide numbers in parentheses):

CURAÇAO: 202A, Seroe di Boca, 7.9.1936. 1 ♀ (1063); 205, Sta Barbara, 4.9.1936: 1 ♂ (1057); 205a, same, 13.4.1949: 1 ♂ (630); 216, Hofje Hato, 13.10.1936: 1 ♀ (68); 217, near Cave of Hato, 17.9.1936: 1 ♂ (1049); 228, N of Seroe di Cueba, Savonet, 29.10.1936: 1 tritonymph (1045); 234a, top of Seroe Christoffel, 24.10.1948: 5 ♂♂ (253-255, 264, 609) and 5 ♀♀ (256-260); 234b, same, 12.12.1948: 1 ♀ (163); 234c, same, 11.2.1949: 2 ♂♂ (435-436) and 2 ♀♀ (433-434); 234A, same, 11.2.1949: 2 ♂♂ (470, 475) and 1 ♀ (467); 235,

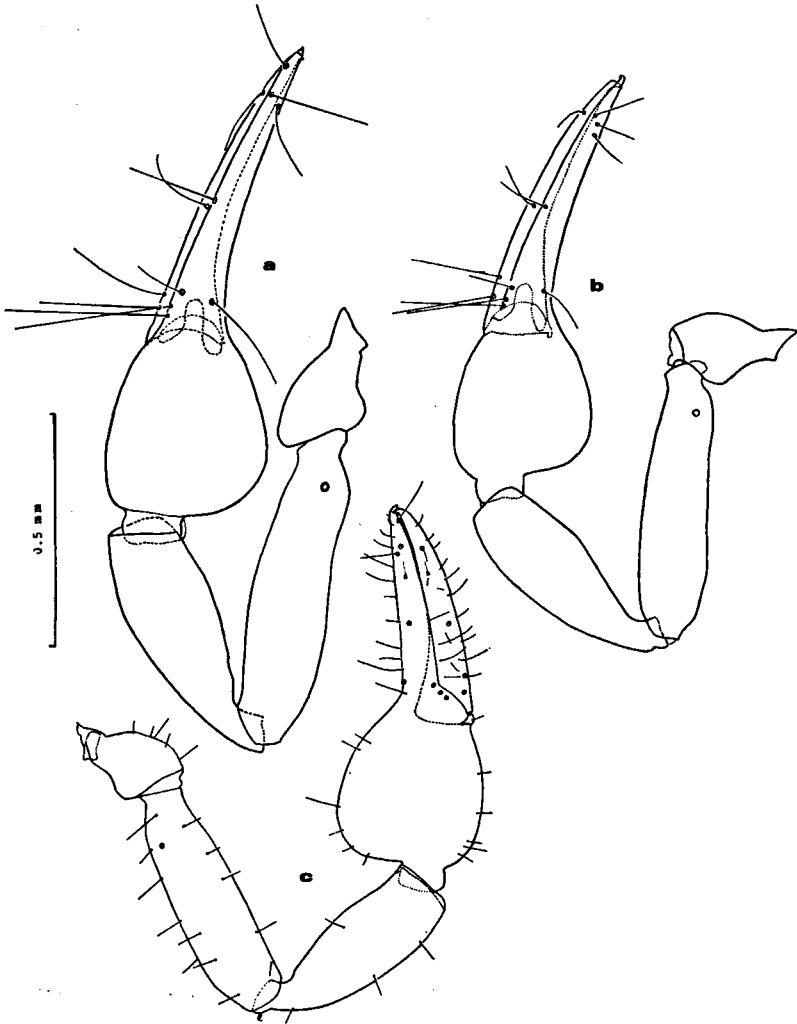


FIGURE 1. Dorsal aspect of male pedipalp of *Aphelolpium scitulum* Hoff (a and b), and *Aphelolpium brachytarsus* sp. nov. (c). (a) holotype from Jamaica, (b) specimen from Curaçao (652); (c) holotype from Aruba (1046). - Drawn to same scale.

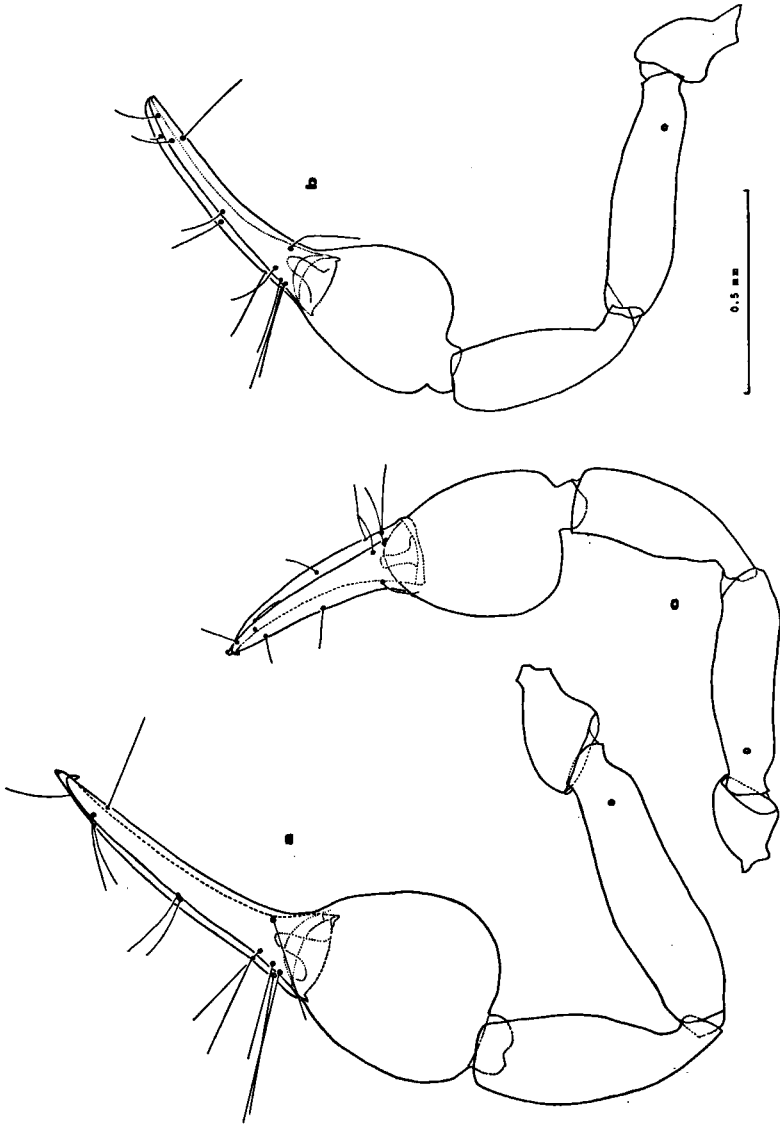


FIGURE 2. Dorsal aspect of female pedipalp of *Aphelolpium scitulum* Hoff (a and b), and *Aphelolpium brachytarsus* sp. nov. (c). (a) paratype from Jamaica, (b) specimen from Curaçao (649); (c) paratype from Aruba (739). - Drawn to same scale.

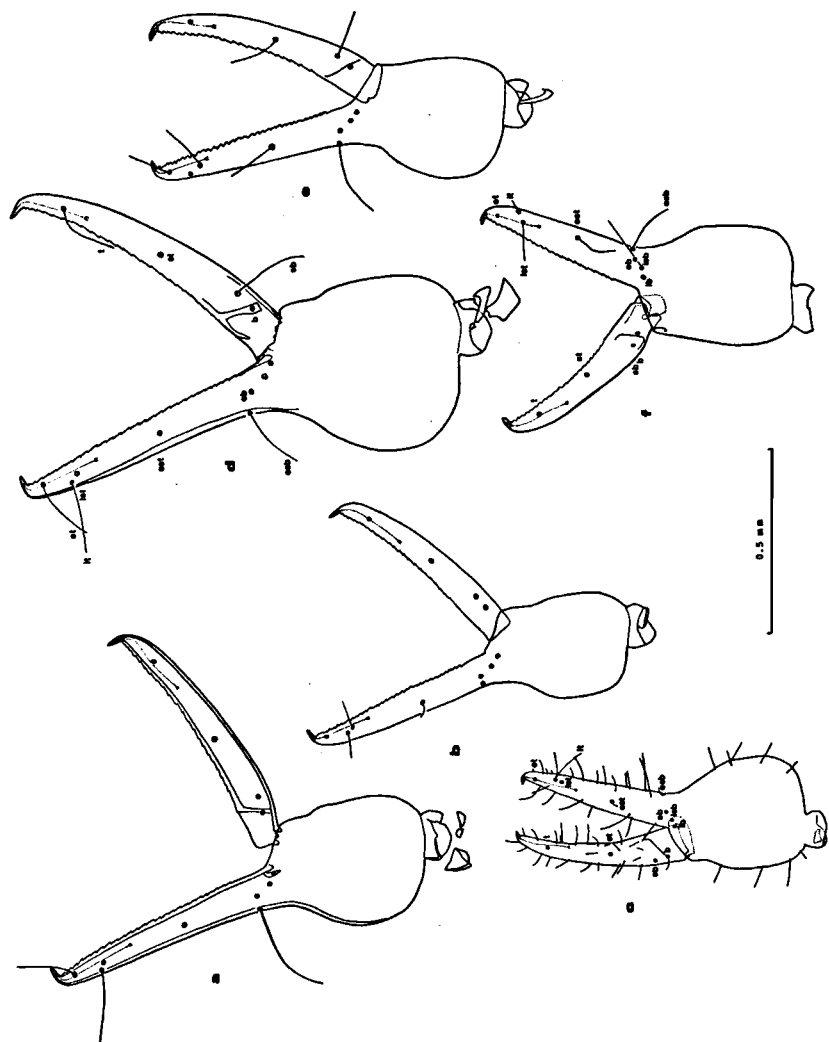


FIGURE 3. Extero-lateral aspect of male and female chela.  
*Aphelolpium scitulum* Hoff. Males: (a) holotype from Jamaica, (b) specimen from Curaçao (652). Females: (d) paratype from Jamaica, (e) specimen from Curaçao (649).  
*Aphelolpium brachytarsus* spec. nov. Male: (c) holotype from Aruba (1046). Female: (f) paratype from Aruba (739). – Drawn to same scale.

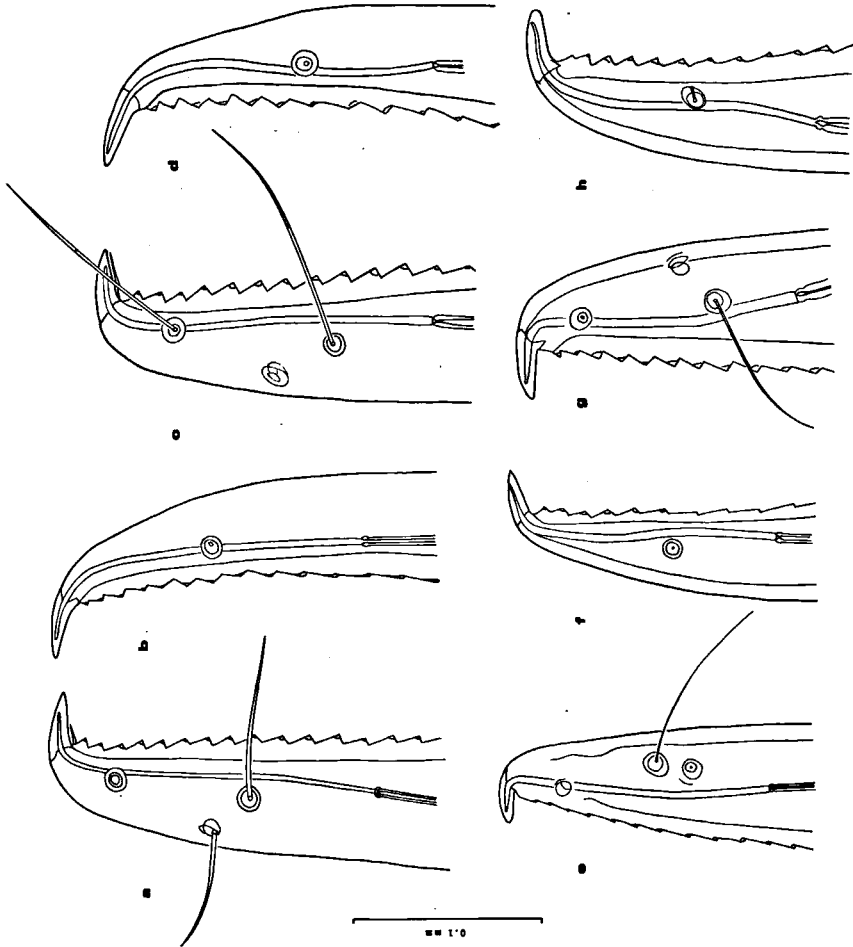


FIGURE 4. Extero-lateral aspect of male and female chelal fingertips.  
*Aphelolpium scitulum* Hoff. Specimens from Curaçao: Male (652): (a) fixed finger; (b) movable finger. Female (649): (c) fixed finger; (d) movable finger.  
*Aphelolpium brachytarsus* sp. nov. Specimens from Aruba: Male holotype (1046): (e) fixed finger; (f) movable finger. Female paratype (739): (g) fixed finger; (h) movable finger.  
 - Drawn to same scale.



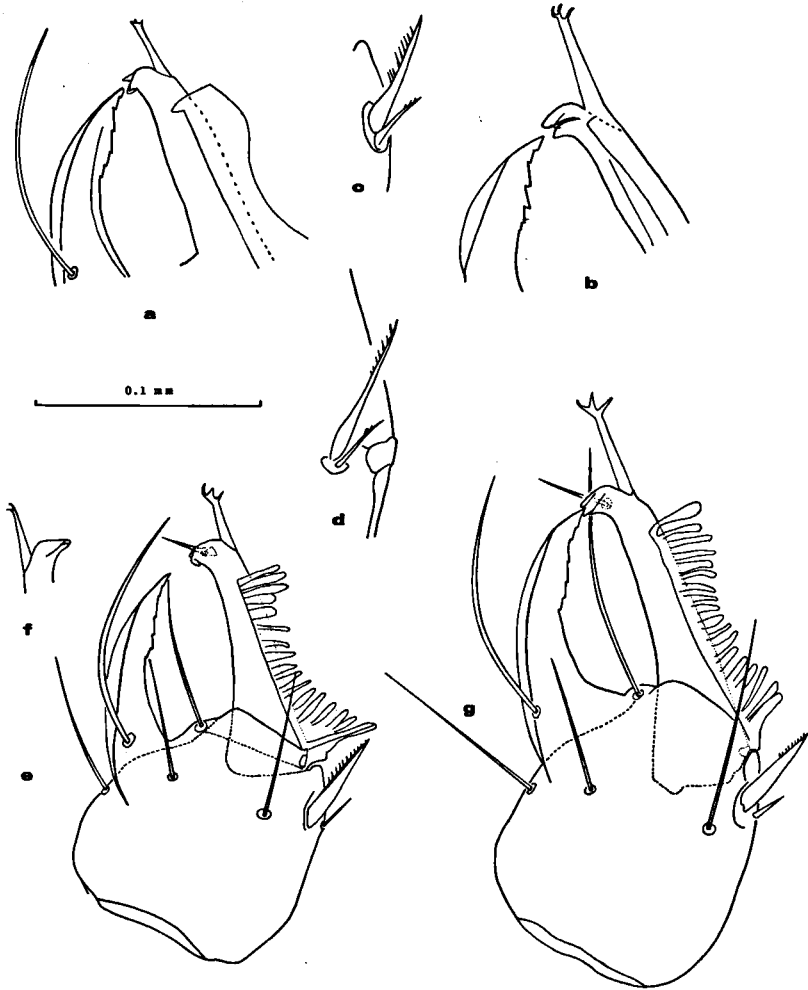


FIGURE 5. Cheliceral structures.

*Aphelolpium scitulum* Hoff. Specimens from Curaçao: Male (435): (a) inner aspect tip left chelicera; (c) left flagellum. Female (163): (b) inner aspect tip left chelicera; (d) left flagellum.

*Aphelolpium brachytarsus* sp. nov. Specimens from Aruba: Male holotype (1046): (e) inner aspect of left chelicera; (f) tip movable finger of right chelicera. Female paratype (744): (g) inner aspect of left chelicera. – Drawn to same scale.

NW slope of Seroe Christoffel, 10.11.1936: 1 tritonymph (1587); 235Aa, same, Feb. 1946: 1 ♀ (1346); 253B, same, 23.12.1948: 1 ♀ (549); 242, Seroe Djerimi, 6.11.1936: 1 ♀ (1058); 323B, Hofje Groot St. Joris, 9.4.1949: 1 ♂ (634); 327, Hofje Sta Barbara, 14.8.1948: 4 ♂♂ (648, 650-652) and 3 ♀♀ (647, 649, 653); 328, N slope of Tafelberg, Sta Barbara, 10.4.1949: 1 ♂ (643); 330, S slope of Tafelberg, 8.12.1948: 1 ♂ (600); 334, Klein Hofje Groot Piscadera, 27.1.1949: 8 ♂♂ (496, 498, 578, 580, 809-810, 812-813), 1 ♀ (811) and 2 tritonymphs (497, 499); 337, Hofje Groot Piscadera, 27.1.1949: 5 ♂♂ (403-406, 410), 1 ♀ (408) and 2 tritonymphs (407, 409); 349, Seroe Gracia, Knip, 17.8.1948: 1 ♂ (591), 4 ♀♀ (585-589, 592) and 1 tritonymph (593); 350, Rooi Cajoeda, Knip, 17.8.1948: 5 ♂♂ (1, 6-7, 10-11), 6 ♀♀ (2-5, 8-9) and 2 tritonymphs (12-13); 351, Rooi Beroe, Savonet, 13.12.1948: 1 ♂ (837) and 1 ♀ (833); 354, Seroe Baha So, Spaansche Put, 16.2.1949: 2 ♂♂ (271, 274) and 2 ♀♀ (272, 275); 356, Hofje Groot Sta Martha, 4.11.1948: 1 ♂ (494).

ARUBA: 246a, Rooi Prins, 26.8.1949: 2 ♀♀ (846, 848); 249, Quadirikiri, 9.2.1937: 1 ♀ (1056); 250, Cave of Quadirikiri, 9.2.1937: 1 ♂ (48); 253, Boca Grandi, 5.1.1937: 1 ♂ (1059); 255, Rooi Spoki, 6.2.1937: 1 ♀ (1055); 262B, Spaansch Lagoen, 1.1.1949: 1 ♂ (182); 263, Rooi Francés, 6.1.1937: 2 ♀♀ (1060-1061); 272, Hudishibana, Westpunt, 9.12.1936: 1 ♀ (1052); 275, Solito, near Oranjestad, 16.12.1936: 2 ♂♂ (56-57) and 3 ♀♀ (53-55); 359, Hofje Fontein, 30.12.1948: 11 ♂♂ (369, 373, 375, 377, 379, 380, 382, 384-386) and 3 ♀♀ (370-371, 378).

BONAIRE: 187, in front of cave of Spelonk, Bolivia, 24.3.1937; 187a, same, 15.4.1955; 190a, S of Fontein, 11.9.1948; 190B, same, 11.9.1948; 191, Ruins of Fontein, 30.3.1937; 193A, Hofje Fontein, 11.9.1948; 194, Tanki Onima, 13.11.1936; 198, Pos Bronswinkel, 27.3.1937; 304, E of Pt Vierkant, 5.9.1948; 305, NW Lima, 5.9.1948; 310, Boca Onima, 19.9.1948; 312, E of Boca Onima, 19.9.1948; 313, S of Rincón, 15.9.1948; 316, Seashore near Wecua, 23.2.1949; 317, N of Boca Slagbaai, 12.9.1948; 1091, Salinja Planchi, 26.3.1937.

KLEIN BONAIRE: 319, SE part, 1.9.1949.

KLEIN CURAÇAO: 200, N of lighthouse, 29.8.1936.

Diagnosis: *A. scitulum* can be distinguished from *A. cayanum* by the longer palpal femur and more marginal teeth on movable chelal finger, from *A. thibaudi* by being much larger in size.

Description: MALE – description based on 58 specimens (Figs.: 1b, 3b, 4a-b, 5a, c, 6a-b). Measurements in mm, ratios and counts with mean values in italics, number of specimens and aberrant data in parentheses.

*Body* (56): 1.86-2.10-2.275 long.

*Carapace* (9): length 0.55-0.59-0.65, greatest width 0.43-0.46-0.48, length/width ratio 1.19-1.29-1.42; eyes: 2 pairs, well developed; anterior and posterior margins of carapace with 4 setae.

*Abdomen*: chaetotaxy, tergites I-IX (9): 4: 4 (1 specimen with 6 and 2 with 8); 6-8 (1 with 10): 6-8 (1 with 10): 8 : 8 : 8 (1 with 7): 8-9 (1 with 11): 1T6T1;

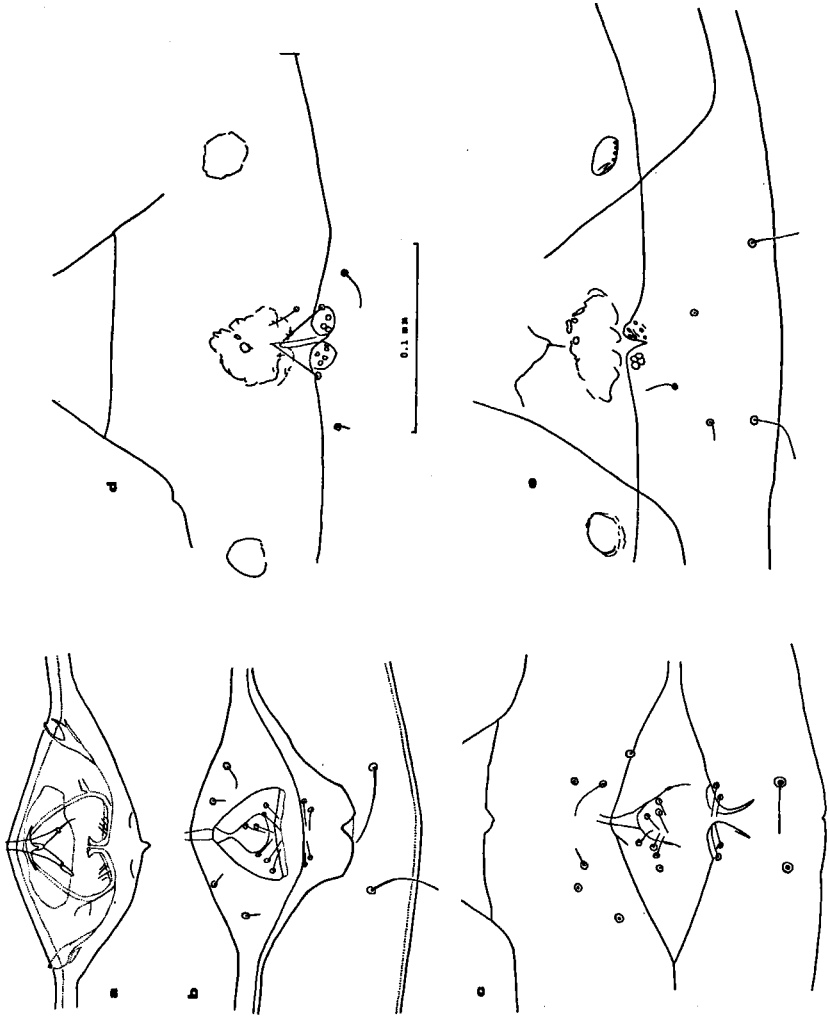


FIGURE 6. *Aphelolpium scitulium* Hoff. (a) Internal aspect and (b) external aspect, showing chaetotaxy, in male genital area in specimen from Curaçao (651); (d) Cribriform plates in female genital area in specimen from Curaçao (163). *Aphelolpium brachytarsus* sp. nov. (c) Chaetotaxy in male genital area in holotype from Aruba (1046); (e) Cribriform plates in female genital area in paratype from Aruba (744). - Drawn to same scale.

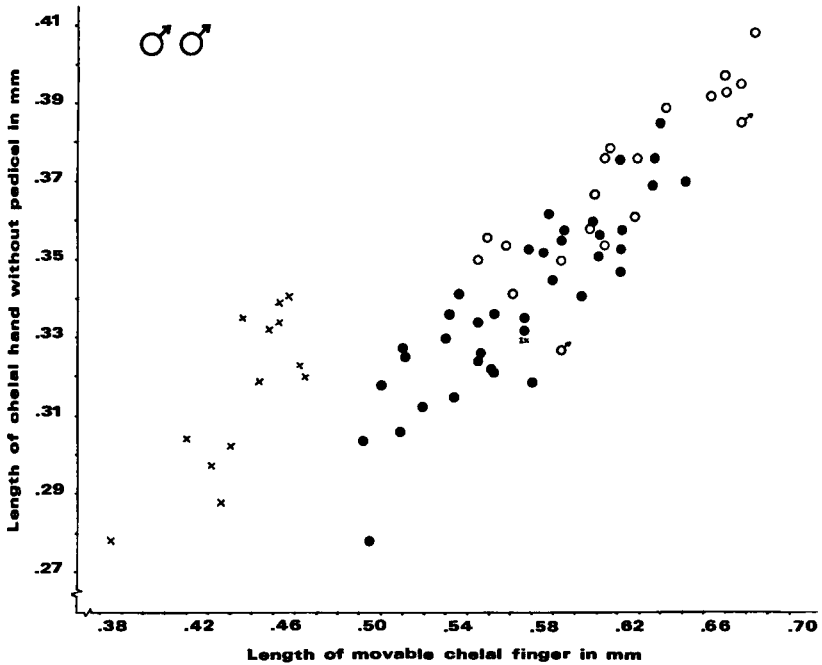


FIGURE 7. Relation between length of movable chelal finger and length of chelal hand without pedicel in males of *Aphelolpium brachytarsus* sp. nov. from Aruba (x) and *Aphelolpium scitulum* Hoff from Curaçao (●), Aruba (○) and Jamaica (♂: type material).

sternites IV-VI (8) and VII (7): 4-6: 8 (1 with 11): 8 (1 with 4 and 1 with 5): 4-8: 6-8 (1 with 10).

*Chelicera* (9): length 0.14-0.16-0.17, width 0.10-0.11-0.12, length/width ratio 1.32-1.40-1.58, and 0.24-0.265-0.28 times as long as carapace; movable finger: length 0.12-0.13-0.15; galea: length 0.03, terminally with 3 small rami; inner margin of fixed finger with 6 teeth, movable finger with strongly developed subapical lobe divided in 2 nearly equal parts; serrula exterior with 18-20 blades; flagellum consists of 2 setae, one long and one short, both pinnate in the distal half of the anterior margin.

*Pedipalp*: femur: length 0.52-0.60-0.70, width 0.12-0.15-0.18, length/width ratio 3.50-3.94-4.40; patella: length 0.42-0.51-0.60, width 0.125-0.16-0.20, length/width ratio 2.80-3.08-3.32; chela without pedicel: length 0.775-0.93-1.08, width 0.22-0.30-0.37, length/width ratio 2.90-3.10-3.51; hand without

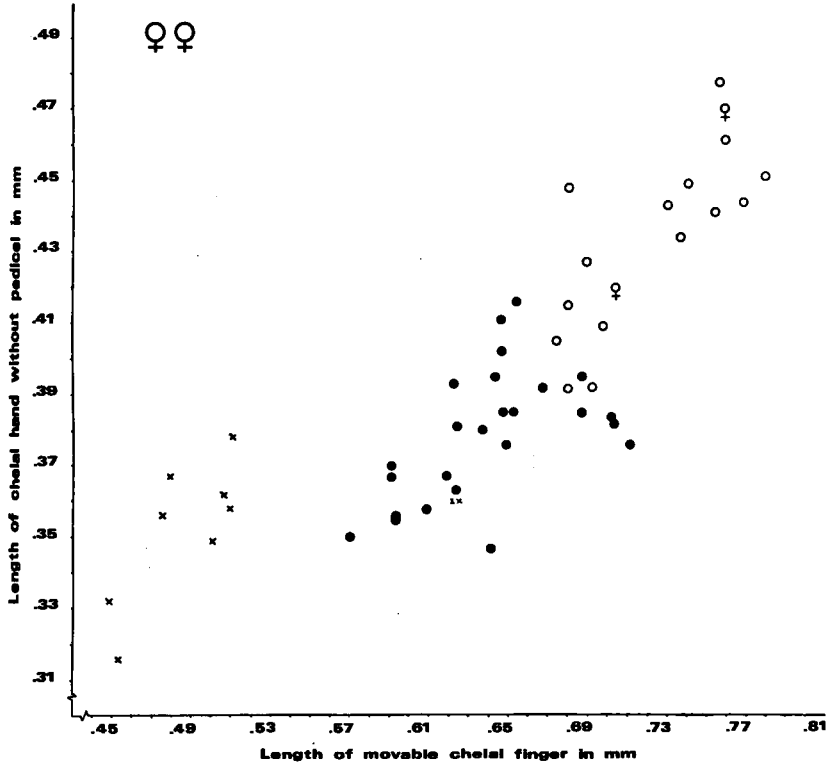


Figure 8. Relation between length of movable chelal finger and length of chelal hand without pedicel in females of *Aphelolpium brachytarsus* sp. nov. from Aruba (x) and *Aphelolpium scitulum* Hoff from Curaçao (●), Aruba (○) and Jamaica (♀: type material).

pedicel: length 0.28-0.35-0.41, depth (54) 0.23-0.29-0.35, length/depth ratio (54) 1.11-1.22-1.39; movable finger: 0.50-0.59-0.68 long, 1.57-1.59-1.83 times as long as hand without pedicel. Subbasal tactile seta on dorsum palpal femur 0.10-0.12-0.145 from exterior key point of femoral base. Length palpal femur 4.19-4.97-6.51 times distance from subbasal tactile seta to exterior key point of femoral base. Fixed finger (57) with 27-30.7-35 marginal teeth; tactile seta *ü* (56) 0.08-0.09-0.11 from base apical tooth on outside curve (*i.e.* (24) up to level of 6<sup>th</sup>-6.8-8<sup>th</sup> marginal tooth from apical tooth); tactile seta *est* (56) 0.28-0.32-0.35 from base apical tooth on outside curve (*i.e.* (24) up to level of 19<sup>th</sup>-21.4-24<sup>th</sup> marginal tooth from apical tooth; nodus ramosus (23) 0.15-0.18-0.21 from base apical tooth on outside curve (*i.e.* (23) up to level

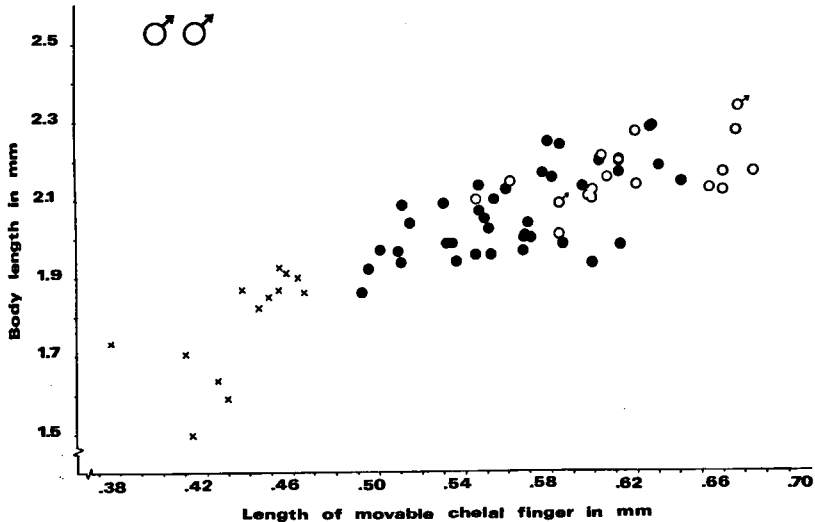


Figure 9. Relation between length of movable chelal finger and body length in males of *Aphelopium brachytarsus* sp. nov. from Aruba (x) and *Aphelopium scitulum* Hoff from Curaçao (●), Aruba (o) and Jamaica (♂: type material).

of 10/11<sup>th</sup>-11.9-14<sup>th</sup> marginal tooth from apical tooth); length of fixed finger 3.08-3.37-3.83 times length of venom duct, in which case length of fixed finger is considered to be equal to length of movable finger. Movable finger (57) with 20-22.5-26 marginal teeth; tactile seta *t* (56) 0.08-0.09-0.115 from base apical tooth on outside curve (*i.e.* (24) up to level of 6<sup>th</sup>-6.6-7<sup>th</sup> marginal tooth from apical tooth); nodus ramosus (23) 0.15-0.175-0.22 from base apical tooth on outside curve (*i.e.* (57) up to level of 8/9<sup>th</sup>-10.3-12<sup>th</sup> tooth from apical tooth); length of movable finger (23) 3.02-3.45-3.83 times length of venom duct.

*First leg:* trochanter (9) 0.14-0.15-0.16 long, 0.10-0.11-0.12 deep, length/depth ratio 1.23-1.29-1.42; femur (56) 0.24-0.28-0.32 long, 0.07-0.08-0.09 deep, length/depth ratio (56) 3.0-3.39-3.78; patella (55) 0.12-0.14-0.17 long, 0.07-0.08-0.09 deep, length/depth ratio (55) 1.61-1.75-2.09, length of femur (56) 1.82-2.03-2.18 times length patella; tibia (9) 0.19-0.21-0.225 long, 0.05-0.055-0.06 deep, length/depth ratio 3.59-3.75-3.80; metatarsus (9) 0.15-0.165-0.175 long, 0.035-0.04-0.05 deep, length/width ratio 3.65-3.99-4.35; tarsus (9) 0.11-0.12-0.13 long, 0.02-0.03-0.03 deep, length/depth ratio 3.76-4.73-5.19.

*Fourth leg:* trochanter (9) 0.18-0.20-0.22 long, 0.15-0.16-0.17 deep, length/

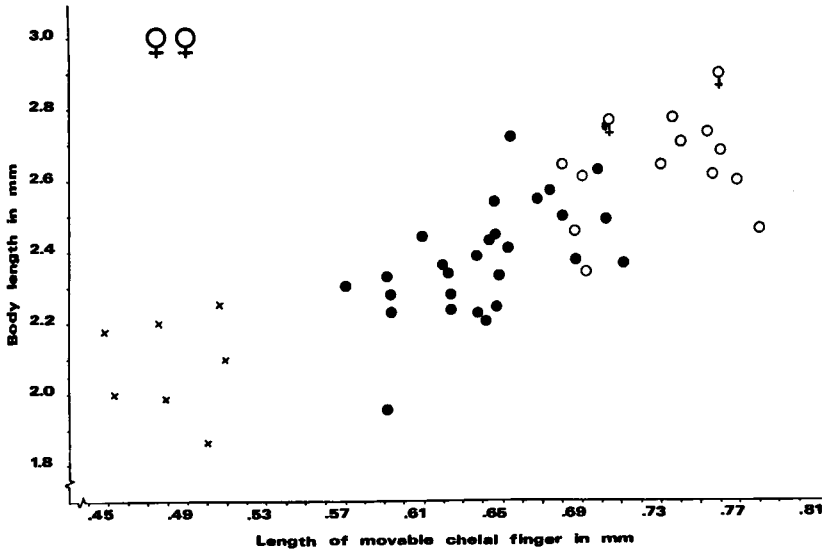


FIGURE 10. Relation between length of movable chelal finger and body length in females of *Aphelolpium brachytarsus* sp. nov. from Aruba (x) and *Aphelolpium scitulum* Hoff from Curaçao (●), Aruba (o) and Jamaica (♀: type material).

depth ratio 1.14-1.25-1.47; femur (9) 0.16-0.175-0.19 long, 0.12-0.13-0.15 deep, length/depth ratio 1.27-1.35-1.45; patella (9) 0.49-0.53-0.59 long, 0.27-0.30-0.32 deep, length/depth ratio 1.71-1.76-1.83; femur + patella (58) 0.52-0.59-0.67 long, 0.26-0.29-0.33 deep, length/depth ratio 1.89-2.02-2.23; tibia (9) 0.35-0.37-0.39 long, 0.09-0.10-0.105 deep, length/depth ratio 3.52-3.84-4.15; metatarsus (9) 0.18-0.19-0.21 long, 0.05-0.06-0.06 deep, length/depth ratio 3.2-3.3-3.6; tarsus (9) 0.16-0.17-0.19 long, 0.035-0.04-0.04 deep, length/depth ratio 3.8-4.4-4.75.

*Chaetotaxy of male genital area* (means in italics):

Face anterior operculum (38): 4-6.38-9.

Along anterior operculum (38): 4-6.38-9.

Along anterior lip of aperture (38): 6-7.79-10.

Along posterior lip of aperture (45): 2 pair of setae (1 ♂ 2 setae left and 4 right).

Along margin of posterior operculum (48): 2 setae.

FEMALE: description based on 44 specimens (Figs. 2b, 3e, 4c-d, 5b, d, 6d).

Measurements in mm, ratios and counts with mean values in italics, number of species and aberrant number of data in parentheses.

*Body* (41): 1.96-2.45-2.80 long.

*Carapace*: length (9) 0.615-0.66-0.70, greatest width (8) 0.46-0.51-0.55, anterior margin of carapace with 6 marginal setae, posterior margin with 4 marginal setae.

*Abdomen*: chaetotaxy, tergites I-IX (9): 4 (1 specimen with 6): 6 (1 with 5): 7-9: 10 (3 with 8): 8-10: 8-10: 10 (3 with 11): 10-12: 1T6T1; sternites IV-VII (9): 8: 8: 8: 8 (1 with 9).

*Chelicera* (9): length 0.16-0.19-0.20, width 0.12-0.13-0.14, length/width ratio 1.34-1.44-1.51, and 0.26-0.28-0.30 times as long as carapace; movable finger: length 0.14-0.16-0.18; galea: length 0.04-0.05-0.06, terminally with 3 small rami; inner margin of fixed finger with 6 or 7, 1 with 4, teeth; movable finger with strongly developed subapical lobe, divided in 2 nearly equal parts; serula exterior with 18-20 blades; flagellum consists of 2 setae, one long and one short, both pinnate in the distal half of the anterior margin.

*Pedipalp*: femur: length 0.57-0.66-0.715, width 0.15-0.17-0.20, length/width ratio 3.60-3.91-4.20; patella: length 0.46-0.55-0.64, width 0.16-0.18-0.21, length/width ratio 2.75-3.06-3.27; chela without pedicel (40): length 0.91-1.055-1.22, width 0.30-0.36-0.44, length/width ratio 2.75-2.95-3.12; hand without pedicel: length (42) 0.35-0.40-0.48, depth 0.29-0.35-0.43, length/depth ratio (40): 1.0-1.13-1.34; movable finger (41): 0.60-0.68-0.79 long, 1.54-1.71-1.92 times as long as hand without pedicel. Subbasal tactile seta on dorsum palpal femur (43): 0.12-0.14-0.16 from exterior key point of femoral base. Length palpal femur 4.09-4.77-6.08 times distance from subbasal tactile seta to exterior key point of femoral base. Fixed finger (41) with 26-31.6-37 marginal teeth; tactile seta *ü* (42) 0.08-0.10-0.12 from base apical tooth on outside curve (*i.e.* (21) up to level of 6<sup>th</sup>-7.1-9<sup>th</sup> marginal tooth from apical tooth; tactile seta *est* (42) 0.30-0.35-0.40 from base apical tooth on outside curve (*i.e.* up to level of 19<sup>th</sup>-21.4-24/25<sup>th</sup> marginal tooth from apical tooth; nodus ramosus (21) 0.17-0.20-0.21 from base apical tooth on outside curve (*i.e.* (43) up to level of 11<sup>th</sup>-12.1-13/14<sup>th</sup> marginal tooth from apical tooth; length of fixed finger (19) 3.31-3.59-3.95 times length of venom duct, in which case length of fixed finger is considered to be equal to length of movable finger. Movable finger (42) with 20-23.5-28 marginal teeth; tactile seta *t* (42) 0.09-0.105-0.13 from base apical tooth on outside curve (*i.e.* (20) up to level of 6/7<sup>th</sup>-6.9-8<sup>th</sup> marginal tooth from apical tooth); nodus ramosus



(20) 0.17-0.19-0.23 from base apical tooth on outside curve (i.e. (42) up to level of 9/10<sup>th</sup>-10.7-12<sup>th</sup> marginal tooth from apical tooth); length of movable finger (19) 3.37-3.66-4.0 times length of venom duct.

*First leg:* trochanter (9) 0.155-0.165-0.17 long, 0.12-0.13-0.14 deep, length/depth ratio 1.27-1.31-1.36; femur 0.27-0.31-0.37 long (43), 0.08-0.09-0.105 deep (42), length/depth ratio (42) 3.13-3.48-3.77; patella (42) 0.13-0.15-0.18 long, 0.075-0.09-0.10 deep, length/depth ratio 1.65-1.76-1.88; length of femur (41) 1.96-2.07-2.16 times length of patella; tibia 0.22-0.235-0.25 long, 0.055-0.06-0.06 deep, length/depth ratio 3.78-3.92-4.0; metatarsus 0.175-0.19-0.20 long, 0.04-0.04-0.05 deep, length/depth ratio 4.04-4.24-4.59; tarsus 0.12-0.13-0.14 long, 0.025-0.03-0.03 deep, length/depth ratio 4.57-4.97-5.33.

*Fourth leg:* trochanter (9) 0.20-0.24-0.26 long, 0.15-0.17-0.20 deep, length/depth ratio 1.30-1.39-1.57; femur (9) 0.17-0.19-0.20 long, 0.11-0.13-0.17 deep, length depth ratio 1.16-1.39-1.49; patella (9) 0.52-0.56-0.59 long, 0.27-0.30-0.32 deep, length/depth ratio 1.82-1.86-1.94; femur + patella (41) 0.55-0.62-0.74 long, 0.25-0.29-0.33 deep, length/depth ratio 1.99-2.20-2.36; tibia (9) 0.37-0.40-0.43 long, 0.09-0.10-0.10 deep, length/depth ratio 3.77-4.07-4.26; metatarsus (9) 0.21-0.22-0.23 long, 0.05-0.06-0.07 deep, length/depth ratio 3.34-3.54-3.87; tarsus (9) 0.17-0.185-0.20 long, 0.04-0.04-0.04 deep, length/depth ratio 4.16-4.47-4.78.

*Chaetotaxy and internal structure of female genital area:*

Anterior operculum (32): 1-4.22-5 marginal setae.

Posterior operculum (35): 2-2.43-4 marginal setae.

Cribriform plates: a big medial cluster (37), only a few times identifiable as well-developed medial pair; 1 smaller lateral pair (27); and 1 minute medial pair near posterior lip of aperture (29).

**TRITONYMPH:** description based on 19 specimens. Measurements in mm, ratios and counts with mean values in italics.

*Body:* 1.72-1.90-2.17 long.

*Pedipalp:* femur 0.41-0.46-0.47 long by 0.11-0.12-0.135 wide; tibia 0.32-0.36-0.44 long by 0.12-0.13-0.15 wide; chela without pedicel 0.665-0.74-0.90 long by 0.21-0.24-0.29 wide; hand without pedicel 0.26-0.29-0.34 long by 0.20-0.23-0.27 deep; movable finger 0.40-0.46-0.57 long. Subbasal tactile seta on dorsum palpal femur 0.09-0.11-0.12 from exterior key point of femoral base. Fixed finger with 22-25.6-31 marginal teeth; tactile seta *it* up to level of 7<sup>th</sup>-8.0-9/10<sup>th</sup> marginal tooth from apical tooth; tactile seta *est* up to level of 17<sup>th</sup>-

TABLE 1  
SUMMARY OF BIOMETRIC DATA FOR MALES AND FEMALES OF APHELOIPIUM SCITULUM HOFF  
(mean between the extremes, aberrant number of counts/measurements in parentheses;  
FF = fixed finger, MF = movable finger, L = length, W = width, D = depth)

Measure (t in m), number or proportion	Curaçao		Aruba		Curaçao + Aruba		Jamaica *	
	Male (n=42)	Female (n=31)	Male (n=16)	Female (n=13)	Male (n=58)	Female (n=44)	Male (n=4)	Female (n=6)
Body length	1.86 - 2.08 - 2.29 (41)	1.96 - 2.20 - 2.80 (30)	2.02 - 2.15 - 2.25 (15)	2.34 - 2.62 - 2.77 (11)	1.86 - 2.10 - 2.295 (46)	1.96 - 2.25 - 2.8 (43)	1.95 - 2.48	2.30 - 2.95
Head								
Femur, length	0.52 - 0.69 - 0.67	0.57 - 0.62 - 0.72	0.56 - 0.62 - 0.70	0.62 - 0.70 - 0.728	0.52 - 0.60 - 0.70	0.57 - 0.65 - 0.725	0.57 - 0.75	0.65 - 0.74
Femur, width	0.12 - 0.12 - 0.17	0.15 - 0.15 - 0.19	0.15 - 0.15 - 0.18	0.15 - 0.17 - 0.20	0.12 - 0.12 - 0.18	0.15 - 0.17 - 0.20	0.14 - 0.18	0.17 - 0.20
Petalia, length	0.15 - 0.22 - 0.16	0.16 - 0.22 - 0.20	0.15 - 0.21 - 0.20	0.19 - 0.22 - 0.20	0.15 - 0.21 - 0.20	0.16 - 0.21 - 0.20	0.17 - 0.21	0.18 - 0.21
Petalia, width	0.15 - 0.16 - 0.16	0.16 - 0.17 - 0.19	0.15 - 0.15 - 0.20	0.15 - 0.16 - 0.19	0.15 - 0.15 - 0.20	0.15 - 0.16 - 0.21	0.16 - 0.19	0.17 - 0.21
Cleft without pedicel, length	0.175 - 0.21 - 0.01	0.18 - 0.22 - 0.19	0.184 - 0.22 - 0.19	0.184 - 0.22 - 0.19	0.175 - 0.22 - 0.19	0.181 - 0.22 - 0.19	0.18 - 0.22	0.19 - 0.24
Cleft without pedicel, width	0.22 - 0.22 - 0.28	0.20 - 0.24 - 0.29 (28)	0.21 - 0.22 - 0.27	0.22 - 0.24 - 0.29	0.22 - 0.24 - 0.29	0.22 - 0.24 - 0.29	0.22 - 0.24	0.24 - 0.28
Head without pedicel, length	0.28 - 0.28 - 0.388	0.25 - 0.28 - 0.42 (29)	0.26 - 0.27 - 0.41	0.29 - 0.28 - 0.44	0.28 - 0.28 - 0.44	0.28 - 0.28 - 0.44	0.28 - 0.30	0.30 - 0.47
Head without pedicel, width	0.23 - 0.23 - 0.34	0.23 - 0.23 - 0.40 (30)	0.24 - 0.24 - 0.35 (12)	0.27 - 0.27 - 0.44 (13)	0.23 - 0.23 - 0.35 (14)	0.23 - 0.23 - 0.43 (11)	0.24 - 0.33	0.325 - 0.45
Movable finger, length	0.30 - 0.32 - 0.45	0.30 - 0.32 - 0.40 (29)	0.30 - 0.31 - 0.41	0.32 - 0.32 - 0.49	0.30 - 0.32 - 0.41	0.30 - 0.32 - 0.45	0.30 - 0.33	0.325 - 0.45
Movable finger, width			0.55 - 0.52 - 0.68	0.69 - 0.71 - 0.79 (*)	0.50 - 0.52 - 0.68	0.60 - 0.68 - 0.79 (41)	0.59 - 0.69	0.71 - 0.78
Males remains								
(distance from base apical tooth)								
Fixed finger	0.15 - 0.17 - 0.19 (9)	0.17 - 0.19 - 0.21 (9)	0.14 - 0.18 - 0.21 (10)	0.18 - 0.20 - 0.21 (12)	0.15 - 0.18 - 0.21 (23)	0.17 - 0.20 - 0.21 (21)	0.19 / 0.21	0.20 / 0.21
Movable finger	0.15 - 0.17 - 0.19 (*)	0.17 - 0.19 - 0.20 (*)	0.16 - 0.19 - 0.22 (*)	0.19 - 0.20 - 0.23 (*)	0.15 - 0.17 - 0.22 (*)	0.17 - 0.19 - 0.23 (20)	0.17 / 0.19	0.20 / 0.20
Tactile setae								
(distance from base apical tooth)								
Fixed finger: t	0.09 - 0.09 - 0.11	0.06 - 0.10 - 0.11	0.09 - 0.10 - 0.11	0.11 - 0.11 - 0.12 (11)	0.06 - 0.09 - 0.11 (6)	0.06 - 0.10 - 0.12 (42)	0.10 / 0.12	0.12 / 0.13
est	0.28 - 0.315 - 0.35	0.30 - 0.34 - 0.37	0.29 - 0.32 - 0.35	0.34 - 0.37 - 0.40 (*)	0.28 - 0.32 - 0.35 (*)	0.30 - 0.33 - 0.40 (*)	0.33 / 0.37	0.38 / 0.39
Movable finger: t	0.075 - 0.07 - 0.105	0.065 - 0.10 - 0.12	0.06 - 0.10 - 0.115	0.11 - 0.12 - 0.13 (*)	0.08 - 0.10 - 0.115 (*)	0.065 - 0.105 - 0.13 (*)	0.10 / 0.10	0.09 / 0.12
est								
Tactile setae on dorsum femur								
(distance from femoral base)								
Cleft (dentition)								
Fixed finger (nr. of marg. teeth)	27 - 30.1 - 33	26 - 30.7 - 37	30 - 29.5 - 35 (15)	29 - 29.8 - 37 (12)	27 - 30.7 - 35 (9)	26 - 29.6 - 37 (*)	25 - 35	26 - 32
Movable finger (nr. of marg. teeth)	19 - 21.5 - 25	20 - 22.8 - 26	23 - 24.1 - 26 (13)	24 - 25.7 - 28 (11)	20 - 22.5 - 26 (11)	20 - 23.5 - 26 (42)	20 - 23	21 - 25
Males remains FF (pos. rel. marg. teeth)	10/11 - 11.8 - 14	11 - 11.98 - 14	10/11 - 12.1 - 13 (15)	11 - 12.25 - 13/14 (12)	10/11 - 11.3 - 14 (12)	11 - 12.1 - 13/14 (43)	11/11	10/10
FF (pos. rel. marg. teeth)	8 - 10.17 - 12	9/10 - 10.61 - 12	9/10 - 10.5 - 12 (*)	9/10 - 10.58 - 12 (11)	6/9 - 10.3 - 12 (*)	9/10 - 10.7 - 12 (42)	9/10/10	8/9/11
Tactile setae (pos. rel. marg. teeth)								
Fixed finger: t	6 - 5.5 - 7 (9)	6 - 5.5 - 8 (9)	6 - 7.0 - 8	6/7 - 7.29 - 9 (12)	6 - 5.5 - 8 (24)	6 - 7.1 - 9 (21)	7/7	6/6
est	19/20 - 20.7 - 21/22 (*)	19 - 20.7 - 21/22 (*)	19 - 21.3 - 24	18/19 - 21.98 - 24/25 (*)	19 - 21.4 - 24 (*)	19 - 21.4 - 24/25 (*)	19/19	17/17
Movable finger: t	6 - 5.5 - 7 (*)	6 - 5.5 - 7 (*)	6 - 5.5 - 7 (*)	6/7 - 7.15 - 9 (11)	6 - 5.5 - 7 (*)	6/7 - 6.5 - 8 (8)	6/7/7	5/5/6
est								
Leg I								
Femur, length	0.24 - 0.225 - 0.315 (41)	0.27 - 0.26 - 0.33	0.27 - 0.26 - 0.32	0.30 - 0.335 - 0.37	0.24 - 0.28 - 0.32 (56)	0.27 - 0.31 - 0.37 (43)	0.285 - 0.32	0.315 - 0.34
depth	0.07 - 0.09 - 0.09 (*)	0.08 - 0.09 - 0.105 (30)	0.08 - 0.08 - 0.09	0.08 - 0.09 - 0.10	0.07 - 0.08 - 0.09 (9)	0.08 - 0.09 - 0.105 (42)	0.08 - 0.10	0.09 - 0.10
Petalia, length	0.12 - 0.14 - 0.17 (*)	0.13 - 0.13 - 0.16 (*)	0.14 - 0.15 - 0.18	0.14 - 0.15 - 0.18	0.12 - 0.14 - 0.17 (*)	0.13 - 0.15 - 0.18 (*)	0.14 - 0.17	0.16 - 0.18
depth	0.07 - 0.08 - 0.09 (39)	0.075 - 0.08 - 0.09	0.07 - 0.08 - 0.09	0.06 - 0.09 - 0.10	0.07 - 0.08 - 0.09 (56)	0.075 - 0.09 - 0.10 (*)	0.08 - 0.09	0.09 - 0.10
Leg IV								
Femur + petalia, length	0.52 - 0.585 - 0.66	0.55 - 0.62 - 0.68	0.56 - 0.62 - 0.67	0.59 - 0.67 - 0.74	0.52 - 0.59 - 0.67	0.55 - 0.62 - 0.74	0.56 - 0.665	0.63 - 0.69
depth	0.18 - 0.22 - 0.33	0.25 - 0.295 - 0.2	0.275 - 0.30 - 0.33	0.28 - 0.30 - 0.33	0.18 - 0.22 - 0.33	0.25 - 0.295 - 0.33	0.25 - 0.33	0.275 - 0.31

Measure (in mm), number or proportion	Curcupo		Aruba		Coroico + Aruba		Jamaica <sup>1)</sup>	
	Male (n=42)	Female (n=31)	Male (n=16)	Female (n=13)	Male (n=59)	Female (n=44)	Male (n=8)	Female (n=6)
<b>Phal proportions</b>								
Femur L/W	3.67 -3.95 -4.4	3.6 -3.94 -4.2	3.5 - 3.9 -4.14	3.63- 3.82-4.03	3.5 - 3.94-4.4	3.6 - 3.91-4.2	3.94-4.21	3.51-3.83
Patella L/W	2.8 -3.07 -3.32	2.75 -3.07 -3.27	3.05- 3.11-3.26	2.93- 3.06-3.2	2.8 - 3.08-3.32	2.76- 3.06-3.27	2.96-3.39	2.69-3.03
Chela without pedicel L/W	2.9 -3.12 -3.51	2.86 -2.99 -3.12 (28)	2.93- 3.06-3.25	2.76- 2.84-2.94 (12)	2.9 - 3.1 -3.51	2.76- 2.95-3.12 (40)	3.06-3.56	2.8 -3.19
Hand without pedicel L/D	1.11 -1.22 -1.39	1.0 -1.14 -1.34 (+)	1.13- 1.23-1.36 (12)	1.02- 1.11-1.26 (+)	1.13- 1.22-1.39 (54)	1.0 - 1.13-1.34 (+)	1.03-1.36	1.03-1.21
Rev. f. L/hand without pedicel L	1.57 -1.69 -1.83	1.6 -1.72 -1.92 (29)	1.59- 1.68-1.74	1.54- 1.69-1.79	1.37- 1.66-1.83	1.54- 1.71-1.92 (41)	1.76-1.81	1.64-1.7
Rev. f. L/venos duct L in fixed finger	3.08 -3.29 -3.78 (9)	3.31 -3.41 -3.85 (8)	3.09- 3.42-3.83 (14)	3.33- 3.72-3.95 (11)	3.06- 3.37-3.83 (23)	3.31- 3.59-3.95 (19)	3.1 -3.64	3.25-3.68
Rev. f. L/venos duct L in movable finger	3.11 -3.42 -3.83 (+)	3.37 -3.57 -3.75 (+)	3.02- 3.47-3.78 (+)	3.43- 3.72-4.0 (+)	3.02- 3.45-3.83 (+)	3.37- 3.66-4.0 (+)	3.1 -3.74	3.37-3.81
Ratio femur L/distance tattle seta on dorsum	4.19 -4.84 -5.68	4.09 -4.59 -5.1	4.53- 5.31-6.51	4.62- 5.28-6.08 (12)	4.19- 4.97-6.51	4.09- 4.77-6.08 (43)	5.2 -5.94	4.1 -5.37
<b>Pedal proportions</b>								
Leg I								
Femur L/D	3.0 -3.33 -3.6 (40)	3.13 -3.43 -3.77 (30)	3.32- 3.53-3.78	3.39- 3.6 -3.77 (12)	3.0 - 3.39-3.78 (56)	3.13- 3.48-3.77 (42)	3.1 -3.45	3.19-3.53
Patella L/D	1.61 -1.73 -2.09 (39)	1.65 -1.73 -1.85 (+)	1.66- 1.81-2.06	1.74- 1.82-1.88 (+)	1.61- 1.75-2.09 (55)	1.65- 1.76-1.88 (+)	1.84-1.99	1.66-1.9
Femur L/patella L	1.82 -2.02 -2.18 (40)	1.96 -2.07 -2.16 (29)	1.91- 2.05-2.15	2.03- 2.07-2.15 (+)	1.82- 2.03-2.18 (58)	1.96- 2.07-2.16 (41)	1.79-1.97	1.86-2.03
Leg IV								
Femur + patella L/D	1.09 -2.0 -2.23	1.99 -2.15 -2.28	1.96- 2.09-2.23	2.17- 2.28-2.36 (+)	1.89- 2.02-2.23	1.94- 2.2 -2.36	2.02-2.31	2.19-2.29

<sup>1)</sup> Diff. in lit., compiled with data from own examination (./.) of holotype male and 2 paratype females.

18.8-21<sup>th</sup> marginal tooth from apical tooth; tactile seta *ib* absent; nodus ramosus up to level of 9<sup>th</sup>-9.8-11<sup>th</sup> marginal tooth from apical tooth. Movable finger with 15-18.5-22 marginal teeth; tactile seta *t* up to level of 5/6<sup>th</sup>-6.6-7<sup>th</sup> marginal tooth from apical tooth; tactile seta *b* absent; nodus ramosus up to level of 7<sup>th</sup>-8.5-11<sup>th</sup> marginal tooth from apical tooth.

*First leg:* femur 0.19-0.22-0.26 long by 0.06-0.07-0.08 deep; patella 0.10-0.11-0.13 long by 0.06-0.07-0.075 deep.

*Fourth leg:* femur + patella 0.43-0.46-0.53 long by 0.19-0.21-0.245 deep.

*Palpal proportions:* femur, length/width ratio 3.45-3.70-3.88; tibia, length/width ratio 2.53-2.81-3.04; chela without pedicel, length/width ratio 2.76-3.15-3.34; hand without pedicel, length/depth ratio 1.15-1.25-1.40; movable finger 1.38-1.60-1.77 times as long as hand without pedicel. Ratio femur length/distance tactile seta on dorsum femur from exterior key point of femoral base: 3.87-4.34-5.21.

*Pedal proportions.* First leg: femur, length/depth ratio 2.83-3.09-3.39; patella, length/depth ratio 1.50-1.62-1.77; femur 1.90-2.03-2.18 times as long as patella. Fourth leg: femur + patella, length/depth ratio 2.07-2.19-2.32.

**Remarks:** Obviously adult specimens of *Aphelolpium scitulum* from Curaçao and Aruba show a much wider range in characters, such as size of body, palpal and pedal podomeres than noted previously. However, the higher extremes of variation equal those of the type specimens from Jamaica, while the lower extremes fall outside. These last-mentioned differences are evidently of no significance since practically full agreement occurs in the length/width ratios of palpal and pedal podomeres as compared with those found in the type specimens (Table 1). With regard to the tritonymphs examined, it appears that the majority of the data of the tritonymph type specimen from Jamaica approximate to the mean values of the data of the tritonymphs from Curaçao and Aruba (Table 2).

A consequence of the conclusion that there is considerably more variation in *A. scitulum* than indicated by the type series from Jamaica, is that many 'critical' measurements given by MUCHMORE (1979) for *A. cayanum* from Florida, will fall within the limits of variation found in the present material of *A. scitulum*. When more extensive collections of *A. cayanum* would come to hand, a comparative study may give a decisive answer to the question whether the two species are possibly conspecific. A direct examination of the type specimens of *A. cayanum* was impossible, as the University of Florida (Gaines-

TABLE 2 SUMMARY OF BIOMETRIC DATA FOR NYMPHS OF APHELOPIUM SCITULUM HOFF  
(mean between the extremes; FF=fixed finger, MF=movable finger, L=length, W=width, D=depth)

Measure (in mm), number or proportion	Curaçao + Aruba			Jamaica <sup>x)</sup>	
	Tritonymphs (n=19)			Tritonymph (n=1)	Deutonymph (n=1)
Body length	1.725-1.90	-2.17		1.86	indet.
Pedipalp					
Femur, length	0.41	-0.46	-0.47	0.45	0.37
width	0.11	-0.12	-0.135	0.12	0.105
Patella, length	0.32	-0.36	-0.44	0.34	0.27
width	0.12	-0.13	-0.15	0.12	0.11
Chela without pedicel, length	0.665-0.74	-0.90		0.73	0.61
width	0.21	-0.24	-0.29	0.21	0.175
Hand without pedicel, length	0.26	-0.29	-0.34	0.28	0.24
depth	0.20	-0.23	-0.27	0.21	0.18
Movable finger, length	0.40	-0.46	-0.57	0.45	0.38
Tactile seta on dorsum femur (distance from femoral base)	0.09	-0.11	-0.12	0.085	0.09
Chela (dentition)					
Fixed finger (nr. of marginal teeth)	22-25.6	-31		20	16
Movable finger (nr. of marginal teeth)	15-18.5	-20		17	11
Nodus ramosus FF (pos.rel. marg. teeth)	9- 9.8	-11		8/9	7
MF (pos.rel. marg. teeth)	7- 8.5	-11		8	6/7
Tactile setae (pos. rel. marg. teeth)					
Fixed finger: it	7- 8.0	-9/10		7	7
est	17-18.8	-21		15	15
Movable finger: t	5/6- 6.6	-7		6	6
Leg I					
Femur, length	0.19	-0.22	-0.26	0.22	0.17
depth	0.06	-0.07	-0.08	0.07	0.06
Patella, length	0.10	-0.11	-0.13	0.11	0.09
depth	0.06	-0.07	-0.075	0.07	0.06
Leg IV					
Femur + patella, length	0.43	-0.46	-0.53	0.45	indet.
depth	0.19	-0.21	-0.245	0.20	0.17
Palpal proportions					
Femur L/W	3.45- 3.70-3.88			3.71	3.54
Patella L/W	2.53- 2.81-3.04			2.77	2.5
Chela without pedicel L/W	2.76- 3.15-3.34			3.43	3.5
Hand without pedicel L/D	1.15- 1.25-1.40			1.35	1.29
Mov.f. L/hand without pedicel L	1.38- 1.60-1.77			1.63	1.62
Ratio femur L/distance tactile seta on dorsum femur from base	3.87- 4.34-5.21			5.36	4.37
Pedal proportions					
Leg I					
Femur L/D	2.83- 3.09-3.39			3.15	2.81
Patella L/D	1.50- 1.62-1.77			1.61	1.46
Femur L/patella L	1.90- 2.03-2.18			2.07	2.01
Leg IV					
Femur + patella L/D	2.04- 2.19-2.32			2.20	indet.

x) Data of type material from own examination.

ville), that holds this material did not react to my request for a loan.

Of the 152 olpiid pseudoscorpions examined from Curaçao and Aruba, 123 specimens have been identified as *Aphelolpium scitulum* Hoff. However, 29 specimens from 8 localities in Aruba, 3 of which noted before, do have shorter palpal fingers. This 'short-fingered form' is described as a new species. A separate description is given of male, female, tritonymph and deutonymph.

### *Aphelolpium brachytarsus* sp. nov.

(localities of paratypes fully described by WAGENAAR HUMMELINCK (1940: 22-42; 1953: 11-28; 1981: 80), station numbers in italics, slide numbers in parentheses).

*Holotype:*

♂ (1046), Aruba, 276, Heintje Croes, near Oranjestad, 14.12.1936; coral limestone, scattered shrubs and herb between debris with weathered soil and decay of *Capraria biflora* and *Prosopis juliflora*.

*Paratypes:*

ARUBA, same data as holotype: 2 tritonymphs (1364, 1639) and 1 deutonymph (1048); 246, Bron di Rooi Prins, 9.1.1937: 1 deutonymph (1365); 253, Boca Grandi, N of Culebra, 5.1.1937: 1 ♂ (1327); 272, Hudishibana, Westpunt, 9.12.1936: 2 ♂♂ (1051, 1054); 278, Bucuti reef near Oranjestad, 8.2.1937: 1 ♂ (102) and 1 tritonymph (101); 278A, same, 17.1.1949: 4 ♂♂ (207, 229, 236-237) and 2 ♀♀ (215, 217); 362, Sabana Blancoe, W of Seroe Bientoe, 31.12.1948: 1 ♀ (190) and 1 deutonymph (191); 896, Seroe Wara-Wara, 22.10.1967: 1 ♀ (1700); Oranjestad, 1948 (A. D. Ringma coll.): 5 ♂♂ (740-741, 746, 748-749), 4 ♀♀ (739, 742-744) and 1 tritonymph (747).

**Diagnosis:** This species differs from *A. scitulum* and *A. cayanum* by having much shorter chelal fingers, and from *A. thibaudi* being larger in size with proportionally shorter chelal fingers.

**Description:** MALE: description based on the holotype and 13 paratypes (Figs. 1c, 3c, 4e-f, 5e-f, 6c). Measurements in mm, ratios and counts with mean values in italics. Moderately pigmented with palps and body (tergites) of a very pale orange basic colour, distal three fourth of tibia and chelal hand tan-coloured, carapace orange and legs pale orange-like yellow.

*Body:* 1.49-1.78-1.935 long.

*Carapace:* length 0.48-0.55-0.58, greatest width 0.37-0.41-0.43, length/width ratio 1.27-1.34-1.44, ocular width 0.28-0.33-0.37; eyes 2 pairs, well-developed; anterior and posterior margin of carapace with 4 setae.

*Abdomen*: chaetotaxy, tergites I-IX (11-12): 4-4.17-6: 4-5.5-6: 4-5.67-6-6-6.5-8: 6-6.5-8: 6-6.42-8: 6-6.45-8: 6-6.55-8: 1T5T1-1T5.55T1:1T6T1; sternites IV-IX (11-12): 4-4.67-6: 6: 6: 4-5.92-7: 5-6.0-7: 6.

*Chelicera*: length 0.12-0.14-0.16, width 0.09-0.10-0.11, length/width ratio 1.21-1.38-1.64, and 0.23-0.26-0.28 times as long as carapace; movable finger: length 0.385-0.445-0.475; galea: length 0.02-0.03-0.03, terminally with 3 small rami; inner margin of fixed finger with 6 teeth; movable finger with strongly developed subapical lobe, divided in 2 nearly equal parts; serrula exterior with 16-18-19 blades; flagellum consists of 2 setae, one long and one short, both pinnate in distal half of anterior margin. Chaetotaxy: 5 setae on exterior surface of palm and 1 on movable finger.

*Pedipalp*: femur, length 0.45-0.49-0.53, width 0.12-0.13-0.14, length/width ratio 3.61-3.69-3.78; patella: length 0.37-0.42-0.465, width 0.13-0.15-0.16, length/width ratio 2.72-2.83-2.96; chela without pedicel: length 0.66-0.745-0.79, width 0.24-0.28-0.30, length/width ratio 3.53-2.68-2.77; hand without pedicel: length 0.28-0.31-0.34, depth 0.21-0.27-0.29, length/width ratio 1.06-1.18-1.30; movable finger: 0.385-0.445-0.475 long, 1.33-1.42-1.51 times as long as hand without pedicel. Subbasal tactile seta on dorsum palpal femur 0.10-0.11-0.12 from exterior key point of femoral base, length palpal femur 3.98-4.32-5.11 times distance from subbasal tactile seta to exterior key point of femoral base. Fixed finger with 24-26-2-29 marginal teeth; tactile seta *it* 0.07-0.08-0.09 from base apical tooth on outside curve (*i.e.* up to level of 6<sup>th</sup>-6.9-8<sup>th</sup> marginal tooth from apical tooth); tactile seta *est* 0.21-0.235-0.25 from base apical tooth on outside curve (*i.e.* up to level of 17<sup>th</sup>-19.0-20.0<sup>th</sup> marginal tooth from apical tooth); nodus ramosus 0.13-0.14-0.15 from base of apical tooth on outside curve (*i.e.* up to level of 10/11<sup>th</sup>-11.4-14<sup>th</sup> marginal tooth from apical tooth); length of fixed finger 3.02-3.15-3.33 times length of venom duct, in which case length of fixed finger is considered to be equal to length of movable finger. Movable finger with 18-20.5-23 marginal teeth; tactile seta *t* 0.065-0.08-0.10 from base apical tooth on outside curve (*i.e.* up to level of 6<sup>th</sup>-6.75-8<sup>th</sup> marginal tooth from apical tooth); nodus ramosus 0.13-0.14-0.15 from base apical tooth on outside curve (*i.e.* up to level of 9<sup>th</sup>-10.0-11<sup>th</sup> marginal tooth from apical tooth); length of movable finger 2.94-3.25-3.39 times length of venom duct.

*First leg*: femur 0.20-0.23-0.25 long, 0.065-0.07-0.08 deep, length/depth ratio 3.04-3.18-3.39; patella 0.10-0.12-0.12 long, 0.06-0.07-0.075 deep, length/depth ratio 1.62-1.70-1.81; length of femur 1.88-1.96-2.06 times length of patella.

*Fourth leg:* femur + patella 0.45-0.49-0.52 long, 0.20-0.23-0.25 deep, length/depth ratio 2.02-2.14-2.22.

*Chaetotaxy of male genital area:* 4-5.4-7 on face of anterior operculum; 5-7.3-9 along anterior lip of aperture; 2 pairs of setae along posterior lip of aperture; and 2 setae along margin of posterior operculum.

**FEMALE:** description based on 8 paratypes (Figs. 2c, 3f, 4g-h, 5g, 6e). Measurements in mm, ratios and counts with mean values in italics. Female very similar to male, except for different genitalia and on average a larger body, stouter palpal and pedal segments and a longer galea.

*Body:* 1.865-2.08-2.25 long.

*Carapace:* length 0.52-0.56-0.59, greatest width 0.40-0.43-0.45, length/width ratio 1.19-1.30-1.37, ocular width 0.315-0.34-0.36; eyes: 2 pairs, well-developed; anterior margin of carapace with 4 setae, posterior margin of carapace with 4 setae (but one with 6).

*Abdomen:* chaetotaxy, tergites I-IX (6-7): 4-4.57-6: 4-4.86-6: 5-5.71-6: 6-6.86-8: 6-7.0-8: 6-7.0-8: 6-7.14-8: 6-7.5-8: IT6T1; sternites IV-IX (6-8): 4-5.63-6: 6: 6: 6: 6-6.17-7.

*Chelicera:* length 0.14-0.16-0.19, width 0.105-0.11-0.12, length/width ratio 1.33-1.44-1.58, and 0.28-0.29-0.33 times as long as carapace; movable finger: length 0.12-0.14-0.15; galea: length 0.04-0.05-0.05, terminally with 3 small rami; inner margin of fixed finger with 6 teeth; movable finger with strongly developed subapical lobe, divided in 2 nearly equal parts; serrula exterior with 17-18-19 blades; flagellum consists of 2 setae, 1 long and 1 short, both pinnate in distal half of anterior margin. Chaetotaxy: 5 setae on exterior surface of palm and 1 on movable finger.

*Pedipalp:* femur: length 0.47-0.53-0.59, width 0.12-0.15-0.16, length/width ratio 3.43-3.55-3.73; patella: length 0.38-0.44-0.485, width 0.15-0.16-0.18, length/width ratio 2.54-2.70-2.84; chela without pedicel: length 0.79-0.84-0.89, width 0.30-0.335-0.36, length/width ratio 2.44-2.52-2.61; hand without pedicel: length 0.32-0.35-0.38, depth 0.275-0.33-0.37, length/depth ratio 0.96-1.08-1.21; movable finger: 0.46-0.495-0.52 long, 1.33-1.41-1.47 times as long as hand without pedicel. Subbasal tactile seta on dorsum palpal femur 0.11-0.115-0.13 from exterior key point of femoral base, length palpal femur 3.81-4.60-5.21 times distance from subbasal tactile seta to exterior key point of femoral base. Fixed finger with 23-26.6-30 marginal teeth; tactile seta  $\dot{u}$  0.08-0.09-0.10 from base apical tooth on outside curve (*i.e.* up to level of 6<sup>th</sup>-



7.0-8<sup>th</sup> marginal tooth from apical tooth); tactile seta *est* 0.23-0.26-0.28 from base of apical tooth on outside curve (*i.e.* up to level of 16/17<sup>th</sup>-18.7-21<sup>th</sup> marginal tooth from apical tooth); nodus ramosus 0.12-0.14-0.16 from base apical tooth on outside curve (*i.e.* up to level of 9<sup>th</sup>-11.5-14<sup>th</sup> marginal tooth from apical tooth); length of fixed finger 3.03-3.42-3.72 times length of venom duct, in which case length of fixed finger is considered to be equal to length of movable finger. Movable finger with 19-22.0-24 marginal teeth; tactile seta *t* 0.075-0.09-0.10 from base of apical tooth on outside curve (*i.e.* up to level of 7<sup>th</sup>-7.3-8<sup>th</sup> marginal tooth from apical tooth); nodus ramosus 0.12-0.14-0.15 from base apical tooth on outside curve (*i.e.* up to level of 9<sup>th</sup>-10.4-12<sup>th</sup> marginal tooth from apical tooth); length of movable finger 1.33-1.41-1.47 times length of venom duct.

*First leg:* femur 0.23-0.25-0.27 long, 0.07-0.08-0.08 deep, length/depth ratio 2.93-3.18-3.35; patella 0.12-0.125-0.13 long, 0.07-0.075-0.08 deep, length/depth ratio 1.58-1.68-1.76; length of patella 1.84-1.99-2.20 times length of femur.

*Fourth leg:* femur + patella 0.49-0.52-0.55 long, 0.21-0.225-0.24 deep, length/depth ratio 2.21-2.32-2.41.

*Chaetotaxy and internal structure of female genital area:* anterior operculum with 4-4.6-6 marginal setae and posterior operculum with 2-3.6-5 marginal setae; a big medial cluster of cribriform plates (in only 1 specimen a well-developed medial pair), 1 medial pair of unequal minute plates near posterior lip of aperture, and 1 lateral pair of small plates.

TRITONYMPH: measurements in mm, proportions and counts based on 4 paratypes from Aruba (mean values in italics).

*Body:* 1.42-1.66-1.935 long.

*Pedipalp:* femur 0.34-0.37-0.39 long by 0.105-0.11-0.11 wide; patella 0.29-0.31-0.32 long by 0.11-0.12-0.12 wide; chela without pedicel 0.56-0.59-0.63 long by 0.19-0.21-0.22 wide; chela without pedicel 0.56-0.59-0.63 long by 0.19-0.21-0.22 wide; hand without pedicel 0.24-0.25-0.25 long by 0.19-0.20-0.20 deep; movable finger 0.31-0.35-0.385 long. Subbasal tactile seta on dorsum palpal femur 0.075-0.09-0.10 from exterior key point of femoral base. Fixed finger with 18-21-23 marginal teeth; tactile seta *it* up to level of 7<sup>th</sup>-7.63-9<sup>th</sup> marginal tooth from apical tooth; tactile seta *est* up to level of 17<sup>th</sup>-18-19<sup>th</sup> marginal tooth from apical tooth; tactile seta *ib* absent; nodus ramosus up to level of 9/10<sup>th</sup>-10-10/11<sup>th</sup> marginal tooth from apical tooth. Movable finger with

14-16-18 marginal teeth; tactile seta *t* up to level of 7<sup>th</sup> marginal tooth from apical tooth; tactile seta *sb* absent; nodus ramosus up to level of 8<sup>th</sup>-8.9-10<sup>th</sup> marginal tooth from apical tooth.

*First leg:* femur 0.17-0.18-0.19 long by 0.06-0.06-0.06 deep; patella 0.09-0.09-0.10 long by 0.06-0.06-0.06 deep.

*Fourth leg:* femur + patella 0.36-0.38-0.41 long by 0.17-0.18-0.19 deep.

*Palpal proportions:* femur, length/width ratio 3.25-3.41-3.53; patella, length/width ratio 2.54-2.67-2.75; chela without pedicel, length/width ratio 2.61-2.80-2.97; hand without pedicel, length/depth ratio 1.21-1.26-1.32; movable finger: 1.22-1.39-1.54 times as long as hand without pedicel. Ratio femur length/distance tactile seta on dorsum femur from exterior key point of femoral base 3.89-4.16-4.72.

*Proportions of legs:* First leg; femur, length/depth ratio 2.67-2.84-3.04; patella, length/depth ratio 1.54-1.56-1.59; femur 1.84-1.89-1.94 times as long as patella. Fourth leg: femur + patella, length/depth ratio 2.0-2.16-2.30.

DEUTONYMPH: measurements in mm, proportions and counts based on 3 paratypes from Aruba (mean values in italics).

*Body:* 1.05-1.14-1.28 long.

*Pedipalp:* femur 0.25-0.27-0.29 long by 0.07-0.08-0.08 wide; patella 0.19-0.21-0.23 long by 0.08-0.09-0.09 wide; chela without pedicel 0.42-0.435-0.45 long by 0.14-0.14-0.15 wide; hand without pedicel 0.16-0.17-0.19 long by 0.13-0.14-0.15 deep; movable finger 0.25-0.27-0.28 long. Subbasal tactile seta on dorsum palpal femur 0.07-0.08-0.08 from exterior key point of femoral base. Fixed finger with 16-17.7-20 marginal teeth; tactile seta *it* up to 7<sup>th</sup>-8.2-9<sup>th</sup> marginal tooth from apical tooth; tactile seta *est* up to level of 16<sup>th</sup>-17.7-19/20<sup>th</sup> marginal tooth from apical tooth; tactile setae *eb* and *ib* absent; nodus ramosus up to level of 9<sup>th</sup>-10.7<sup>th</sup>-12<sup>th</sup> marginal tooth from apical tooth. Movable finger with 9-11-13 marginal teeth; tactile seta *t* up to level of 7<sup>th</sup>-7.7-8<sup>th</sup> marginal tooth from apical tooth; tactile setae *sb* and *st* absent; nodus ramosus up to level of 8/9<sup>th</sup>-8.5-9<sup>th</sup> marginal tooth from apical tooth.

*First leg:* femur 0.12-0.13-0.13 long by 0.04-0.05-0.05 deep; patella 0.065-0.07-0.07 long by 0.05-0.05-0.05 deep.

*Fourth leg:* femur + patella 0.25-0.28-0.30 long by 0.11-0.12-0.14 deep.

*Palpal proportions:* femur, length/width ratio 3.33-3.44-3.54; patella, length/width ratio 2.32-2.43-2.52; chela without pedicel, length/width ratio 2.97-3.07-3.17; hand without pedicel, length/depth ratio 1.20-1.21-1.23; movable

TABLE 3 SUMMARY OF BIOMETRIC DATA FOR ADULTS AND NYMPHS OF APHELOPIUM BRACHYTARSUS SP. NOV. FROM ARUBA  
(mean between the extremes, FF=fixed finger, MF=movable finger, L=length, W=width, D=depth)

Measure (in mm), number or proportion	Male (n=14)	Female (n=8)	Tritonymph (n=4)	Deutonymph (n=3)
Body length	1.49 -1.78 -1.935	1.065-2.08 -2.25	1.42 -1.66 -1.935	1.05 -1.14 -1.28
Pedipalp				
Femur, length	0.45 -0.49 -0.53	0.47 -0.53 -0.59	0.34 -0.39 -0.39	0.25 -0.27 -0.29
width	0.12 -0.13 -0.14	0.13 -0.15 -0.16	0.105-0.11 -0.11	0.07 -0.08 -0.08
Patella, length	0.37 -0.42 -0.465	0.38 -0.44 -0.485	0.29 -0.31 -0.32	0.19 -0.21 -0.23
width	0.13 -0.15 -0.16	0.15 -0.16 -0.18	0.11 -0.12 -0.12	0.08 -0.09 -0.09
Chela without pedicel, length	0.66 -0.745-0.79	0.79 -0.84 -0.89	0.56 -0.59 -0.63	0.42 -0.435-0.45
width	0.24 -0.28 -0.30	0.30 -0.335-0.36	0.19 -0.21 -0.22	0.14 -0.14 -0.15
Hand without pedicel, length	0.28 -0.31 -0.34	0.32 -0.35 -0.38	0.24 -0.25 -0.25	0.16 -0.175-0.19
depth	0.21 -0.27 -0.29	0.275-0.33 -0.37	0.19 -0.20 -0.20	0.13 -0.14 -0.15
Movable finger, length	0.385-0.445-0.475	0.46 -0.495-0.52	0.31 -0.35 -0.385	0.25 -0.27 -0.28
Modus ramosus				
(distance from base apical tooth)				
Fixed finger	0.13 -0.14 -0.15	0.12 -0.14 -0.16		
Movable finger	0.13 -0.14 -0.15	0.12 -0.14 -0.15		
Tactile setae				
(distance from base apical tooth)				
Fixed finger: it	0.07 -0.08 -0.09	0.08 -0.09 -0.10		
est	0.21 -0.235-0.25	0.23 -0.26 -0.28		
Movable finger: t	0.065-0.08 -0.10	0.075-0.09 -0.10		
Tactile seta on dorsum femur				
(distance from femoral base)	0.10 -0.11 -0.13	0.11 -0.115-0.13	0.075-0.09 -0.10	0.07 -0.08 -0.08
Chela (dentition)				
Fixed finger (nr. of marg. teeth)	24-26.2 -29	23-26.6 -30	18-21.0 -23	16-17.7 -20
Movable finger (nr. of marg. teeth)	18-20.5 -23	19-22.0 -24	14-16.3 -18	9-11.0 -13
Modus ramosus FF (pos. rel. marg. teeth)	10/11-11.4 -14	9-11.5 -14	9/10-10.0 -10/11	9-10.7 -12
MF (pos. rel. marg. teeth)	9-10.0 -11	9-10.4 -12	8- 8.9 -10	8/9- 8.5 -9
Tactile setae (pos. rel. marg. teeth)				
Fixed finger: it	6- 6.9 -8	6- 7.0 -8	7- 7.6 -9	7- 8.2 -9
est	17-19.0 -20	16/17-18.7 -21	17-18.0 -19	16-17.7 -19/20
Movable finger: t	6- 6.75-8	7- 7.3 -8	7- 7.0 -7	7- 7.7 -8
Leg I				
Femur, length	0.20 -0.23 -0.25	0.23 -0.25 -0.27	0.17 -0.18 -0.19	0.12 -0.13 -0.13
depth	0.065-0.07 -0.08	0.07 -0.08 -0.08	0.06 -0.06 -0.06	0.04 -0.05 -0.05
Patella, length	0.10 -0.12 -0.12	0.12 -0.125-0.13	0.09 -0.09 -0.10	0.065-0.07 -0.07
depth	0.06 -0.07 -0.075	0.07 -0.075-0.08	0.06 -0.06 -0.06	0.05 -0.05 -0.05
Leg IV				
Femur + patella, length	0.45 -0.49 -0.52	0.49 -0.52 -0.55	0.36 -0.38 -0.41	0.25 -0.28 -0.30
depth	0.20 -0.23 -0.25	0.21 -0.225-0.24	0.17 -0.18 -0.19	0.11 -0.12 -0.14
Palpal proportions				
Femur L/W	3.61- 3.69-3.78	3.43- 3.55-3.73	3.25- 3.41-3.53	3.33- 3.44-3.54
Patella L/W	2.72- 2.83-2.96	2.54- 2.70-2.82	2.54- 2.67-2.75	2.32- 2.43-2.52
Chela without pedicel L/W	2.53- 2.68-2.77	2.44- 2.52-2.61	2.61- 2.80-2.97	1.97- 3.07-3.17
Hand without pedicel L/D	1.06- 1.18-1.30	0.96- 1.08-1.21	1.21- 1.26-1.32	1.20- 1.21-1.23
Mov. f. L/hand without pedicel L	1.33- 1.42-1.51	1.33- 1.41-1.47	1.22- 1.39-1.54	1.47- 1.54-1.61
Mov. f. L/venom duct L. in fixed finger	3.02- 3.15-3.33	3.03- 3.42-3.72		
Mov. f. L/venom duct L. in movable finger	2.94- 3.25-3.39	3.15- 3.48-3.69		
Ratio femur L/distance tactile seta on dorsum femur from base	3.98- 4.32-5.11	3.81- 4.60-5.21	3.89- 4.16-4.72	3.46- 3.56-3.71
Pedal proportions				
Leg I				
Tibia L/D	3.04- 3.18-3.39	2.93- 3.18-3.35	2.67- 2.84-3.04	2.68- 2.71-2.76
Patella L/D	1.62- 1.70-1.81	1.58- 1.68-1.76	1.54- 1.56-1.59	1.42- 1.46-1.51
Tibia L/patella L	1.88- 1.96-2.06	1.84- 1.95-2.20	1.84- 1.89-1.94	1.86- 1.88-1.90
Leg IV				
Femur + patella L/D	2.02- 2.14-2.22	2.21- 2.32-2.41	2.0 - 2.16-2.3	2.16- 2.27-2.35

finger 1.47-1.54-1.61 times as long as hand without pedicel. Ratio femoral length/distance tactile seta on dorsum femur from exterior key point of femoral base 3.46-3.56-3.71.

*Proportions of legs:* First leg: femur, length/depth ratio 2.68-2.71-2.76; patella, length/depth ratio 1.42-1.46-1.51; femur 1.86-1.88-1.90 times as long as patella. Fourth leg: femur + patella, length/depth ratio 2.16-2.27-2.35.

*Remarks:* *Aphelolpium brachytarsus* sp. nov. and *A. scitulum* have been collected together from 3 (of 8) localities in Aruba: 246, Boca di Rooi Prins; 253, Boca Grandi, N of Culebra; and 272, Hudishibana, Westpunt. The two species can be separated by the length of the movable chelal finger and the relation between length of movable chelal finger and length of chelal hand without pedicel (Tables 1, 3). These differences are illustrated in separate scatterdiagrams for males and females (Figs. 7-8). On the other hand the ratio body length/movable chelal finger length only suggests that smaller animals have shorter fingers than larger ones (Figs. 9-10).

Other perceptible differences (in both sexes) are: position of tactile seta *est* on fixed palpal finger, *i.e.* distance from base apical tooth and relation to marginal teeth; length/width ratio of chela without pedicel; and relation between length of movable chelal finger and length of chelal hand without pedicel (Tables 1, 3).

Trito- and deutonymphs of *A. brachytarsus* are also recognizable by a shorter movable chelal finger (Tables 2-3).

*Etymology:* The specific epithet refers to the short movable chelal finger (=modified tarsus); *brachys* (G.) – short.

*Conclusion:* *Aphelolpium scitulum* Hoff is common in Curaçao, Aruba and Bonaire.

*A. brachytarsus* sp. nov. occurs in the northwestern part of Aruba. Both species are soil inhabiting forms.

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