

**Pirata indigenus**, n. sp.

Figs. 62-65, 72

**Holotype.**—Female from Meramec River, Crawford Co., Missouri, 14-18 July, 1966, HEF & DLF (Exline), A.M.N.H.

**Diagnosis.**—This species appears to be a member of the *aspirans* complex. The epigynum (Figs. 63, 65) is wider and shorter than *P. aspirans*, *P. davisii*, n. sp., or *P. triens*, n. sp. It differs from *P. davisii* in the spination of tibia I. They all resemble one another in appearance, and are characterized by the wide marginal light band on the carapace.

**Description of holotype.**—Carapace 1.95 mm long, 1.67 mm wide with a wide marginal light band a little pigment visible faintly through the edge; the tuning-fork pattern on the head is not very distinct (Fig. 62). Basic color yellow. Pattern on dorsum nondescript with dim traces of what must have been white spots in life. Lower margin of furrow of chelicerae with three teeth, middle the largest, the one next to the fang very small. Anterior eye row narrower than posterior median eye row; distinctly procurved; anterior median eyes almost twice as large as anterior lateral eyes; anterior median eyes closer to anterior lateral eyes than to each other.

Coxae, sternum, endites yellow, immaculate; labium a little darker; venter pigmented with patchy spots in middle and laterally. Legs 4132, yellow, unbanded except for faint traces of two annulae on femora III. Tibia I with five ventral overlapping spines, two retrolateral, three prolateral.

	Femur	Patella	Tibia	Metatarsus	Tarsus	Total
Palp	0.77	0.37	0.55		0.65	2.34
Leg I	1.77	0.82	1.47	1.42	0.62	6.10
Leg II	1.50	0.65	1.20	1.25	0.57	5.17
Leg III	1.62	0.70	1.17	1.50	0.65	5.64
Leg IV	2.20	0.80	2.02	2.50	0.87	8.39

**Distribution.**—Michigan and Missouri.

**Specimens examined.**—*Missouri*: Crawford Co., Meramec River 14-18 July, 1966, HEF & DLF, 5 females (Exline); *Michigan*: Midland Co., A. M. Chickering, one female (M.C.Z.).

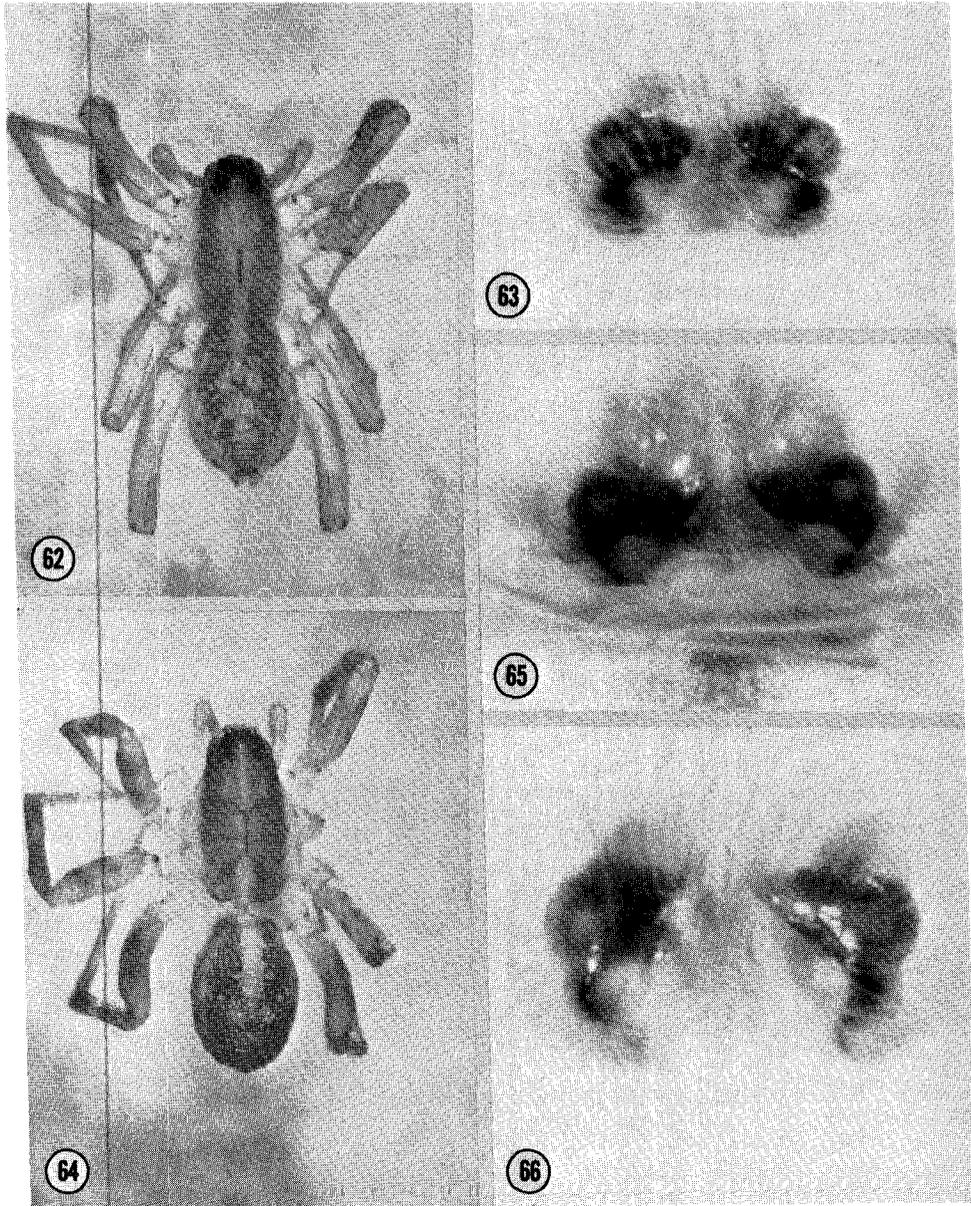
**Life history.**—We have examined a female with egg sac in July from Missouri and in August from Michigan. The male is unknown.

**Variations.**—In the vial from Meramec River there were seven females, one of which is in poor condition, and an egg sac. The six good specimens, including the holotype, are quite uniform in appearance, but vary somewhat in the size and shape of the carapace. The epigyna of all seven specimens are quite similar in structure. Measurements of the six carapaces: Holotype, 1.96 mm long, 1.67 mm wide; Specimen 2, 1.95 mm long, 1.30 mm wide; Specimen 3, 2.05 mm long, 1.40 mm wide; Specimen 4, 2.07 mm long, 1.50 mm wide; Specimen 5, 2.22 mm long, 1.55 mm wide; Specimen 6, 2.25 mm long, 1.57 mm wide.

**Description of female from Michigan.**—Carapace 2.4 mm long, 1.72 mm wide. In alcohol the basic color pattern is amber. Carapace with a wide marginal light band interrupted by several faint pigmented spots along the margins (Fig. 64). Central part of carapace rather heavily pigmented, the tuning fork pattern almost completely obliterated; eye region darker.

Sternum, coxae, endites light amber, immaculate, labium darker. Dorsum of abdomen with hastate mark, heavily pigmented; venter pigmented somewhat like *P. sedentarius*.

Lower margin of furrow of chelicerae with three teeth; middle tooth the largest, tooth nearest base of fang very much reduced.



Figs. 62-65.—*P. indigenus*, n. sp.: 62, holotype female, Missouri, Crawford Co.; 63, holotype, epigynum; 64, female, Michigan, Midland Co.; 65, epigynum, Michigan, Midland Co.

Fig. 66.—*P. triens*, n. sp. Epigynum, Illinois, Adams Co., Quincy, VI-10-58.

Anterior eye row narrower than posterior median eye row, slightly procurved; anterior median eyes about half again as large as anterior eye row; anterior median eyes closer to anterior lateral eyes than to each other. Clypeus equal to the diameter of an anterior median eye, receding.

Legs 4132, banded. Tibia I with long, overlapping ventrolateral spines; three prolateral, two retrolateral.

	Femur	Patella	Tibia	Metatarsus	Tarsus	Total
Palp	0.80	0.43	0.53		0.67	2.43
Leg I	1.75	0.80	1.48	1.37	0.58	5.98
Leg II	1.67	0.75	1.25	1.30	0.57	5.54
Leg III	1.62	0.70	1.20	1.50	0.62	5.64
Leg IV	2.20	0.80	2.00	2.55	0.88	8.43

**Remarks.**—The female paratype from Michigan is larger than the Missouri specimens, but otherwise resembles them in appearance. The epigynum of the paratype from Michigan is a little different in shape from the Missouri specimens and femur II is longer than femur III and just the reverse in the holotype; when males are known we may find these two are separate species.

***Pirata iviei*, n. sp.**

Figs. 67-71

**Holotype.**—Male, Lyons, Georgia, June 11, 1935, W. Ivie, W 82° 17': N 32° 9' (A.M.N.H.).

**Allotype.**—Female, with same data (A.M.N.H.).

**Etymology.**—This species is named for Mr. Wilton Ivie, lifelong student and collector of spiders.

**Diagnosis.**—*P. iviei* differs from *P. aspirans* in having a distinct submarginal band on carapace, in having a larger epigynum, and in the shape of the median apophysis of the palp, which has a round distal flange instead of a more or less rectangular flange as in *P. aspirans*.

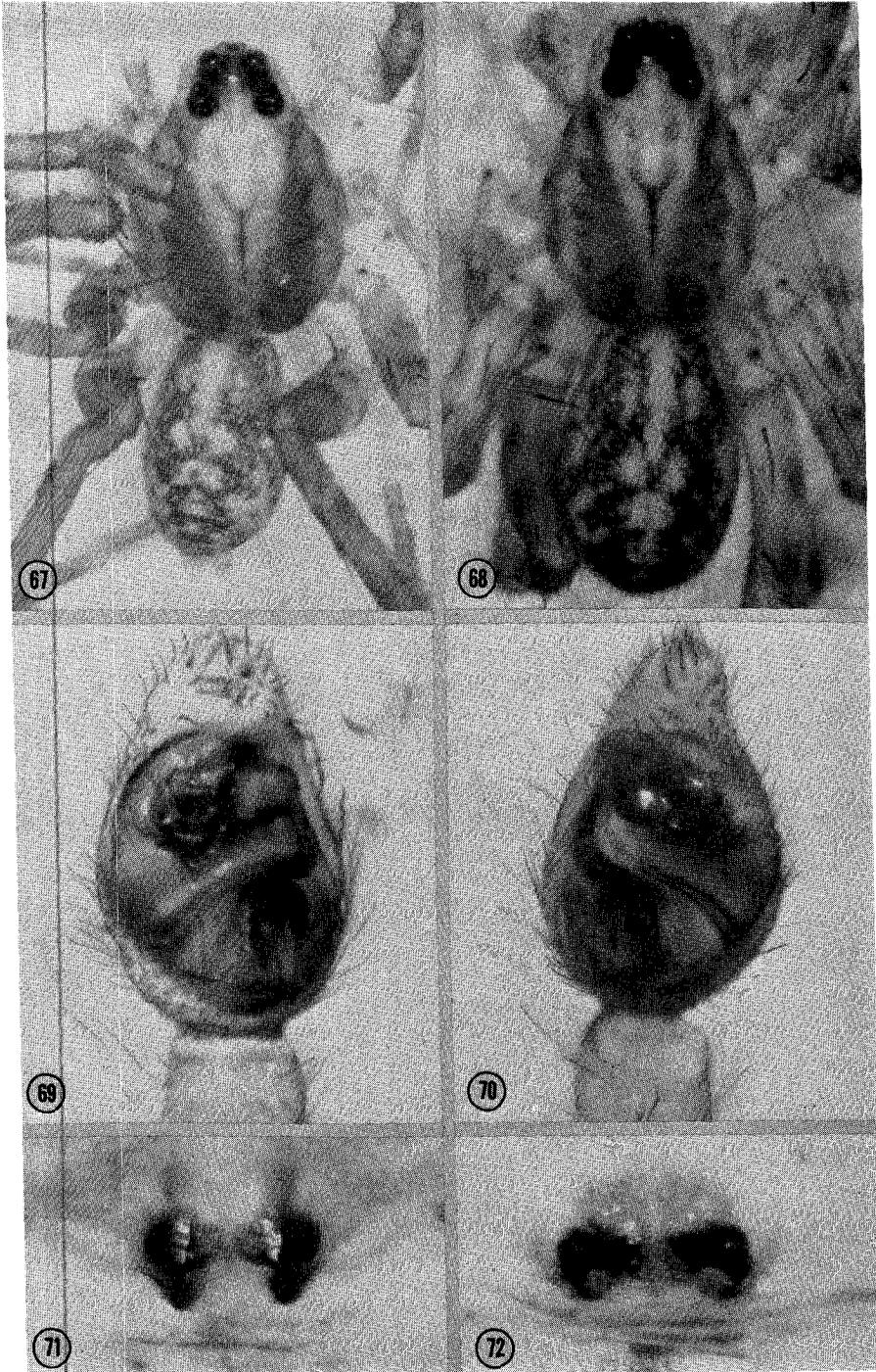
**Description of male holotype.**—Carapace 1.8 mm long, 1.32 mm wide, with the usual tuning-fork pattern and a submarginal light band but the marginal pigment is very scanty and discontinuous. (Fig. 67). Ventral surface of coxae, sternum, etc. light, unpigmented except for a patch of pigment in the center of the venter. Lower margin of the furrow of the chelicerae with three unequal teeth, the middle tooth the largest, the lateral tooth the smallest; middle tooth closer to the lateral than to the median.

Anterior eye row narrower than the median row, procurved. The anterior median eyes are closer to the laterals than to each other and are twice as large. Clypeus height slightly less than the diameter of an anterior median eye.

The median apophysis of the palp is basically similar to that of *P. aspirans* but the distal flange (Fig. 69) is much larger and is round where that of *P. aspirans* is rectangular.

Legs 4123, lightly banded.

	Femur	Patella	Tibia	Metatarsus	Tarsus	Total
Palpus	0.60	0.25	0.33		0.56	1.74
Leg I	1.23	0.58	1.00	1.13	0.56	4.50
Leg II	1.15	0.57	0.93	1.03	0.53	4.21
Leg III	1.12	0.53	0.80	1.03	0.52	4.00
Leg IV	1.56	0.63	1.32	1.63	0.70	5.84



Figs. 67-71.—*P. iviei*, n. sp.: 67, holotype male, Georgia, Lyons; 68, allotype female, Georgia, Lyons; 69, holotype, palp; 70, palp, North Carolina, Durham Co., New Hope Creek; 71, allotype, epigynum.

Fig. 72.—*P. indigenus*, n. sp.: Epigynum, Michigan, Midland Co.

**Description of female allotype.**—Carapace 2.0 mm long, 1.45 mm wide with sub-marginal light band and tuning-fork pattern (Fig. 68). Anterior eye row narrower than median row, procurved; anterior median eyes closer to laterals than to each other and twice as large. Lower margin of the furrow of the chelicerae with three unequal teeth, the middle tooth the largest and slightly closer to the lateral than the median; median and lateral teeth about the same size. Clypeus height about equal to the diameter of an anterior median eye.

The epigynum of *P. iviei* resembles that of *P. aspirans*.

Legs 4123, distinctly banded.

	Femur	Patella	Tibia	Metatarsus	Tarsus	Total
Palpus	0.64	0.32	0.43		0.56	1.95
Leg I	1.45	0.70	1.22	1.20	0.58	5.15
Leg II	1.35	0.67	1.05	1.18	0.55	4.80
Leg III	1.30	0.55	0.98	1.25	0.55	4.63
Leg IV	1.75	0.62	1.56	1.95	0.77	6.65

There were four additional females in the vial with the holotype and allotype. All females were uniform in size but two of these paratypes were so lightly pigmented along the edges of the carapace as to appear to have a broad marginal light band.

**Distribution.**—Southeastern United States.

**Specimens examined.**—*Georgia*: Lyons, June 11, 1935, W 82° 17' N 32° 9', W. Ivie, 1 male, 5 females (male holotype, female allotype, A.M.N.H.); *North Carolina*: Durham County, Chapel Hill Blvd. (US 15-501), at New Hope Creek (S of road) pitfall, J. W. Berry, male (A.M.N.H.); *South Carolina*: Aiken County, 5 mi N Aiken, VI-30-39, H.K.W. 1089A, 2 females (H.K.W.).

**Life History.**—All the specimens we have examined are from June and July with one egg sac from June.

**Ecology.**—The male from North Carolina was collected in a pitfall in "hardwood bottom land." The two females from South Carolina were collected in a wet hammock. We have no habitat information for the Georgia specimens.

**Remarks.**—The epigynum of *P. iviei* is very close to that of *P. aspirans* and *P. davisi* but the median apophysis of the palpi differ considerably.

Whether this species has a submarginal or marginal light band on the carapace depends upon how heavily the animal is pigmented.

### *Pirata triens*, n. sp.

Figs. 73-76

**Holotype.**—Male from Quincy, Adams Co., Illinois, 10 June 1958, moist woods, J.L.K. (A.M.N.H.).

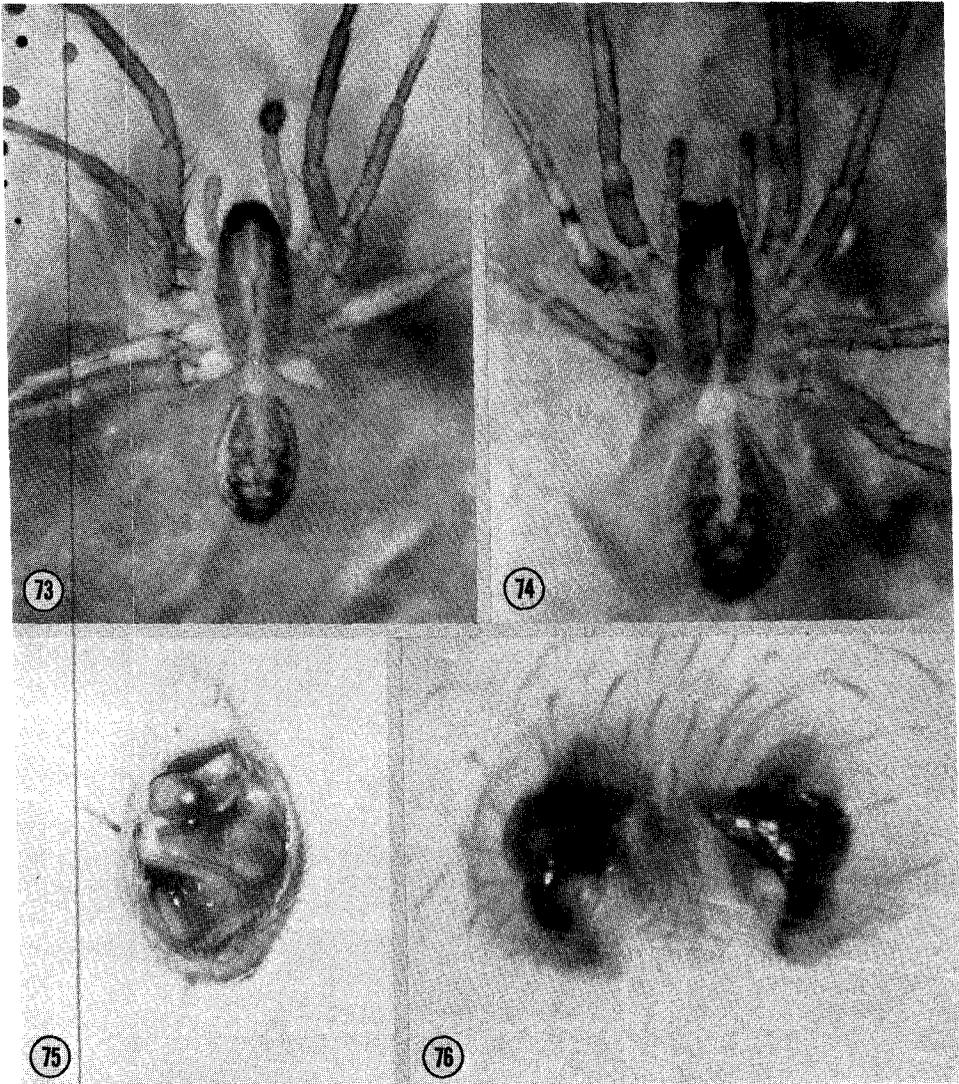
**Allotype.**—Female with same data (A.M.N.H.).

**Etymology.**—This species is named *triens* (a third part) because it was the third new species we found in the *aspirans* group.

**Diagnosis.**—*P. triens* is a member of the *aspirans* group (*P. iviei*, n. sp., and *P. indigenus*, n. sp.). It has the wide marginal light band on the carapace but lacks the annulations on the legs of *P. aspirans*. The types are very light in color (Figs. 73-74); more heavily pigmented specimens might have banded legs. The palpus and epigynum of *P.*

*triens* are quite distinct (Figs. 75-76); the lateral process of the median apophysis is a long spatulate appendage, much longer than in *P. aspirans*, and the distal process is reduced to nothing. The epigynum is narrower and longer than in *P. aspirans* or *P. indigenus*.

**Description of holotype.**—Total length 4.0 mm. Carapace 2.00 mm long, 1.48 mm wide. Basic color light yellow with unbanded legs. Carapace with distinct tuning-fork pattern and wide marginal light band. Dorsum with hastate mark followed by a pair of light circular areas containing a central dark spot, these followed by a rectangular light area with a dark central spot, this followed by indistinct chevrons. Lateral edges of dorsum with a longitudinal light band that extends forward almost to the front margin of the abdomen.



Figs. 73-76.—*P. triens*, n. sp.: 73, holotype male, Illinois, Adams Co., Quincy; 74, allotype female, Illinois, Adams Co., Quincy; 75, holotype, palp; 76, allotype, epigynum.

Coxae, labium, endites, and sternum light yellow, immaculate; venter with just a few faint pigment spots laterally. Lower margin of furrow of chelicerae with three teeth, the middle one the largest, the one nearest the fang the smallest.

Anterior eye row narrower than the posterior median row, slightly procurved. The anterior median eyes are half again as large as the laterals, and are closer to the laterals than to each other. The clypeus height is slightly less than the diameter of an anterior median eye. For palpus see Fig. 75.

Legs 4123, without annulae.

	Femur	Patella	Tibia	Metatarsus	Tarsus	Total
Palpus	0.80	0.40	0.48		0.70	2.38
Leg I	1.55	0.70	1.20	1.23	0.63	5.31
Leg II	1.45	0.65	1.07	1.20	0.60	4.97
Leg III	1.38	0.56	0.97	1.23	0.60	4.74
Leg IV	1.90	0.72	1.67	2.05	0.79	7.13

**Description of female allotype.**—Total length 5.0 mm, carapace 2.12 mm long, 1.55 mm wide. Color pattern essentially as in the male. Dentition of chelicerae, height of clypeus, and eye arrangement as in the male. The epigynum is of the *P. aspirans* type (Fig. 76).

Legs 4123, without annulae.

	Femur	Patella	Tibia	Metatarsus	Tarsus	Total
Palpus	0.77	0.39	0.52		0.65	2.33
Leg I	1.73	0.75	1.45	1.35	0.62	5.90
Leg II	1.65	0.75	1.25	1.27	0.58	5.50
Leg III	1.52	0.65	1.17	1.45	0.65	5.44
Leg IV	2.20	0.82	2.03	2.58	0.62	8.25

**Distribution.**—Known only from the type specimens, which are from Illinois.

**Ecology.**—The types were collected in a "moist woods."

**Remarks.**—As indicated in the diagnosis *P. triens* is a member of the *aspirans* group. All have rather similar epigyna, but the median apophyses of the palpi differ conspicuously. The distribution of the members of this group suggests that speciation was brought about by isolation during periods of glaciation.

## THE *INSULARIS* GROUP

### *Pirata insularis* Emerton

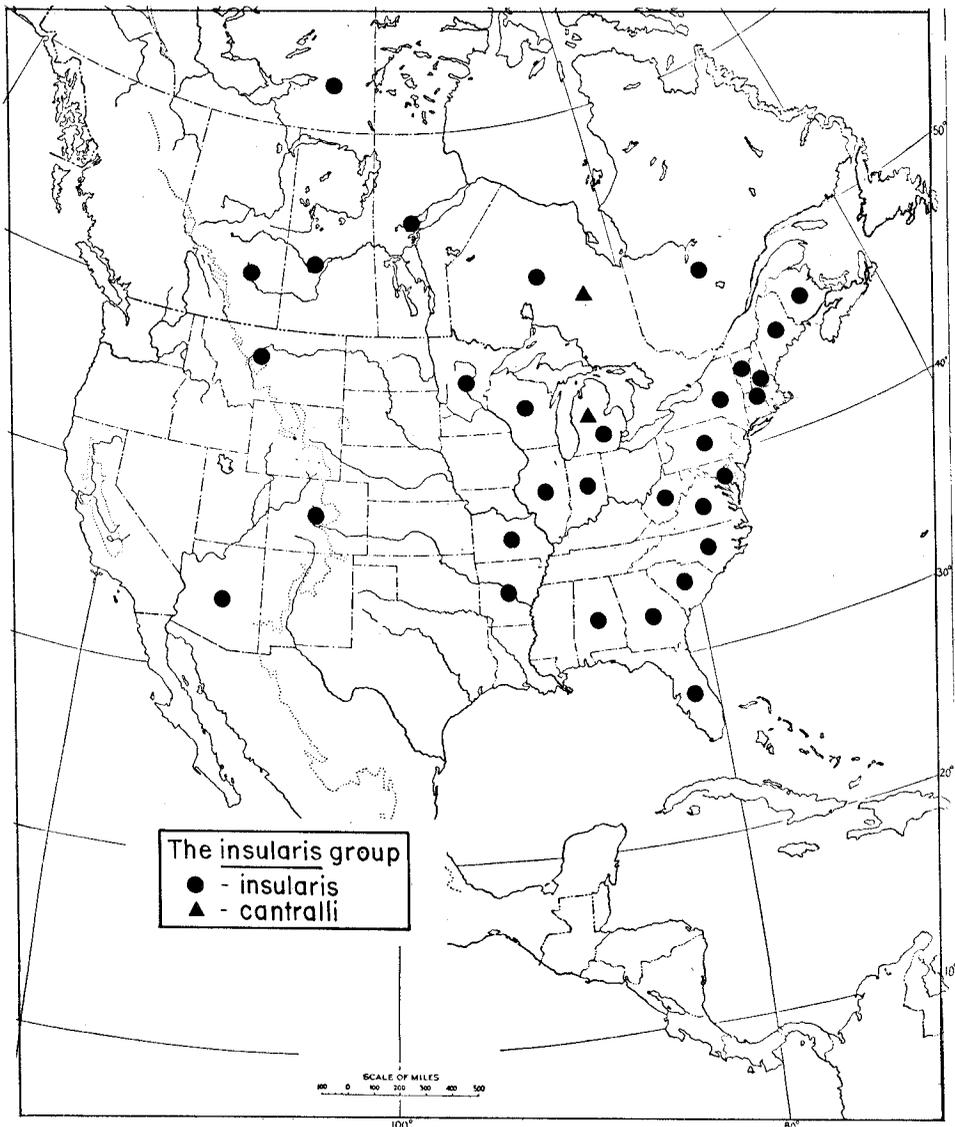
Figs. 77-80, 83-86

- Pirata insularis* Emerton, 1885, Trans. Connecticut Acad. Sci., 6:492-493, pl. 48, figs. 8, 8a (3 females, Long Lake, New York; M.C.Z., examined; one selected here as LECTOTYPE; Note: Fig. 8a is upside down); Chamberlin, 1908, Proc. Acad. Nat. Sci. Philadelphia, 59:309-311, pl. 22, figs. 3, 6 (Note: Plate mislabeled); Kaston, 1938, Canad. Entomol., 70:16, fig. 10; Kaston, 1948, Bull. Connecticut Ecol. Nat. Hist. Survey, 70:310-311, pl. 49, figs. 987-988, pl. 50, fig. 1005, pl. 51, fig. 1011.
- Pardosa bilobata* Tullgren, 1901, Bih. Svenska Vet.-Akad. Handl., 27 (4,1):22, fig. 12 (2 females, Lake Leonore, Florida; Zool. Inst., Uppsala, examined); Chamberlin, 1908, *Ibid.*, 315.

*Pirata liber* Montgomery, 1902, Proc. Acad. Nat. Sci. Philadelphia, 54:578-579, pl. 30, figs. 42-43 (male, female, Philadelphia, Pennsylvania; A.M.N.H., examined).

*Pirata sylvestris* Emerton, 1909, Trans. Connecticut Acad. Arts and Sci., 14:209, pl. 6, figs. 8, 8a (male, not the female, Lynn Woods, (?) Massachusetts; M.C.Z., examined). See remarks under *P. piraticus*.

**Description of lectotype.**—A somewhat faded female with submarginal light band and the usual tuning-fork pattern on the carapace which is 3.3 mm long and 2.5 mm wide (Fig. 77). Dorsum with distinct hastate mark and no indication of white patches of scales as in *P. piraticus*. Basic color of body and legs amber; legs not banded. Venter much lighter than sides of abdomen with longitudinal streaks of pigment. Sternum with a median longitudinal light area. Epigynum (Fig. 78).



**Variation.**—*P. insularis* is a variable species both in size and pigmentation; usually, however, the submarginal light band pattern on the carapace is discernable. Males range in length of carapace from 1.7 to 2.7 mm; females from 1.9 to 2.8 mm. Sometimes the hairs on tibia and metatarsus I of the male are long and dense and could be mistaken for the brush in *P. cantralli*; however, the tibia is not swollen like in *P. cantralli*.

A small (carapace 1.7 mm long, 1.2 mm wide) amber-colored male, with no pattern, from Temiskaming, Quebec, may be new. The palp is very similar to *P. insularis* and leg I is not swollen like in *P. cantralli*.

Eight females from Holliston, Massachusetts, 17-30 June, J.H.E. and N.B., coll., identified as *P. sylvestris* are in two sizes. The large ones, carapace 2.4 mm long, are heavily sclerotized. The small ones, carapace 1.9 mm long, are lightly sclerotized.

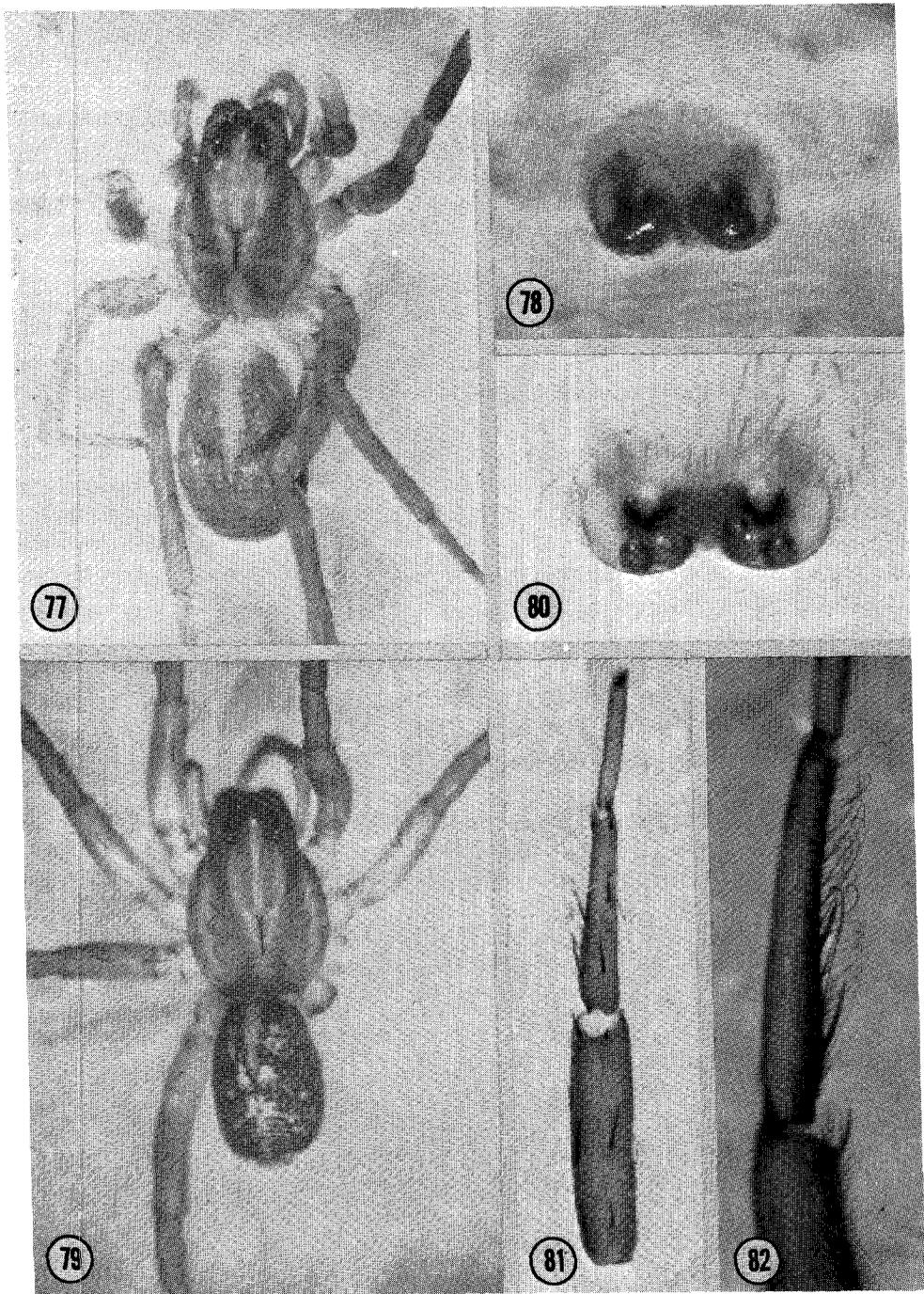
**Distribution.**—Southern Canada and the U.S. east of the Rocky Mountains.

**Specimens examined.**—Canada: *Alberta*: George Lake; *Manitoba*: Darwin; New Brunswick; *Northwest Territory*: Gt. Slave Lake; *Ontario*: 26 localities; *Quebec*: E. shore of James Bay; Temiskaming; *Saskatchewan*: Lady Lake, Besnard Lake, Lac La Rouge.

United States: *Alabama*: Jackson, Mobile Counties; *Arizona*: White Mt. Res. E. of McNary; *Arkansas*: Mississippi County; *Colorado*: Larimer County; *Connecticut*: Fairfield County; *Florida*: Alachua, Collier, Dade, Escambia, Gadsden, Hernando, Highlands, Jackson, Jefferson, Lake, Lee, Levy, Liberty, Marion, Nassau, Orange, Pasco, Pinellas, Polk, Putnam, Sarasota, St. Johns Counties; *Georgia*: Burke, Rabun, Screven, Thomas Counties, Okefinokee Swamp; *Illinois*: Lake, McHenry, Sangamon Counties; *Indiana*: LaPorte, Potter, Smith Counties; *Iowa*: Clinton County; *Maine*: Penobscot, York Counties; *Maryland*: Baltimore, Montgomery Counties; *Massachusetts*: Barnstable, Middlesex Counties; *Michigan*: Arenac, Barrien, Calhoun, Cheboygan, Clinton, Douglas, Emmet, Gogebic, Ingham, Johnson, Kalamazoo, Keeweenaw, Livingston, Macomb, Marquette, Menominee, Midland, Muskegan, Oakland, Ontagonagon Counties; *Minnesota*: Itaska Park; *Missouri*: Crawford, Johnson Counties; *Montana*: Carbon County; *New Hampshire*: Fitzwilliam; *New Jersey*: Bergen, Burlington Counties; *New York*: Albany, Cattaragus, Hamilton, Nassau, Queens, Rensselaer, Saratoga, Schuyler, Tompkins, Wayne Counties; *North Carolina*: Carteret, Durham, Swain Counties; *Ohio*: Fairfield, Fulton, Hocking, Knox, Ottawa Counties; *Pennsylvania*: Allegheny, Cambria, Franklin, Lancaster, Westmoreland Counties; *South Carolina*: Aiken County; *Tennessee*: Roane County; *Vermont*: Groat; *Virginia*: Arlington, Giles, Nansemond, Page, Surry Counties; *West Virginia*: Pocahontas County; *Wisconsin*: Ashland, Barron, Dane, Iron, Langlade, Taylor, Waukesha Counties.

**Life history.**—In the Gainesville, Florida, region this species matures in the spring (February, March, April, May). By June the species has dwindled to occasional individuals which may be found throughout the remainder of the year until the next spring. We have adults from every month but January, and no records of adult males after June. In the Gainesville region females with egg sacs have been taken during April, May and June. In south Florida females have been taken in March, April and December.

As we move northward from Florida our records indicate a progressively later season of maturity and breeding. We have no record of adult males from earlier than May from either the southeastern states (Arkansas, Louisiana, Mississippi, Alabama, Georgia, Kentucky, Tennessee, West Virginia, North Carolian, South Carolina, Maryland, Delaware) or northeastern states (Wisconsin, Illinois, Michigan, Indiana, Ohio, Pennsylvania, New Jersey, New York, Vermont, New Hampshire, Maine, Massachusetts, Connecticut). For both the southeast and northeast the majority of our records are from May, June and



Figs. 77-80.—*P. insularis*: 77, lectotype female, New York, Long Lake, 1884; 78, lectotype epigynum; 79, female, Michigan, Livingston Co., E.S.G.R., H.K.W. 1789H; 80, epigynum, Florida, Pinellas Co.

Figs. 81-82.—*P. cantralli*, n. sp.: 81, leg I, Michigan, Livingston Co., E.S.G.R.; 82, metatarsus I, Michigan, Livingston Co., E.S.G.R., H.K.W. 1796E.