

PALAEONTOGRAPHICA AMERICANA

(Founded 1917)



VOL. VII

NO. 42

**TORREITES SANCHEZI (DOUVILLÉ)
FROM JAMAICA**

By

PETER JUNG

July 27, 1970

Paleontological Research Institution
Ithaca, New York, U.S.A., 14850

PALEONTOLOGICAL
RESEARCH INSTITUTION

AUG 26 1970

Library of Congress Card Number: 72-125866

Printed in the United States of America
Arnold Printing Corporation

CONTENTS

	<i>Page</i>
Abstract 5
Systematic description	5
References	7
Plates	9
Index	13

TORREITES SANCHEZI (DOUVILLÉ)
FROM JAMAICA

PETER JUNG
Naturhistorisches Museum
Basel, Switzerland

ABSTRACT

Torreites sanchezi (Douvillé), a hippurite rudist, is reported from the Campanian *Barrettia* Limestone of the Green Island Inlier of Hanover Parish, western Jamaica, W.I. It represents the first record of the genus outside Cuba.

Early in 1969 I found two specimens of a rudist belonging to the family Hippuritidae in the Campanian *Barrettia* Limestone of the Green Island Inlier of Hanover Parish, Jamaica, W.I. They are identified as *Torreites sanchezi* (H. Douvillé) and seem to be worth describing as they represent the first record of the genus in Jamaica. *Torreites* was so far known only from the Upper Cretaceous of Cuba.

I wish to thank Dr. L. J. Chubb of Kingston, Jamaica, for reading the manuscript.

SYSTEMATIC DESCRIPTION

Genus **TORREITES** R. H. Palmer

Palmer, R. H. 1933, *Revista de Agricultura, Comercio y Trabajo*, vol. 14, Nos. 15, 16, p. 99.

Type species (by original designation), *Hippurites (Vaccinites) sanchezi* H. Douvillé. Upper Cretaceous of Cuba.

General form cylindrical to conical, straight or somewhat curved, colonial or solitary. Umbo excentric, situated anteriorly. Anterior side with a shallow, longitudinal depression. Ligamental ridge long, slightly tapering towards the interior. S and E pillars almost parallel-sided, rounded at their ends. E pillar considerably shorter than S, about half the length of L. Cardinal apparatus arranged on a straight line which forms an angle of 35° to 40° with the ligamental ridge. Left valve with three slots through which L, S, and E reach to the surface. Left valve consists of two layers: an inner layer with pores radiating from the umbo and an outer, imperforate layer.

Up to now only two species of the genus *Torreites* are known, both originally described from Cuba. Chubb (1961) included *T. tschoppi* MacGillavry in the *Durania* fauna of the Loma Yucatán limestones, whereas *T. sanchezi* (H. Douvillé) is part of the *Barrettia* fauna of the lower Habana Formation. According to Chubb (1961, pp. 419, 420), therefore, the range of the genus *Torreites* is Santonian or Coniacian to Campanian.

The origin of *Torreites* is as yet unknown. Douvillé (1927, p. 55) suggested an European ancestor based on

analogies with the genus *Pironaea*, but according to Sénesse (1958, p. 647) it was derived from the genus *Pseudovacinites*.

***Torreites sanchezi* (H. Douvillé)**

Plates 1-3; Text figures 1,2

1927. *Hippurites (Vaccinites) sanchezi* H. Douvillé, Bull. Soc. Géol. France, ser. 4, vol. 27, fasc. 1, 2, p. 54, pl. 4, fig. 1.
1933. *Torreites sanchezi* Douvillé, Palmer, *Revista de Agricultura, Comercio y Trabajo*, v. 14, Nos. 15-16, p. 100, pl. 7, figs. 1-2, pl. 8, figs. 1-2.
1936. *Torreites sanchezi* (Douvillé), Rutten, *Jour. Paleont.*, vol. 10, No. 2, p. 135, text-fig. 4g.
1937. *Torreites sanchezi* (Douvillé), Vermont, *Jour. Paleont.*, vol. 11, No. 4, p. 269.
1937. *Torreites sanchezi* (Douvillé), MacGillavry, *Geogr. Geol. Meded., Physiogr.-Geol. Reeks*, No. 14, p. 128, pl. 5, figs. 4e-h.

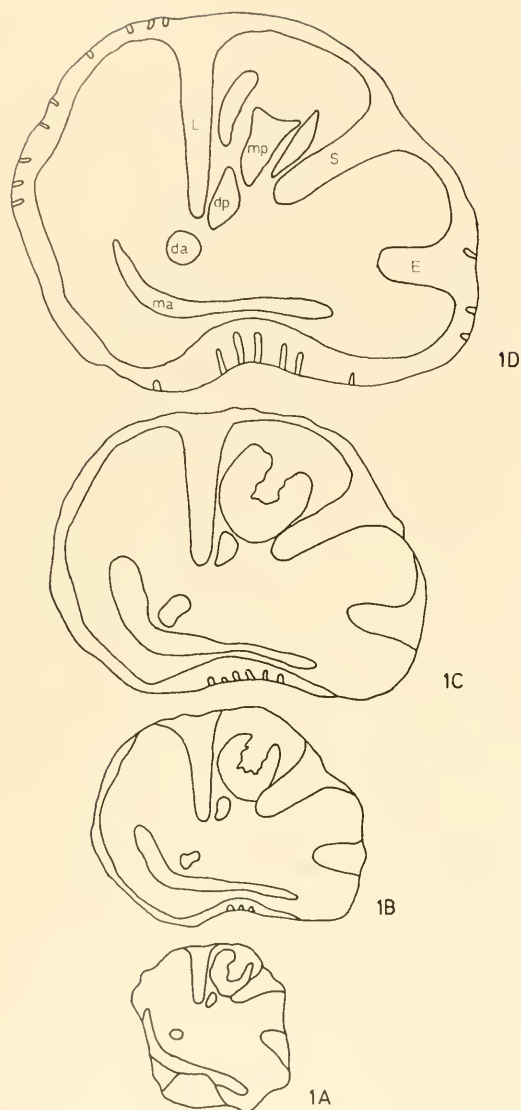
Diagnosis.— See description of genus.

Material and occurrence.— Only two specimens are available (Naturhistorisches Museum Basel Nos. G 14065 and G 14066). Both have been found as blocks in sugar cane fields near Green Island, Hanover, 400 m SSW of Church Hill School, in a small valley running from south to north. Trechmann (1922, pp. 506, 507) described the succession of rocks in this area.

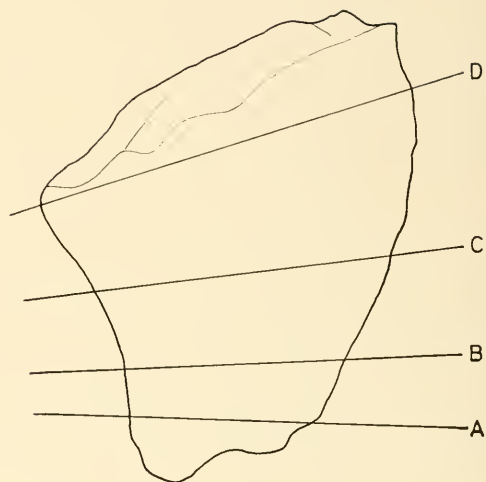
Specimen G 14065.— This is an almost complete specimen somewhat eroded on top and near the base. The right valve is conical, its axis curved. Anterior side with a longitudinal, shallow depression. Outer shell layer of right valve with numerous, narrow infolds which are marked by longitudinal ridges on the surface all around the valve. These are connected by transverse riblets at irregular intervals. The left valve has three slots through which L, S, and E reach the surface. Inner layer of left valve with pores radiating from the umbo. The outer layer of the left valve is imperforate, but only parts of it are preserved.

After casting the complete specimen four transverse sections were made to show the ontogenetic development of the internal structure (Text figs. 1, 2; Pl. 2, figs. 1a-1d). L is long and slightly tapering towards the interior; E is shorter than S. All three pillars have about the same width. The myophore for the posterior muscle is horseshoe-shaped and does not pass the tip of S.

Measurements.— Greatest diameter: 125 mm. Height of complete specimen: 135 mm. The measurements of the pillars in the different sections are tabulated below (in mm):



Text-figure 1.—Diagrams of sections A to D of specimen G 14065 (compare Pl. 2, figs. 1a-1d) showing ontogenetic development of internal structures. L: ligamental ridge. S and E: pillars. mp: myophore for posterior muscle. ma: attachment area for anterior muscle. dp: posterior tooth. da: anterior tooth.



Text-figure 2.—Sketch of specimen G 14065 showing position of transverse sections A to D of Text-figure 1.

	section D		section C		section B		section A	
	length	width	length	width	length	width	length	width
L	48	8	36	7	25	6	15	4
S	35	8	28	8	20	7	13	5
E	21	10	18	8	13	7	10	5

The angles between the pillars and between L and the cardinal apparatus (= ca) are as follows:

angle between	section D	section C	section B	section A
L and ca	40°	38°	36°	39°
L and S	58°	63°	55°	58°
L and E	94°	103°	95°	110°

The measurements for the width of the pillars represent average figures. The lengths of the pillars in sections A and B are approximate only, because the shell wall is not or only partly preserved.

Specimen G 14066.—Only part of the right valve is preserved. This specimen is not conical in shape, but parallel-sided. It is strongly eroded and only small parts of the outer shell layer are preserved. L is proportionately longer than in specimen G 14065, and E is exceptionally narrow (about half the width of S).

Measurements.—Greatest diameter: 118 mm.

L: length 62 mm; width 6 mm

S: length 43 mm; width 7 mm

E: length 24 mm; width 3 mm

angle between L and cardinal apparatus: 34°

angle between L and S: 70°

angle between L and E: 105°

Comparison.—The differences between *T. sanchezi* and *T. tschoppi* MacGillavry have been pointed out by MacGillavry (1937, p. 129). *T. tschoppi* is a much smaller species; it lacks infoldings in the outer layer of the shell, and the angle between L and E is considerably smaller. So far all the specimens of *T. sanchezi* known are solitary, whereas the type of *T. tschoppi* is a colony.

Distribution.—According to Chubb (1961, pp. 419, 420) *T. sanchezi* is restricted in Cuba to the *Barrettia* fauna of the lower Habana Formation the age of which is Campanian. The specimens from Jamaica here described represent the first record of the genus outside Cuba. They derived from the *Barrettia* Limestone of the Green Island Inlier, Hanover. The age of this *Barrettia* Limestone is thought to be Upper Campanian by Chubb (1960, p. 17), but has been considered to be of older age in earlier publications. *T. sanchezi* is here associated with *Antillosarcolites macgillavryi* Chubb (1968, p. 26), a few other molluscan species, and corals.

The locality from where the two specimens of *T. sanchezi* described above were collected is the type locality of *Pseudorbitoides trechmanni* H. Douvillé 1922. This species has been dealt with extensively by Brönnimann (1955), who also noted the presence of "rare *Sulcoperculina* cf. *S. vermunti* (Thiadens), rare small, benthonic foraminifera, and abundant algal and rudist fragments." On the basis of comparison with related species of *Pseudorbitoides* Brönnimann assigned a Campanian or Maestrichtian age to the *Barrettia* Limestone of Green Island.

Chubb (in press) is describing a fragment from the Peters Hill Limestone of the Central Inlier, Jamaica, as *Torreites* cf. *sanchezi* which is associated with *Præbarrettia coatesi* Chubb (1968, p. 30) and the age of which is given as probably Turonian or Coniacian.

REFERENCES

- Brönnimann, P.
1955. *Upper Cretaceous orbitoid Foraminifera from Cuba. Part III. Pseudorbitoides* H. Douvillé, 1922. Contr. Cushman Found. Foram. Research, v. 6, pt. 2, pp. 57-76, pls. 9-12, text-figs. 1-17.
- Chubb, L. J.
1960. *The Antillean Cretaceous geosyncline*. Trans. Second Carib. Geol. Conf., Puerto Rico, pp. 17-26, 2 figs.
1961. *Rudist assemblages in Cuba*. Bull. Amer. Paleont., v. 43, No. 198, pp. 411-422.
1968. *New rudist species from the Cretaceous rocks of Jamaica*. Jour. Geol. Soc. Jamaica, v. 9, 1967 (published November 1968), pp. 24-31.
(In press). *Rudists of Jamaica*. Palaeontographica Americana.
- Douvillé, H.
1927. *Nouveaux rudistes du Crétacé de Cuba*. Bull. Soc. Géol. France, ser. 4, v. 27, fasc. 1-2, pp. 49-56, 2 figs., pl. 4.
- MacGillavry, H. J.
1935. *Remarks on rudists*. Proc. Koninkl. Akad. Wetensch. Amsterdam, v. 38, No. 5, pp. 558-565.
1937. *Geology of the Province of Camagüey, Cuba, with regional studies in rudist paleontology*. Geogr. Geol. Meded., Physiogr.-Geol. Reeks, No. 14, pp. 1-168, pls. 1-10, 1 map.
- Palmer, R. H.
1933. *Nuevos rudistas de Cuba*. Revista de Agricultura, Comercio y Trabajo, v. 14, Nos. 15-16, pp. 95-125, pls. 1-10.

Rutten, M. G.

1936. *Rudistids from the Cretaceous of northern Santa Clara Province, Cuba*. Jour. Paleont., v. 10, No. 2, pp. 134-142, figs. 1-4.

Sénésse, P.

1958. *Considérations sur l'évolution des Hippuritidés d'après des matériaux des Corbières et de l'Ariège*. Bull. Soc. Géol. France, ser. 6, v. 7, fasc. 6, pp. 631-652, text-pls. 1-2.

Trechmann, C. T.

1922. *The Barretia beds of Jamaica*. Geol. Mag., v. 59, No. 701, pp. 501-514, pls. 18-20.

Vermunt, L. W. J.

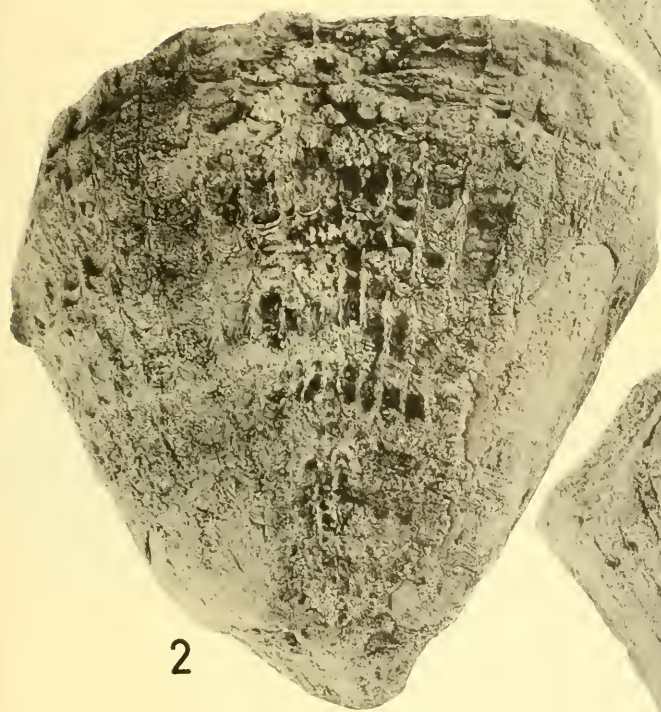
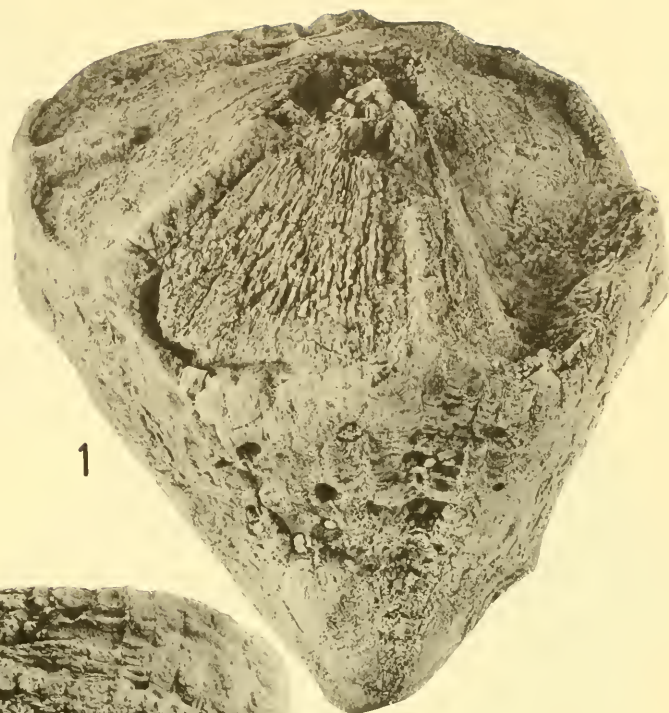
1937. *Cretaceous rudistids of Pinar del Rio Province, Cuba*. Jour. Paleont., v. 11, No. 4, pp. 261-275, pls. 36-37, text-figs. 1-3.

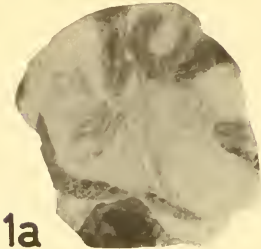
PLATES

EXPLANATION OF PLATE 1

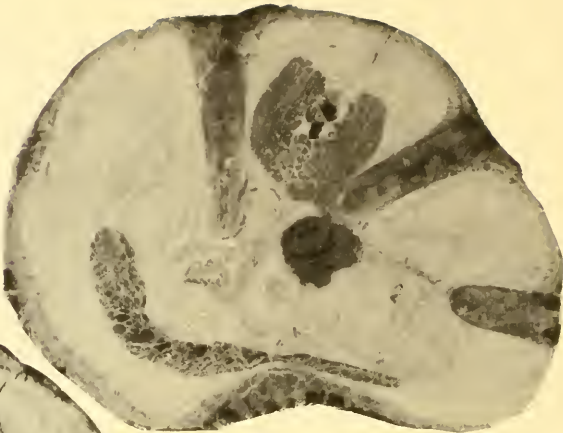
All figures natural size

<i>Figure</i>	<i>Page</i>
1-3. <i>Torreites sanchezi</i> (H. Douvillé)	5
Three views of complete specimen (G 14065). Note longitudinal ridges marking position of infolds of outer shell layer of right valve.	





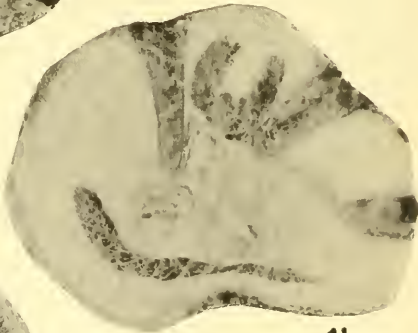
1a



1c



1d



1b



2

EXPLANATION OF PLATE 2

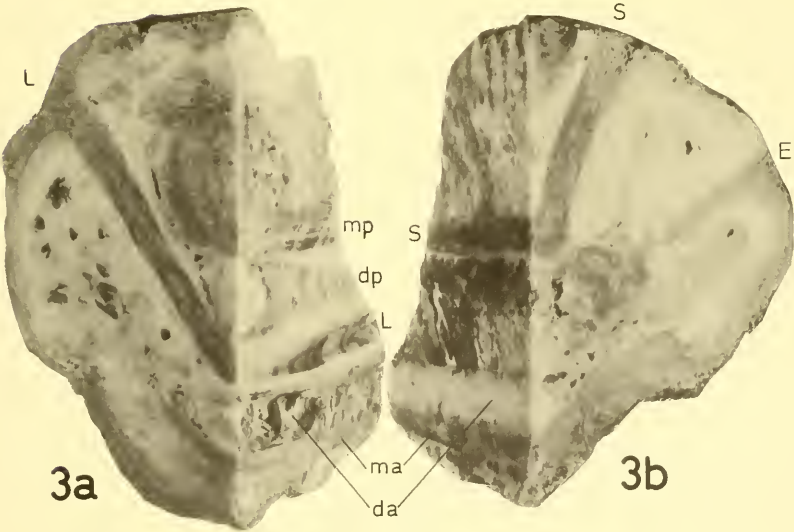
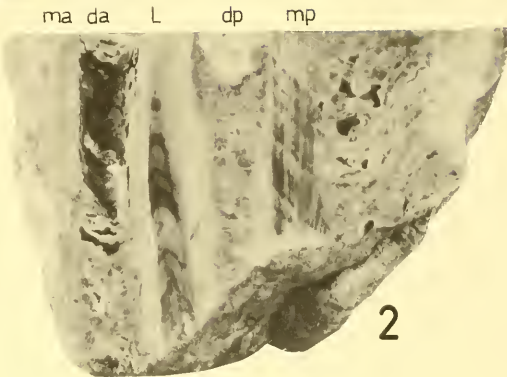
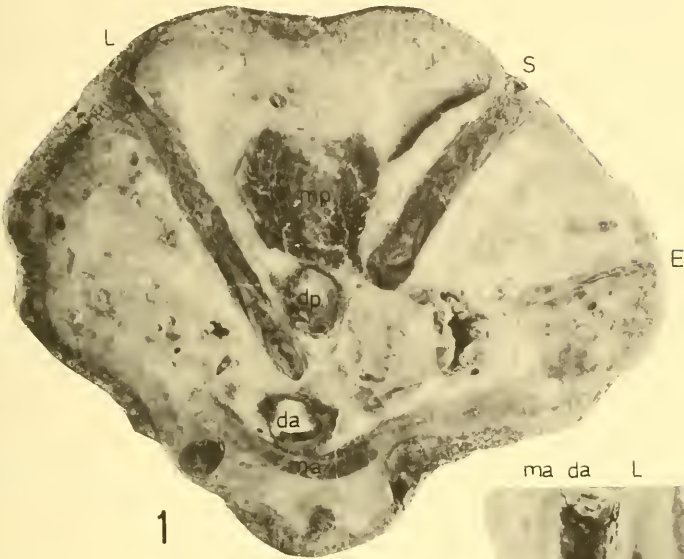
All figures natural size

Figure	Page
1,2. <i>Torreites sanchezi</i> (H. Douvillé)	5
<p>1a-1d. Transverse sections of specimen G 14065 corresponding to those of Text-figure 1A-1D. 2. Top view of specimen G 14065. L, S, and E reach above the surface of the left valve. The left valve is seen to consist of two layers: the areas to the left of L and just below the E pillar show remains of the outer, imperforate layer. The inner layer of the left valve with radiating pores is best seen between L and S. In figure 1d part of this inner layer is sectioned to the left of L.</p>	

EXPLANATION OF PLATE 3

All figures natural size

<i>Figure</i>	<i>Page</i>
1-3. <i>Torreites sanchezi</i> (H. Douvillé)	5
Sections of specimen G 14066. 1. Transverse section. 2. Longitudinal section (same specimen as fig. 3a). 3a-3b. Oblique views of two matching pieces sectioned at about right angles. For explanation of symbols see Text-figure 1.	



INDEX

Note: Light face type refers to page numbers. Bold face type refers to plate number.

Antillosarcolites	A	7	Loma Yucatán limestones	L	5
	B	5, 7	macgillavryi, Antillosarcolites	M	7
Barrettia fauna		5, 7		P	
Barrettia Limestone		5, 7			
Brönnimann, P.		7	Palmer, R. H.		5
	C		Peters Hill Limestone		7
Central Inlier		7	Pironaca		5
Chubb, L. J.		5, 7	Praebarrettia		7
Church Hill School		5	Pseudorbitoides		7
coatesi, Praebarrettia		7	Pseudovaccinites		5
	D		sanchezi, Torreites	S	1, 2, 3, 5, 7, 10 11, 12
Durania fauna		5	sanchezi, Torreites cf.		7
Douvillé, H.		5	Sénese, P.		5
			Sulcoperculina		7
	G			T	
Green Island, Hanover		5, 7	Torreites		5
Green Island Inlier		5, 7	Trechmann, C. T.		5
	H		trechmanni, Pseudorbitoides		7
			tschoppi, Torreites		5, 7
Habana Formation		5, 7		V	
Hanover Parish		5	Vaccinites		5
Hippurites		5	vermunti, Sulcoperculina cf.		7





SMITHSONIAN INSTITUTION LIBRARIES



3 9088 01356 8316