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TABLE OF CONTENTS

	PAGE
1. Two New Species of Palms from Nicaragua. By S. F. Glassman	1
2. Tropical American Plants, VI. By Louis O. Williams	11
3. Agriculture, Tehuacan Valley. By C. Earle Smith, Jr.	49
4. Flora, Tehuacan Valley. By C. Earle Smith, Jr.	101
5. Preliminary Studies in the Palm Genus <i>Syagrus</i> Mart. and Its Allies. By S. F. Glassman	145
6. Tropical American Plants, VII. By Louis O. Williams	165
7. Supplement to Orchids of Guatemala. By Donovan S. Correll	175
8. Preliminary Notes on Scrophulariaceae of Peru. By Gabriel Edwin	223
9. New Species in the Palm Genus <i>Syagrus</i> Mart. By S. F. Glassman	233
10. Tropical American Plants, VIII. By Louis O. Williams	247
11. Notes on the Flora of Costa Rica, I. By William C. Burger	273
12. A New <i>Eurystyles</i> from Nicaragua. By Alfonso H. Heller	279
13. New Species in the Palm Genus <i>Syagrus</i> Mart. By S. F. Glassman	285
14. A Revision of the Family Geastraceae. By Patricio Ponce de Leon	303
15. Studies in American Plants. By Dorothy N. Gibson	353
16. Two New Nicaraguan Juglandaceae. By Antonio Molino R.	357
17. Studies in the Palm Genus <i>Syagrus</i> Mart. By S. F. Glassman	363
18. Tropical American Plants, IX. By Louis O. Williams	401

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STUDIES IN AMERICAN PLANTS

DOROTHY N. GIBSON

TWO NEW NICARAGUAN JUGLANDACEAE

ANTONIO MOLINA R.

STUDIES IN THE PALM GENUS *SYAGRUS* MART.

S. F. GLASSMAN

TROPICAL AMERICAN PLANTS, IX

LOUIS O. WILLIAMS

JUL 15 1968

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TWO NEW NICARAGUAN
JUGLANDACEAE

ANTONIO MOLINA R.

Field Associate

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Two New Nicaraguan Juglandaceae

ANTONIO MOLINA R.

In our continuing explorations and botanical investigations in Nicaragua which we are able to carry on with assistance from the National Science Foundation, we have collected thousands of numbers of plant specimens which increase the usefulness of the herbaria in Zamorano and in Chicago, as well as herbaria which receive duplicates in exchange. There have been recognized a considerable number of undescribed plants in these collections, as was to be expected, for Nicaragua is the least known biologically of the Central American countries.

We have seen two trees of the Juglandaceae in the Cordillera Central de Nicaragua which we did not recognize, one an *Engelhardtia* the other an *Alfaroa*. We have accumulated adequate materials of both of these trees and both appear to be new.

Alfaroa williamsii A. Molina, sp. nov.

Arbor valida usque ad 25 m. et 0.5 m. diam. Folia subopposita vel alterna composita, foliola 3-5 paribus anguste elliptica vel elliptico-oblancoolata acuta vel acuminata coriacea basi cuneata; inflorescentia masculina paniculata erecta multiflora; inflorescentia foem. spica pauciflora; flores masc. tepala 2 oblonga vel obovata; flores foem. tepala 4 oblancoolata vel spatulata; fructus rotundatus vel obovoideus.

Trees 15-25 m. tall, the trunks 0.3-0.5 m. in diameter, the bark smooth or becoming rugose, easily separated from the trunk in short, thin sheets, greenish-yellow or pale cream colored. Branches cylindrical, glabrous, commonly striated or verrucose and with many brownish elliptical or rounded lenticels; leaves subopposite or alternate, compound, mostly 15-25 cm. long, the leaflets 3-5 alternate or subopposite pairs, coriaceous, narrowly elliptic or elliptic-oblancoolate, acute or acuminate, obliquely cuneate to the base, with 14-20 pairs of secondary nerves, glabrous except obscurely lepidote below, 4-13.5 cm. long and 1.5-3.5 cm. broad, petioles 1.4-4.5 cm. long, rachis canaliculate, 3-13 cm. long, petiolules short, 1-2 mm. long; staminate inflorescence terminal or axillary-terminal, panicles of several erect many-flowered catkins; pistillate inflorescence a terminal or subaxillary few-flowered spike; staminate flowers many, sessile, lepidote-glandular, bract trilobate, 3-4 mm. long, lateral lobes 0.5 mm. long, the central lobe 1 mm. long, obtuse or acute, tepals 2, oblong or obovate, about 1 mm. long, stamens 7-9, anthers two, sessile, oblong, 1-1.5 mm. long and about 1 mm. broad; pistillate

flowers sessile, 5–7 mm. long, the tepals 4, thick and fleshy, glabrous or usually lepidote, oblanceolate or spathulate, 2–4 mm. long and 0.5–1.5 mm. broad, stigma bifid, about 1–1.5 mm. long, the style about 2 mm. long, ovary 2 mm. long, subtended by a trilobate bract 1–2 mm. long and with lobes 0.5–2 mm. long; fruit a sessile, woody, hard, glabrous, 8–10 celled with as many as 13 septae, drupaceous nut, rounded or shortly obovoid, 14–17 mm. long and 13–16 mm. in diameter, with 8–9 raised ribs, the tepals and style persistent at the apex.

NICARAGUA: tree 15–20 m. tall, in old cut-over cloud forest area between Disparate de Potter and Aranjuez, Cordillera Central de Nicaragua, Dept. Matagalpa, alt. 1,300 meters, Jan. 12, 1963, *Williams, Molina and Williams 23717* (type, F; EAP); tree to 15 meters, wide spreading, cut-over cloud forest area, Cordillera Central de Nicaragua, road to Aranjuez, Dept. Jinotega, alt. 1,400 meters, Jan. 8, 1967, *Williams and Molina 20143*; "Areno blanco," tree 20–25 meters tall, 30–50 cm. in diameter, cut-over cloud forest area, El Arenal, between Aranjuez and Santa Martha, Dept. Matagalpa, alt. 1,400 meters, March 7, 1967, *Molina 20340*.

There have been three species of *Alfaroa* previously described from Central America from which *A. williamsii* is easily distinguished by its small nearly round, glabrous and ribbed fruits. It is at the same time the third member of the Juglandaceae to be found in Nicaragua within recent years where none was previously known,—*Juglans olanchana* Standl. & L. Wms. and the two species described in this paper.

It is a pleasure to name this distinctive Nicaraguan tree for my friend and field companion of many years, Louis O. Williams, who has spent his life working with the flora of Central America.

***Engelhardtia nicaraguensis* A. Molina, sp. nov.**

Arbor valida usque ad 25 m. vel ultra. Folia pinnata, usque ad 12 cm. longa; foliola 4–6 pares, lamina coriacea, lanceolata, lanceolato-oblonga vel anguste oblonga, acuminata vel acuta, basi uni- vel biauriculata; fructa obovata bractea trilobata in racima elongata.

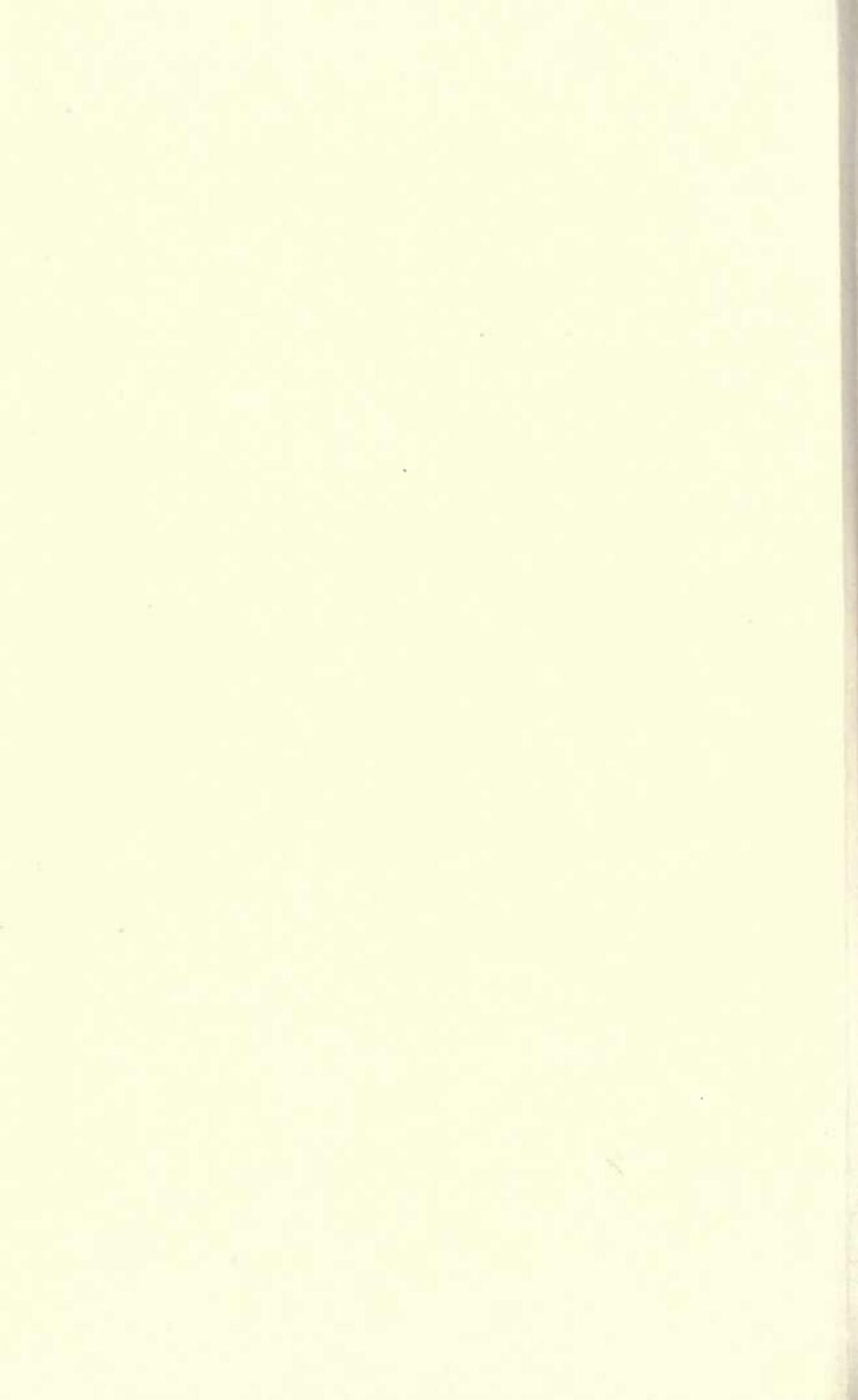
Large forest trees, 10–25 m. tall, the trunk cylindrical, 25–50 cm. in diameter or perhaps more, bark yellowish or grayish-green; leaves pinnate, opposite, the petioles 2.5–3.5 cm. long, glabrous or minutely lepidote, the rachis subterete or obscurely canaliculate, 4–9 cm. long, slender; leaflets 4–6 pairs, opposite or sub-opposite, short petiolulate, coriaceous, lanceolate, lanceolate-oblong to narrowly oblong, 3–8.5 cm. long and 1.5–2.3 cm. broad, sometimes with slightly revolute margins (in dry specimens), glabrous or lightly punctate-lepidote, somewhat glaucous below, acuminate or acute, the base obtuse or more commonly attenuate and oblique with a very small revolute auricle or usually biauriculate; central vein prominent on both surfaces of the leaflet, secondary veins several to many

and less prominent; the lepidote petiolules 1–2 mm. long; female inflorescence cymosely branched (one seen), about 15 cm. long, each branch with 5 or perhaps more short pedunculate flowers; nuts obovoid or ovoid, 6–8 mm. long and 6–7 mm. in diameter, subtended by a rigidly membranaceous, reticulately nerved, lepidote trilobate bract, central lobe of bract oblong-linear or spatulate, about 2–3.8 cm. long and 0.6–0.8 cm. broad, emarginate, the lateral lobes narrowly oblong, obtuse, about 1.5 cm. long and 0.5–0.8 cm. broad, fruiting peduncles 0.2–0.5 cm. long.

NICARAGUA: Arbol 25 m., tallo 25–50 cm. diámetro, bosque nebuloso vecindades de Santa María de Ostuma, departamento de Matagalpa, alt. 1,300 m., Mayo 1957, *Juan B. Sales 2967* (F, type; EAP); árbol 10–15 m. en bosque húmedo cerca Aranjuez, departamento de Jinotega, alt. 1,160 m., Agosto 1957, *Juan B. Sales y B. J. Taylor 2967a*.

The lack of really good herbarium material makes it difficult to establish clearly the relationship of this species, although it must be closest to *Engelhardtia mexicana* Standl. The Mexican species has leaves with 3–4 pairs of leaflets and a petiole 1.5–2 cm. long and the rachis 2–6 cm. long, the petiolules of the leaflets 2–3 mm. long; the leaflets in that are linear-lanceolate, 5–8.5 cm. long, with the apex long attenuate, entire or sometimes with tooth-like undulations near the apex, the auricles at the base obtusely deltoid or rounded; the lobes of the bracts are oblong or linear-oblong; the nut broadly obovoid and 6–7 mm. long.

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