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Autor: Bally, P. R. O.

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Miscellaneous notes on the flora of Tropical East Africa including description of new taxa, 34¹

P. R. O. BALLY

Conservatoire et Jardin botaniques, Genève

RÉSUMÉ.

Ceci est la dixième partie² d'une série de contributions à la connaissance de l'Afrique orientale tropicale, que l'auteur se propose de continuer.

34. L'*Euphorbia napoides* Pax, de Somalie et l'*Euphorbia hadramautica* Baker, d'Arabie, ne forment en réalité qu'une seule espèce; celle-ci appartient à la sect. *Euphorbium* Boiss.

ZUSAMMENFASSUNG.

Dies ist der zehnte Abschnitt² einer Folge von Beiträgen zur Kenntnis der Flora von tropisch Ostafrika, welche fortgesetzt werden soll.

34. *Euphorbia napoides* Pax aus Somaliland und die arabische *Euphorbia hadramautica* Baker erweisen sich als dieselbe Art; diese gehört zur Sect. *Euphorbium* Boiss.

SUMMARY.

This is the tenth paper² of a series on the above subject which the author proposes to continue.

34. The synonymy of *Euphorbia napoides* Pax from Somalia with the Arabian *Euphorbia hadramautica* Baker is demonstrated and their classification under sect. *Euphorbium* Boiss. is proved.

34. *On the identity and the synonyms of Euphorbia hadramautica* E. G. Baker

In 1893, Mr. J. Theodore Bent, the distinguished archeological explorer, made his first journey into the Hadramaut valley in Southern Arabia, a part of the world of which very little was known at the time. He was accompanied by a member of the gardening staff of the Royal Gardens, Kew, as botanical collector, Mr. William Lunt, whose excellently preserved collection of dried and of some living plants contained many interesting novelties. Among them was an unknown dwarf succulent *Euphorbia*

¹ La rédaction regrette les erreurs qui se sont produites dans la numérotation de cette série. Nous prions le lecteur de bien vouloir remplacer, dans le titre du dernier article (*Candollea* 21 : 365) les chiffres 33-36 par 30-33 et de biffer l'*Erratum* dans la note infrapaginale. Les chapitres non numérotés (*Candollea* 20 : 20, 23 et 31) pourront en cas de besoin être désignés par 25a-c.

² Cf. *Candollea* 17 : 25, 53, 71; *l.c.* 18 : 9, 335; *l.c.* 19 : 145; *l.c.* 20 : 13; *l.c.* 21 : 3, 365.

which Mr. E. G. Baker who was then Keeper of the Herbarium described and named *Euphorbia hadramautica*. Baker's description (Kew Bull. 1894 : 341) mentions an erect, swollen supraterranean stem (comparable to that of *E. bupleurifolia* Jacq.; the author); yet Baker cited the tuberous, stemless Indian *Euphorbia nana* and the equally stemless *E. primulaefolia* Baker as its closest affinities and accordingly he ranged the new species under the section *Rhizanthium* Boiss.¹

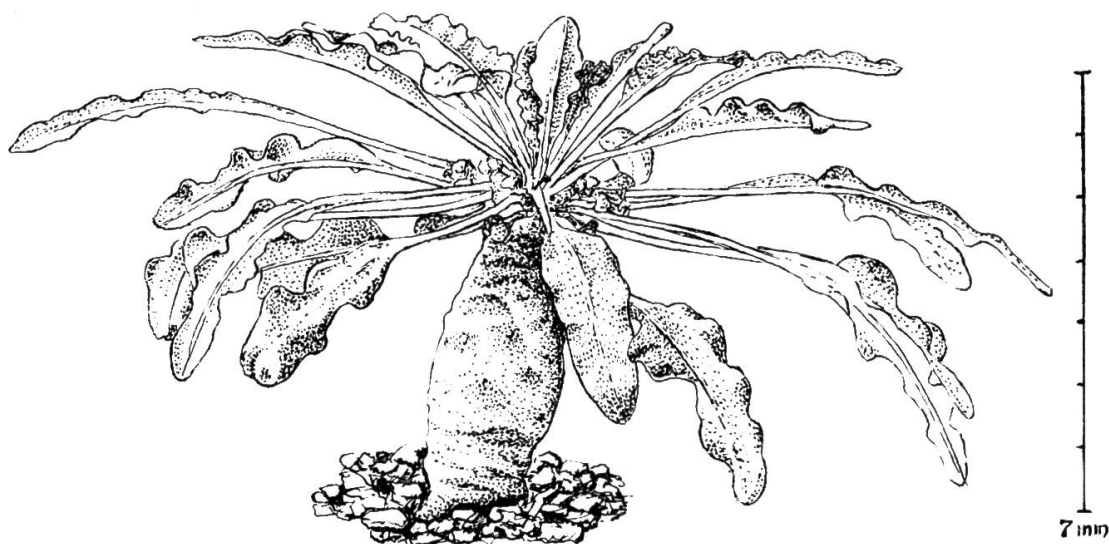


FIG. 1. — *Euphorbia hadramautica* Baker.

Arabia, Oman. Drawing of *Lavranos* 4273, cultivated in the "Jardin botanique Les Cèdres". (From a photograph by courtesy of M. J. Marnier-Lapostolle.)

In the following year Baker described *Euphorbia (Rhizanthium) oblongicaulis* (Kew Bull. 1895 : 185) from a specimen collected by Mr. Bent at Rigout on the Dhofar coast of Arabia. This was later recognized as conspecific with *E. hadramautica*.

Two years later F. Pax described *Euphorbia napoides* (Annu. Ist. Bot. Roma 6 : 187. 1897), discovered in Southern Ethiopia at Web Karanle by Domenico Riva, a Botanist who accompanied Prince Ruspoli on his last expedition into that country.

Later, when N. E. Brown revised the tropical African *Euphorbiae* (Fl. Trop. Afr. 6/1 : 470-603. 1911-1912) he remarked on the close affinity between the Arabian *E. hadramautica* and the African *E. napoides*, but this affinity seems to have escaped Pax who, in consideration of its growthform, had linked the plant with *E. longituberculosa* Hochst. ex Boiss. which belongs, by Boissier's definition, to the sect. *Euphorbium*.

¹ Boissier's definition of *Rhizanthium* in DC., Prodr. 15/2 : 10. 1862: « Folia sparsa, floralia opposita. Cymae terminales, saepe umbelliformes. Stipulae nullae. Glandulae exappendiculatae. Herbae gerontogaeae, acaules, ad apicem rhizomatis carnosae foliosae.» And *l.c.* : 92: « Herbae acaules, Capenses et Indicae, rhizomate carnosae tuberosae apice transverse cicatricoso folia sparsa edenti. Folia floralia opposita. Cymae terminales, pedunculatae, saepe umbelliformes. Glandulae involucri quinae. Styli inferne connati, semen ecarunculatum.»

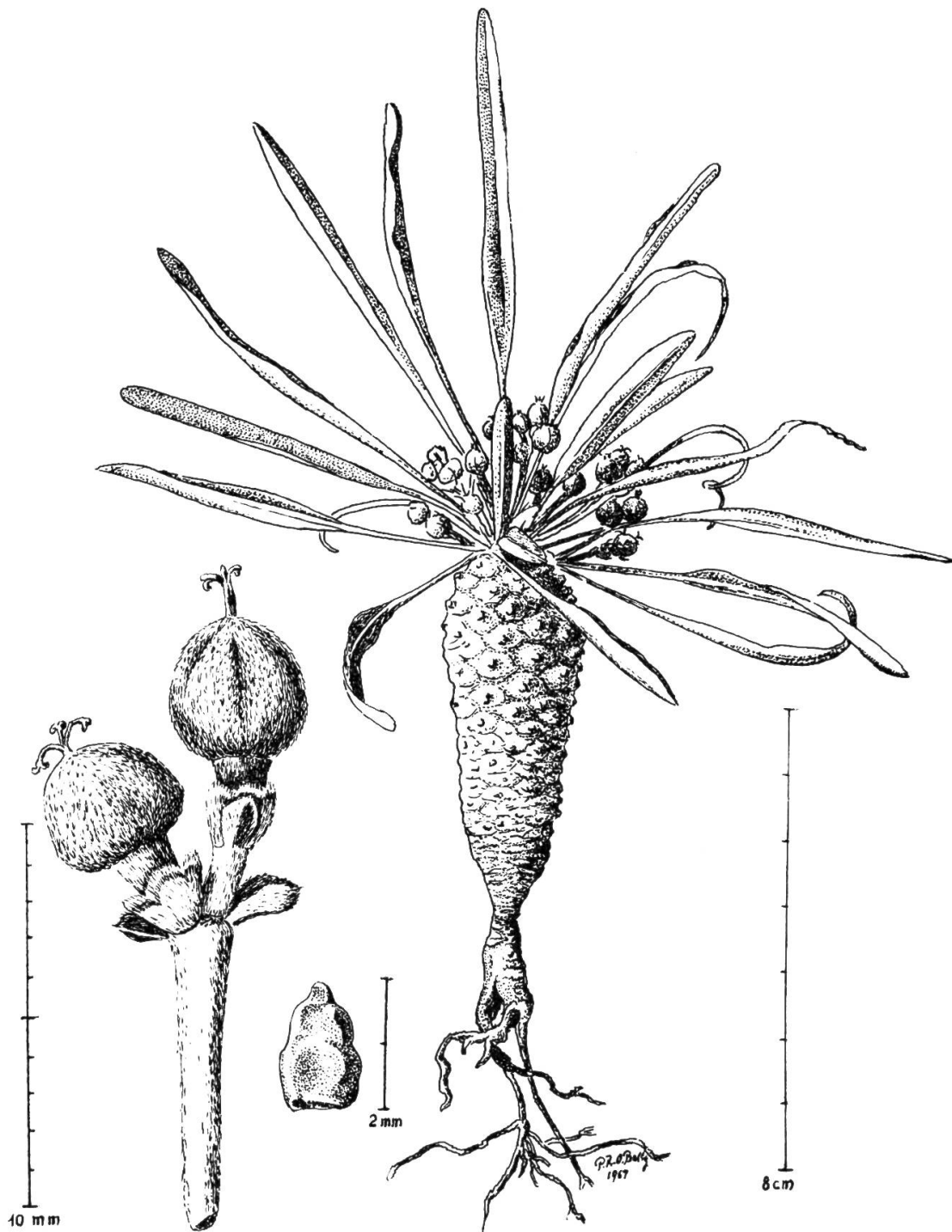


FIG. 2. — *Euphorbia hadramautica* Baker syn. *E. napoides* Pax.
Ethiopia, Ogaden. (Drawing after a colour plate: Flow. Pl. Afr. 34/3-4: tab. 1343. 1961.)

However, in Pax' subsequent classifications of the genus *Euphorbia* (in Engler & Drude, Veg. Erde 9, [= Engler, Die Pflanzenwelt Afrikas] 3/2 : 153. 1921; and in Engler & Prantl, Natürl. Pflanzenfam. ed. 2, 19c : 216. 1931) *E. napoides* and

E. longetuberculosa are found under *Rhizanthium*, in obvious contradiction with his own definition of that section which follows Boissier with the exception that it includes plants which produce annual shoots from a tuberous root or from a rhizome¹. Yet, with their fibrous roots and fleshy tubercular, perennial stem both plants belong unequivocally to Pax' section *Euphorbium* Benth. subsect. *Treisia* (Haw.) Benth.

When the late Mr. Arne Hässler reviewed the African species of the section *Rhizanthium* Boiss. (Bot. Not. 1931: 317-338) he confirmed N. E. Brown's opinion of the close affinity of *E. napoides* with *E. hadramautica*, suggesting that the former was no more than a variety of the Arabian plant, although he considered the material at his disposal insufficient for a definite conclusion. In another respect he was faced with a dilemma: on the one hand there was Pax' amended definition of *Rhizanthium* Boiss., on the other hand he had to deal with several species included by Pax himself which did not fit it.

Hässler countered this difficulty by extending the scope of that section still further² so that it would accommodate the controversial plants. However, this extension brings *Rhizanthium* into conflict with *Euphorbium*, for the nearest affinity of *E. napoides*, or more correctly of *E. hadramautica*, is in fact *Euphorbia bupleurifolia* which both Boissier and Pax regard as representative for the latter section.

It is not the present writer's intention to enter here into a discussion of the sections in the genus *Euphorbia* as conceived by various authors, though he hopes to do so in a future paper when his documentation on this subject will be more complete, but he feels that the above introduction is necessary to clarify the relative position of *Euphorbia hadramautica* Baker within the genus. Hässler's adaptation of sect. *Rhizanthium* Boiss. emend. Pax was no doubt well-intentioned and entirely justifiable in his eyes, but it shows that only workers who study the genus as a whole, such as Boissier and Pax, have a sufficient grasp of all its aspects to decide on the scope of the sections they have erected.

N. E. Brown seems to have been well aware of this, for in his comprehensive work on the *Euphorbiae* mentioned above he refrained from subdividing the genus into sections, recognizing that Boissier's classification was, though basically remarkably sound, no longer adequate to accommodate the numerous species discovered and described during the fifty intervening years.

In the 1950es the present writer had many occasions to study *E. napoides* in different parts of Somalia, while Professor W. Rauh (Heidelberg) and Mr. John Lavranos (Johannesburg) collected and observed *E. hadramautica* in S-Arabia, so that N. E. Brown's and Arne Hässler's suggested identity of both can now be established beyond doubt.

¹ Pax' definition of *Rhizanthium* Boiss. (in Engler & Prantl: Natürl. Pflanzenfam. ed. 2, 19c : 216, 1931, auct. Pax & K. Hoffmann): « Stauden mit dickem Rhizom, dem eine Blattrosette aufsitzt, oder aus dem einjährige Triebe entspringen. »

² Arne Hässler's definition of *Rhizanthium* Boiss.: « Herbae perennes, raro frutices; caudex perennis, sub- et supraterraneus, carnosus, incrassatus, fusiformis vel clavatus vel in partem superiorem conicam et inferiorem tubeream differentiat, gerens apice fasciculum certis temporibus decidentem (annuum ?) compositum ex axibus vel foliis et pedunculis insertionem alternantibus, eodem vel alio tempore excultis; semina ecarunculata. »

Characters such as erect or procumbent stems, with an almost smooth surface or prominently tubercular, with linear to broadly ovate leaves; short or long peduncles; peduncles and leaves densely pubescent or almost glabrous, are found in Arabia as well as in the Horn of Africa.

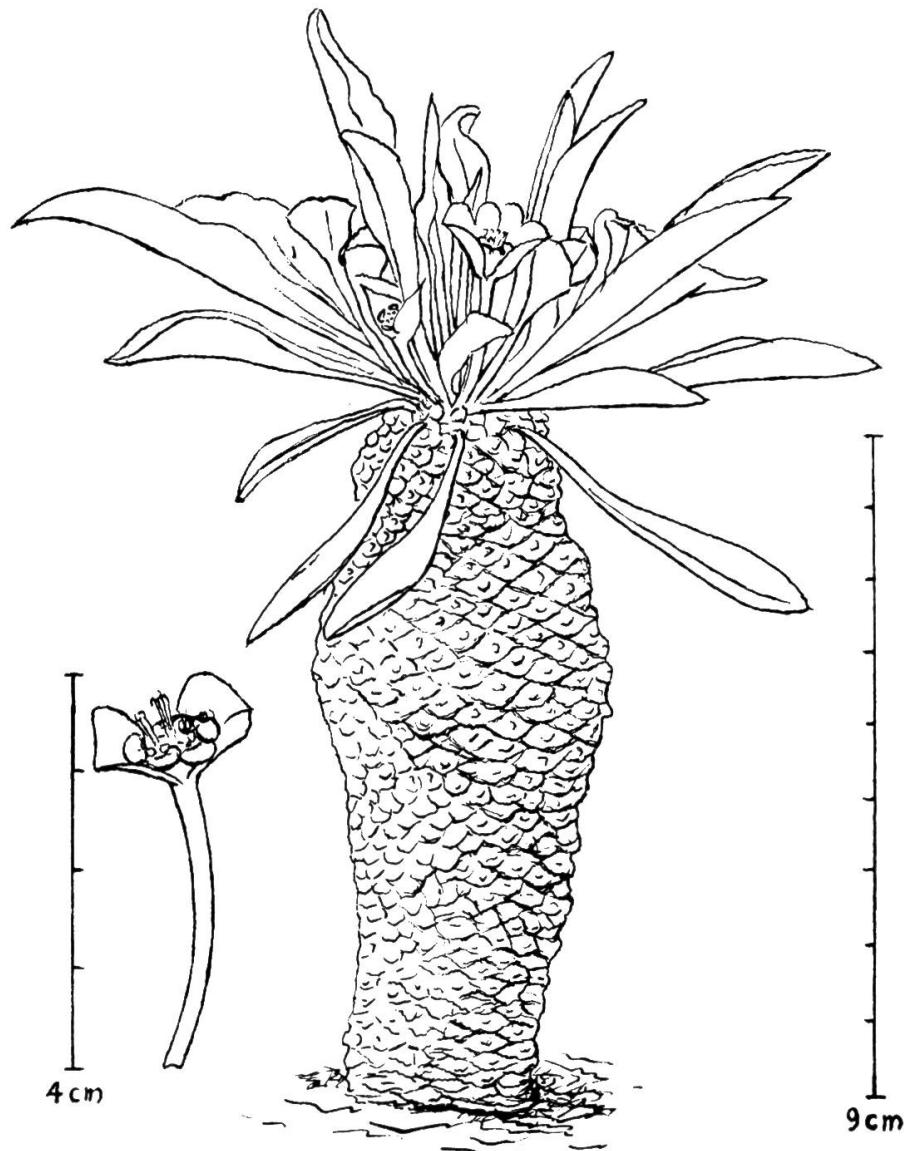


FIG. 3. — *Euphorbia bupleurifolia* Jacq.

South Africa, Cape. After a photograph of a plant cultivated in the Vienna Botanical Institute.
(From White, Dyer & Sloane, "The Succulent Euphorbieae": 235. 1941.)

Neither are synanthous or hysteranthous habits fixed characters, they depend largely on local or seasonal climatic conditions and rainfall.

The present illustrations show a tubercular-stemmed plant from Somalia South and a smooth-stemmed plant from the Dhofar Province in Oman with broader, glabrous leaves, which represent two extreme forms. Similarly smooth-stemmed plants with even broader leaves were collected and photographed by the present writer in Somalia North.

Euphorbia hadramautica Baker, Kew Bull. 1894 : 341.

E. oblongicaulis Baker, Kew Bull. 1895 : 185.

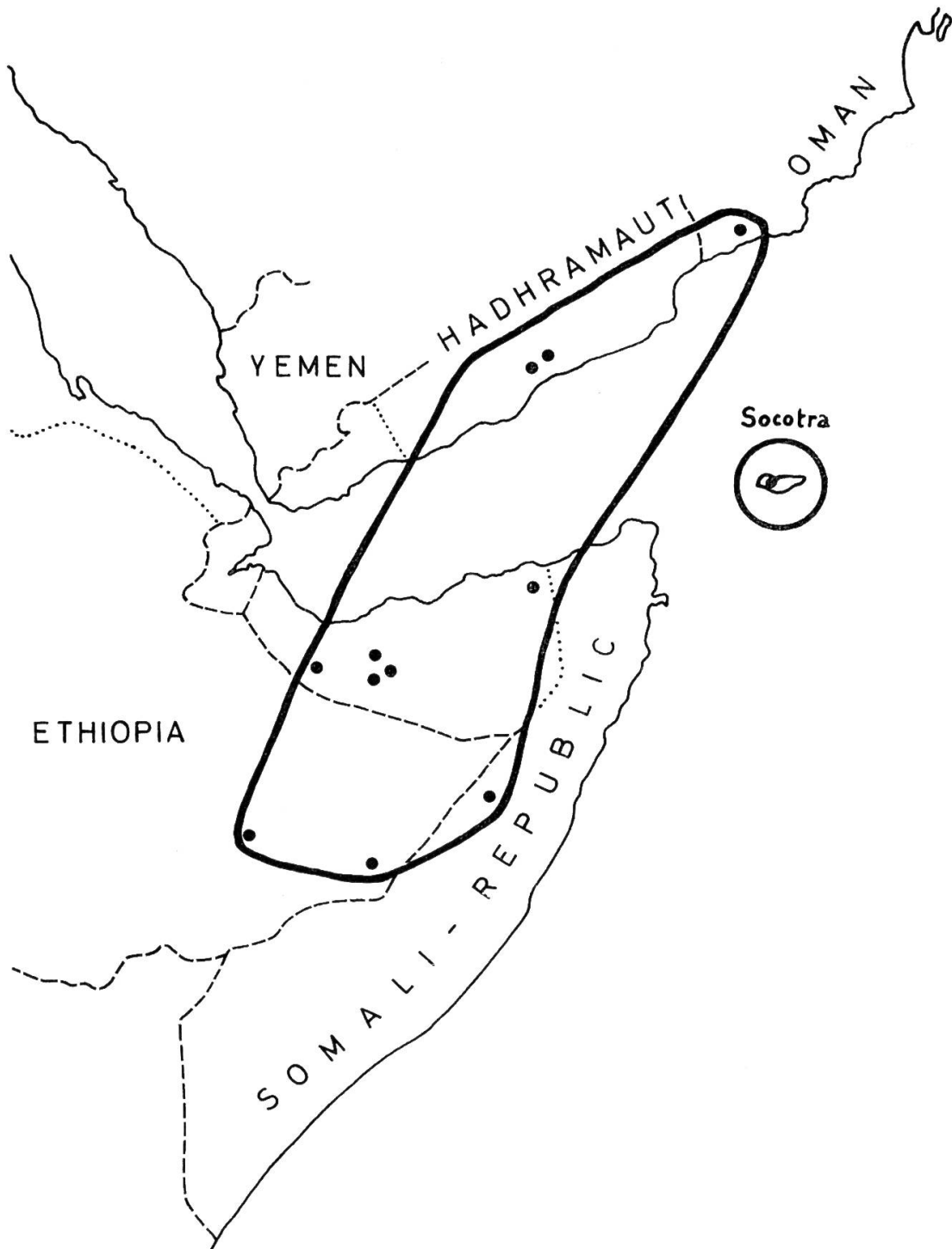
E. napoides Pax, Annu. Ist. Bot. Roma 6 : 187. 1897.

AMENDED DESCRIPTIONS: *Root* fibrous. *Stem* erect or decumbent, fleshy, napoid to clavate, 3-12 cm long, 1-3 cm thick glabrous, leaf scars persistent, spirally arranged, more or less prominent. *Leaves* densely crowded at the apex, petiolate, linear to broadly ovate, 3-9 cm long, 0.5 to 1.5 cm wide, densely or sparsely setulose, sometimes glabrous; margins entire, apex obtuse, base cuneate. *Inflorescences* in the leaf axils, cymes once forked; peduncle 3-15 mm long, more or less densely setulose. *Bracts* suborbicular, more or less densely setulose, acute, ca. 2 mm long and wide. Central *cyathium* sessile, often bisexual; lateral cyathia shortly (1-2 mm) pedunculate, campanulate, 5-lobed, densely setose. *Ovary* exceeding the involucre, on a 2 mm long, setulose pedicel; capsule trilocular, subglobose, 4 mm high and wide, densely setose. *Styles* 3, bifid, shortly united at the base, ca. 1 mm long, rugulose, with bifid tips. *Seed* 2 mm high, 1.25 mm diam., obtusely 4-angled with a flattened base and a tapering apex, brown.

DISTRIBUTION: Southern Arabia and Horn of Africa.

ARABIA. HADRAMAUT: Jol Plateau, Bir Bikban, 15° 20' N, 48° 10' E, 1080 m, 1894, *Lunt* (type); Jol Plateau, Ras Raq, N of Mukalla, 14° 42' N, 20.3.1964, *Rauh & Lavranos 3106*. OMAN: Dhufar Prov., Rigout coast, app. 17° N, 54° E, 1894, *Bent 61* (type of *E. oblongicaulis*); Dhufar Prov., Salala, 17° 03' N, 54° 05' E, 7.1.1966, *Lavranos 4258, 4273*; Dhufar Prov., Ras Risut, 16° 57' N, 54° 01' E, 12.1.1966, *Lavranos 4330*; Dhufar Prov., Wadi Adonab, 16° 59' N, 53° 43' E, Jan. 1966, *Lavranos 4339*.

AFRICA. ETHIOPIA: Ogaden, Web Karanle, 6° 28' N, 42° 18' E, 20.1.1890, *Riva 1006* (type of *E. napoides*); Ogaden, 48 km N of Ferfer, 5° 30' N, 44° 58' E, Nov. 1952, *Stephenson in Bally B9417 (E388)*. SOMALIA REPUBLIC NORTH: Burao-plains, 9° 30' N, 45° 32' E, Dec. 1943, *Peck & Bally E259*; Hargeisa, 9° 36' N, 48° 32' E, 1350 m, Jan. 1944, *Bally B12394*; Arorih Plains, 9° 26' N, 44° 58' E, 2.5.1949, *Bally B7152*; Al Madu, Baditir, 10° 51' N, 48° 58' E, 5.10.1956, *Bally B10923*; Sheik-Burao-road, miles 19, 9° 44' N, 45° 24' E, 14.10.1957, *Bally B11872*. SOMALIA REPUBLIC SOUTH: Galkayu (Rocca Littorio) 6° 45' N, 47° 25' E, 1942, *Jackson in Bally E379*. SOCOTRA ISLAND: apps. 5 km SSW of Ghubba, March 1967, *Smith & Lavranos 112*.



MAP 1. — The known distribution of *Euphorbia hadramautica* Baker.

