

## TWO NEW SPECIES OF *UMBELLIFERAE* FROM SOUTHERN TURKEY

A. DURAN\* & H. DUMAN\*

Two new *Umbelliferae* species from S Anatolia are described and illustrated: *Chaerophyllum aksekiense* A. Duran & Duman and *Tordylium ketenoglu* Duman & A. Duran.

*Keywords.* *Chaerophyllum*, new species, *Tordylium*, Turkey, *Umbelliferae*.

### INTRODUCTION

This paper describes two new species of *Umbelliferae* from Turkey, one in the genus *Chaerophyllum* L., the other in *Tordylium* L. It was decided that these species were new to science after comparison of the material with the type specimens of their close relatives in *Chaerophyllum* and *Tordylium*, in the herbaria at E and K, and researching accounts of these genera in *Flora of Turkey* (Alava, 1972; Hedge & Lamond, 1972) and related sources (Alava, 1987; Hedge & Lamond, 1987; Al-Eisawi & Jury 1988; Davis *et al.*, 1988; Phitos *et al.*, 1995).

The genus *Chaerophyllum* in Turkey, at the time of writing of the *Flora of Turkey* account (Hedge & Lamond, 1972), comprised 13 species. Later, *C. karsianum* Kit-Tan & Ocakverdi was described from NE Anatolia (Davis *et al.*, 1988). With the description in this paper of the new species *C. aksekiense* A. Duran & Duman, the number of Turkish *Chaerophyllum* species is increased to 15.

After the completion of the *Flora of Turkey* account, the genus *Tordylium* was revised by Al-Eisawi & Jury (1988), who described *T. ebracteatum* Al-Eisawi & Jury from SW Anatolia. As a result of the description in this present paper of *T. ketenoglu* Duman & A. Duran, the genus *Tordylium* contains 17 species native to Turkey.

### ***Chaerophyllum aksekiense* A. Duran & Duman, sp. nov. Figs 1, 2.**

(Sect: *Univittata* Drude)

Affinis *C. macrospermo* (Spreng.) Fisch. & Mey. et *C. cretico* Boiss. & Heldr.; a *C. macrospermo* foliis inferioribus 4–5-pinnatis (non 3–4-pinnatis) lamina 12–20 × 5–15cm (non usque ad 50 × 20cm), foliorum inferiorum superiorumque segmentis similibus (non dissimilibus), radiis inaequalibus tempo fructificando 1–5cm longis (non subaequalibus statu fructifero 1–2cm longis), bracteolis lineari-lanceolatis viridescenti-luteis, glabris, haud deflexis (non ovato-acuminatis, viridescenti-albis, sparse hirsutis et deflexis), petalis luteis (haud albis), stylo brevior 1–1.8mm longo (non 2–2.5mm) differt. A *C. cretico* planta altiore 80–130cm alta (non usque ad 50cm

\* Department of Biology, Faculty of Science and Letters, Gazi University, 06500 Ankara, Turkey.

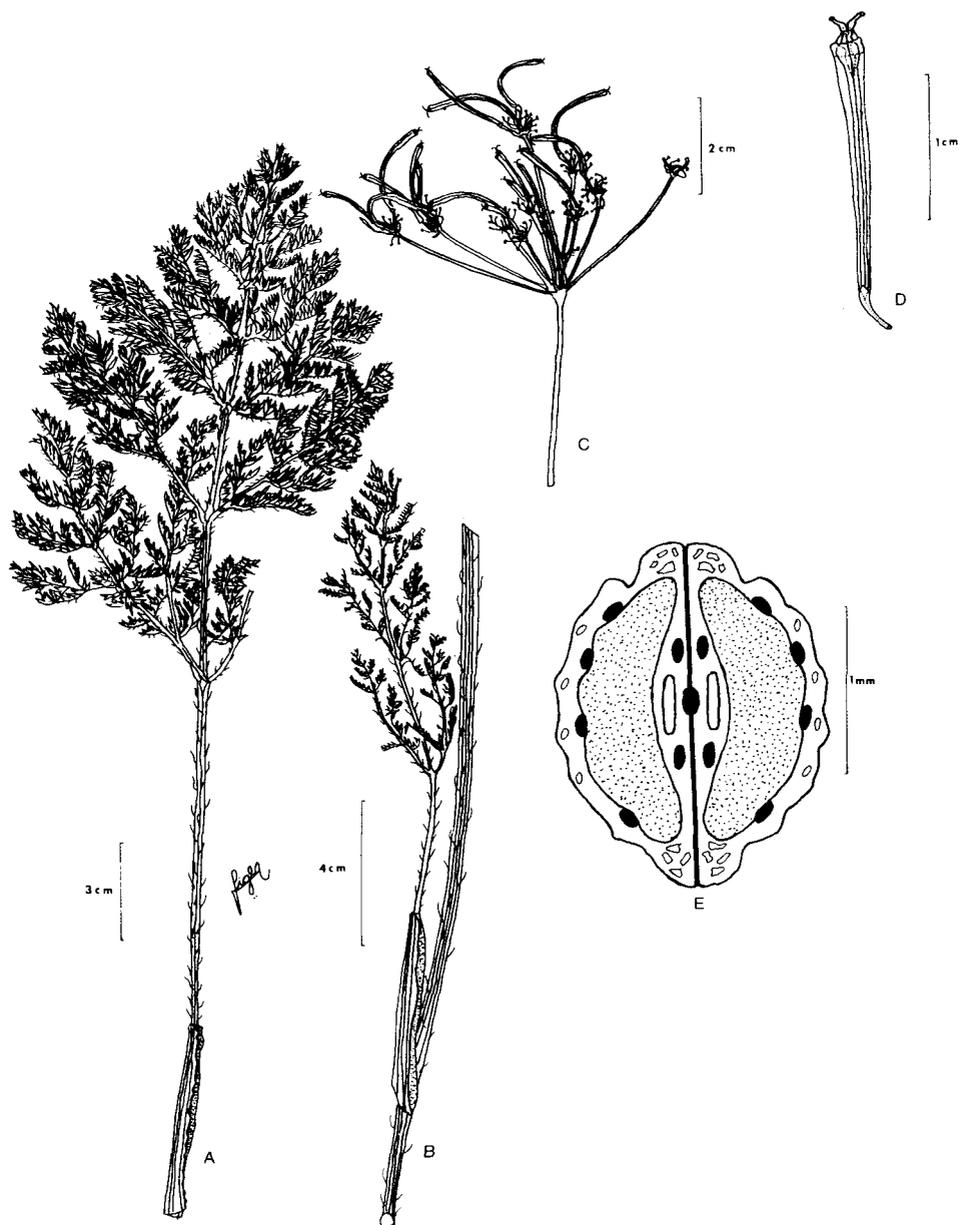


FIG. 1. *Chaerophyllum aksekiense*. A, basal leaves; B, stem and stem leaves; C, inflorescence; D, fruit; E, transverse section of mericarps. Drawn by Figen Özkaya.

tantum), foliis magis dissectis 4–5-(non 3-) pinnatis, puberulis (haud villosis), vaginis superioribus petioli glabris (haud pilosis), radiis 7–15 tantum (non usque ad 25), bracteis integris (non interdum pinnatifidis), ubi fructifero caducis (haud

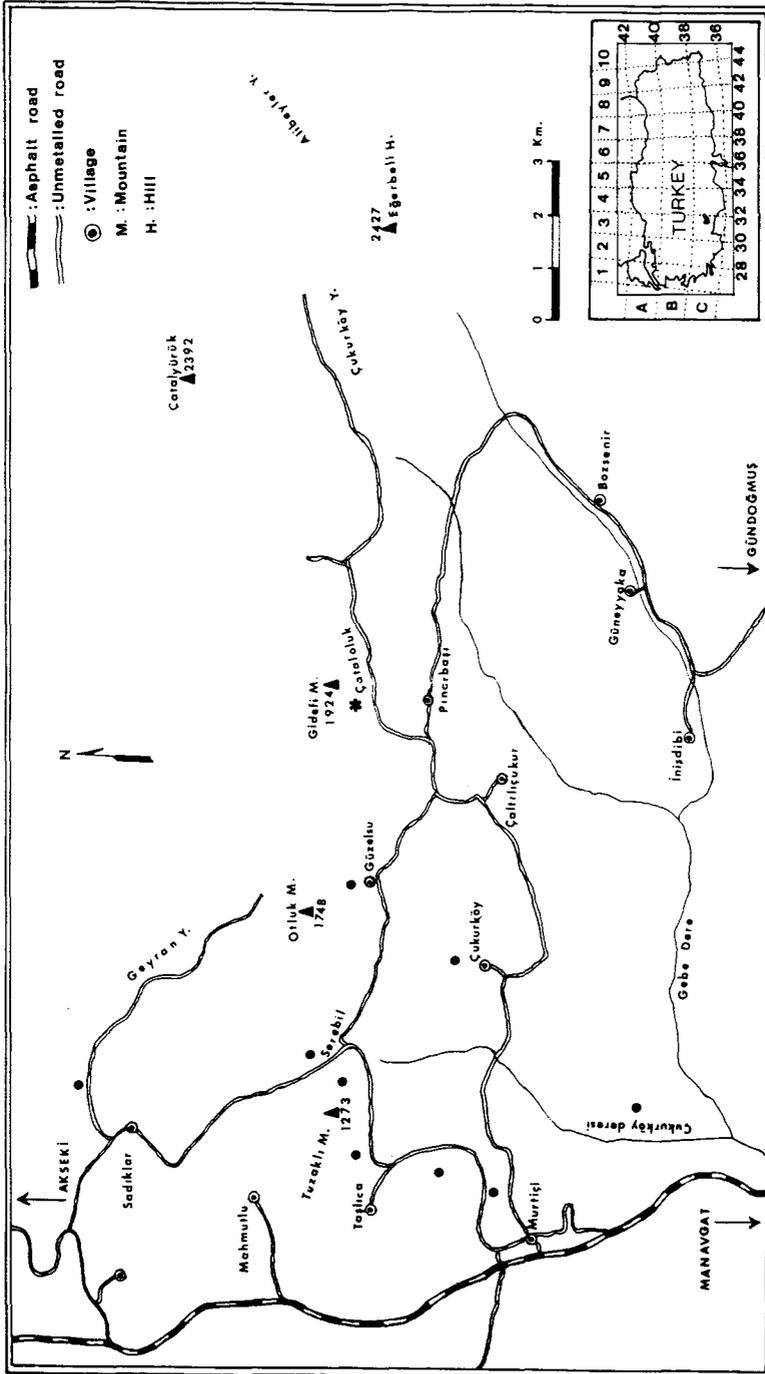


FIG. 2. Distribution of *Chaerophyllum aksekiense* (\*) and *Tordylium ketenoglu* (●). Drawn by A. Duran.

persistentibus), petalis lanceolatis usque linearibus acuminatis ad acutis (non obovatis ad apicem emarginatis) et mericarpio 10–23 × 1.5–2mm (non 20–25 × 1.5–2mm) recedit.

Type: Turkey C3 Antalya: Akseki, Pınarbaşı village, Çataloluk, 1450m, open *Cedrus libani* forest, 19 vii 1995, *A. Duran* 2942 (holo. GAZI, iso. E, ANK, HUB).

Erect perennial, 80–130cm, with thick tap root. *Stems* ridged or finely terete, coarsely retrorse hispid with both long and short hairs below; dichotomously branched sparsely spreading hairy or glabrous above. Fibrous collar absent. *Lower leaves* long-petiolate, to 18cm, densely short retrorse hispidulous, sulcate, base of petiole broadly winged; lamina oblong to broadly ovate-triangular, 12–20 × 5–15cm, puberulous, 4–5-pinnate, ultimate segments to 15 × 8mm, deeply pinnatisect with 1–2.5mm acute linear-lanceolate lobes. *Upper leaves* smaller, ultimate segments similar to lower leaves; petioles broadly winged, to 9cm, glabrous. *Peduncles* 2–6cm. *Rays* 7–15, unequal, ± erect, 1–5cm. *Bracts* 0–5, caducous, linear, 3–5mm, glabrous. *Bracteoles* 6–8, linear-lanceolate, acuminate, 3–4mm, glabrous, persistent. *Pedicels* 10–15, unequal, 2–5mm in fruit. *Fertile flowers* (0–)1–3(–5) per umbellule. *Sepals* obsolete. *Petals* yellow, lanceolate to linear, acuminate to acute, incurved, glabrous. *Anthers* yellow. *Fruits* linear-oblong to clavate, 10–23 × 1.5–2mm, glabrous, sometimes curved at maturity; styles divergent, 1–1.8mm. *Fl. and Fr.* 6–7.

TURKEY C3 Antalya: Akseki, Pınarbaşı village, Çataloluk, 1450m, open *Cedrus libani* forest, 4 vii 1994, *A. Duran* 1722 (GAZI), *ibid.*, 2 vi 1995, *A. Duran* 2699 (GAZI), 30 vi 1996, *A. Duran* 3991 (GAZI), 24 vii 1997, *A. Duran* 4243 (GAZI).

South Anatolia. Very local. Endemic. East Mediterranean element. Recommended IUCN Threat Category Listing: Critically Endangered (CR).

*C. aksekiense* is known from only one locality and grows in open *Cedrus libani* forest with *Umbilicus erectus* DC., *Scabiosa reuteriana* Boiss., *Salvia adenocaulon* P.H. Davis, *Sanguisorba minor* Scop. etc.

This new species is the only yellow-flowered species of *Chaerophyllum* L. in Turkey. Superficially similar to *C. macrospermum* and *C. creticum* but easily distinguished from these species; from *C. macrospermum* by the stem 80–130cm (not 90–200cm), lower leaves 4–5-pinnate, lamina 12–20 × 5–15cm (not 3–4-pinnate and lamina up to 50 × 20cm), lower and upper leaves segments similar (not dissimilar), rays unequal, 1–5cm at fruiting time (not ± equal, 1–2cm at fruiting time), bracteoles linear-lanceolate, greenish-yellow, glabrous, not deflexed (not ovate-acuminate, greenish-white, sparsely hairy and deflexed), petals yellow (not white), style 1–1.8mm (not 2–2.5mm); and from *C. creticum* by stems 80–130cm (not up to 50cm) leaves 4–5 pinnate, puberulous (not 3-pinnate, villous), upper sheaths of petiole glabrous (not hairy), rays 8–15 (not up to 25), bracts entire, caducous at fruiting time (not sometimes pinnatifid and persistent at fruiting time), petals lanceolate to linear, acuminate to acute, incurved (not obovoid and emarginate at apex) and mericarps 10–23 × 1.5–2mm (not 20–25 × 1.5–2mm).

***Tordylium ketenoglui* Duman & A. Duran, sp. nov. Figs 2, 3.**

Affinis *T. brachytaenio* Boiss. & Heldr. sed radiis 1–3cm (non 0.5–2cm) longis, petalis semper albis (non albidis ad lutescentibus), exterioribus 3–5mm longis tantum (non 6–8mm), staminibus brevioribus 0.7mm longis (non 1.5mm), stylis paulo longioribus c.1mm longis (non 0.5mm) et mericarpiis angustioribus 2–3 × 2–2.5mm (non 3–4 × 4–4.5mm) differt.

Type: Turkey C3 Antalya, Akseki, Taşlıca village, Tuzaklı, 930m, rocky places, 28 v 1996, *A. Duran* 3738 (holo. GAZI, iso. E, ANK)

*Stems* erect, 20–80cm, terete, striate, dichotomously branched, softly hairy to strigose below, minutely scabrous above. *Basal and lower cauline leaves* pinnate with 1–2 pairs of ovate to rounded subsessile leaflets, or simple, ovate, sometimes cordate at the base, crenate; *upper leaves* pinnate with 1–2 pairs of obovate to rounded subsessile crenate leaflets, terminal ones larger than laterals, petioles and leaflets softly hairy. *Peduncles* to 24cm, sulcate, stiffly-scabrous. *Bracts* 5–8, unequal, linear-lanceolate, with narrow membranous ciliate margins, scabrous, deflexed, to 8mm. *Umbels* 20–60mm diam. *Rays* 5–17, unequal, scabrous, 1–3cm at fruiting time. *Bracteoles* 5–6, unequal, linear-lanceolate, margins ciliate, as long as or slightly longer than fruiting pedicels. *Pedicels* unequal, up to 3mm in fruit, ± glabrous below, stiffly hairy above. *Flowers* 10–20 per umbellule. *Sepals* absent. *Petals* radiate, white, the outer 3–5mm, unequally 2-lobed, with soft hairs at the base. *Stamens* 0.7mm. *Styles* c.1mm in fruit; *Stylopodium* conical-depressed, glabrous. *Mericarps* 2–3 × 2–2.5mm, ovate orbicular, with thick, smooth margins or rarely moniliform at apex, covered with vesicular hairs on the dorsal surfaces; primary ridges filiform; vittae 6, 4 dorsal and 2 commissural, the central dorsal vittae invisible, hidden under the wings. *Fl. and Fr.* 5–6.

TURKEY C3 Antalya: Akseki, Geyran yayla, Morualan, rocky places, 1300m, 10 vi 1995, *A. Duran* 2609 (GAZI); Akseki, Sadıklar to Geyran yayla, macchie, 1000m, 10 vi 1995, *A. Duran* 2668 (GAZI); Akseki, north of Mahmutlu village, rocky places, 1000m, 26 v 1996, *A. Duran* 3725 (GAZI), Akseki, between Murtıçı and Taşlıca, 630m, macchie, 1 vi 1996, *A. Duran* 3833 (GAZI), Akseki, Çukurköy, Istarlas, rocky places, 850–1000m, 3 vi 1996, *A. Duran* 3865 (GAZI), Akseki, Güzelsu, 1250m, rocky places, 29 vi 1996, *A. Duran* 3943 (GAZI), Tuzaklı vicinity, 970m, rocky places, 8 vi 1997, *A. Duran* 4180 (GAZI), Akseki, Çukurköy, Arabardıcı, 550m, rocky places, 8 vi 1997, *A. Duran* 4188 (GAZI).

South Anatolia. Endemic. East Mediterranean element.

Recommended IUCN Threat Category Listing: Near Threatened (LR nt).

*T. ketenoglui* grows with *Campanula balansae* Boiss. & Hausskn., *Picris cyprica* Lack, *Scabiosa reuteriana* Boiss., *Trifolium purpureum* Lois. var. *pamphylicum* (Boiss. & Heldr.) Zoh., *Fritillaria ehvesii* Boiss., *Conringia grandiflora* Boiss. & Heldr., *Muscari muscarimi* Medikus and *Torilis triradiata* Boiss. & Heldr.

This new species is similar to *T. brachytaenium* Boiss. & Heldr. which was collected by Heldreich in 1845 from only one locality, but *Tordylium ketenoglui* differs in its narrower, linear to lanceolate (not lanceolate) bracts, rays 1–3cm (not 0.5–2cm),

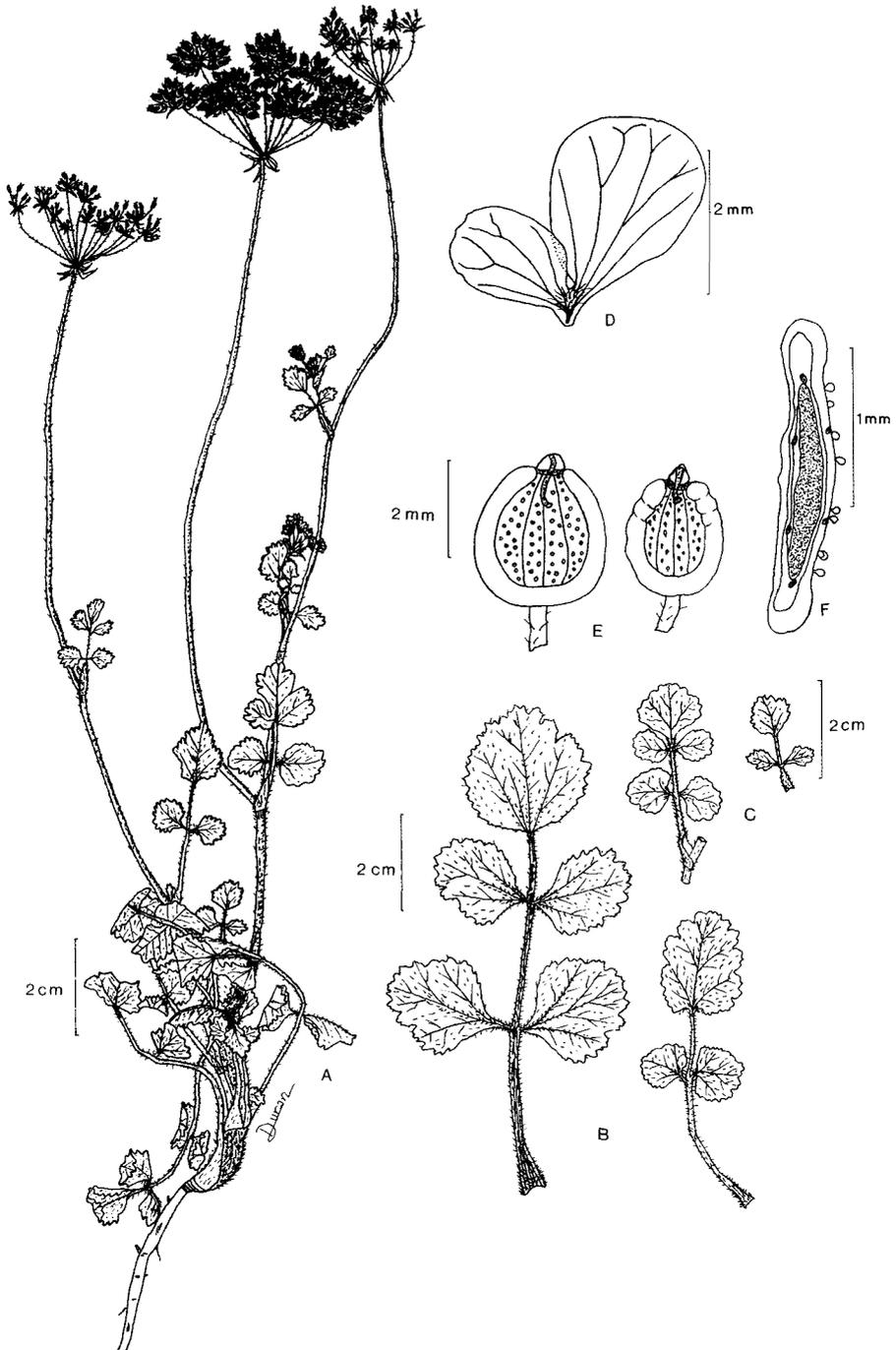


FIG. 3. *Tordylium ketenoghui*. A, habit; B, basal leaves; C, stem leaves; D, outer petal; E, fruit; F, transverse section of mericarps. Drawn by A. Duran.

petals white, the outer petals 3–5mm (not white to yellow, the outer 6–8mm), stamens 0.7mm (not 1.5mm), styles c.1mm (not 0.5mm) and mericarps 2–3 × 2–2.5mm (not 3–4 × 4–4.5mm).

This new species is named in honour of Prof. Dr. Osman Ketenöglü, a well-known phytosociologist at Ankara University.

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#### REFERENCES

- AL-EISAWI, D. & JURY, S. L. (1988). A taxonomic revision of the genus *Tordylium* L. (*Apiaceae*). *Bot. J. Linn. Soc.* 97: 357–403.
- ALAVA, R. (1972). *Tordylium* L. In: DAVIS, P. H. (ed.) *Flora of Turkey and the East Aegean Islands* 4: 504–513. Edinburgh: Edinburgh University Press.
- ALAVA, R. (1987). *Tordylium* L. In: RECHINGER, K. H. (ed.) *Flora Iranica* 162: 465–467. Graz: Akademische Druck-u. Verlagsanstalt.
- HEDGE, I. C. & LAMOND, J. M. (1972). *Chaerophyllum* L. In: DAVIS, P. H. (ed.) *Flora of Turkey and the East Aegean Islands* 4: 312–318. Edinburgh: Edinburgh University Press.
- HEDGE, I. C. & LAMOND, J. M. (1987). *Chaerophyllum* L. In: RECHINGER, K. H. (ed.) *Flora Iranica* 162: 86–95. Graz: Akademische Druck-u. Verlagsanstalt.
- IUCN SPECIES SURVIVAL COMMISSION (1994). *IUCN Red List Categories*. Switzerland. Approved by the 40th meeting of the IUCN Council.
- PHITOS, D., STRID, A., SNOGERUP, S., GREUTER, W. (1995). *The Red Data Book of the Rare and Threatened Plants of Greece*, pp. 182–183. Athens: K. Michalas S.A.

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