

ART. XX.—*Microglossa and Melitribus, New Genera*
of Australian Bees.

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(With Plate XXJ)

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During the summer of 1929, *Eucalyptus calophylla* had a crop of flowers that almost eclipsed the foliage, and I was able to collect a large number of honey-gatherers. I have identified over one hundred species, and have many more to be worked out. This is probably the largest number recorded to visit one botanical species. I could not collect many of the bees that hovered over the tops of the trees. See Sir John Lubbock (1).

Among the debris of pollen-grains, broken leaves and flowers that accumulated in the bottom of my collecting-net, I recovered a few very small insects that had no difficulty in passing between the fine threads of the cheese-cloth. They were so minute that I did not, at first, make any special effort to retain them, and so lost numerous specimens. It was not until I examined the debris at my leisure that I appreciated the significance of their structure.

The species of the new genus *Microglossa* are the smallest bees yet described. I submitted the types to Mr. Henry Hacker, of the Queensland Museum, who states that *Microglossa* is smaller than the bees of the genus *Turnerella* (2). The integument is black, highly polished, and the markings are light yellow. The head is large and square, and the development of the genae is abnormal. The mandible is notched after the manner of *Prosopis*. The clypeus is remarkably small, and consequently the frons is exceedingly long. The yellow face-markings, too, are suggestive of *Prosopis* (3).

The antennae are inserted very low down, and that feature is often seen in *Euryglossa*. The scape is dilated at the apex, and hollowed out in such a way that it is capable of partially receiving the first segment of the flagellum when it is bent down. Along the edge of the cavity is a fringe of stiff bristles, and I can find nothing like this on any other Australian, American or European bee that I have studied. The third segment of the flagellum is the shortest, and the others are wider than long, and so conform to the type of *Euryglossina* (4). The outstanding feature is the paucity of pore and peg structures compared with the numerous and varied organs of the honey-bee's antennae.

The head capsule, from the rear, reveals the enormous cheeks and the wide, low fossa or cavity which receives the submentum of the short proboscis. Text-fig. 1, No. 6, illustrates the rudimentary character of this organ. The palpi are of four segments, and the basal one is short and stout, approaching the square form found in *Euryglossa*. The whole head, especially the thickened development of the vertex, is very suggestive of that genus.

Order HYMENOPTERA.

Suborder HETEROPHAGA.

Division COLLETIFORMES.

Family PROSOPIDIDAE.

Microglossa, new genus.

Minute black and yellow almost hairless bees. Length, 2-3 mm. Head very broad, laterally a wide, short oval, the occiput and the post-genae of remarkable development, the submentum barely visible in the low, wide fossa of the proboscis; face-marks, when present, yellow; frons, owing to the antennae being inserted so low down, is excessively large and is minutely sculptured; clypeus hardly visible, usually yellow and extremely narrow; supraclypeal area is pyramidal in form, and is much more prominent than the clypeus; vertex broad and rounded, the small ocelli being placed in an equilateral triangle; compound eyes converge slightly above, the facets are large; genae full and rounded; labrum small, hidden from view; mandibulae yellow or amber, those of the female having two strong teeth; antennae submoniliform, the scape being slightly dilated, and there is a depression, at the apical end, of size and shape to receive the first segment of the flagellum.

Prothorax shows as a very narrow collar with minute rugae; tubercles, either yellow or black; metathorax convex, with puncturing of a scattered nature, and extremely minute sculpture; scutellum does not present any generic characters. Abdomen is long and narrow, greatly contracted basally and apically; there are a few hairs apically.

Legs slender, almost destitute of hair; the antenna-cleaner of the anterior leg has a long serrated malus of Halictine form, and the velum is oval, of Prosopoid form; tarsi diminishing in size, the first being the longest; claws simple and the empodium large; hind calcariae with a large number of fine long serrations, of pale colour. Wings clear, the anterior ones widely rounded at the apex; nervures are heavy, the radius reaching the costa at an obtuse angle, the first recurrent entering the first cubital cell before the first intercubitus. Cells: the radial is abnormally large, the first cubital and the only discoidal being

equal; the second cubital is smaller; pterostigma of great size, being almost a half circle, and dark in colour; hamuli extremely weak, five in number.

Males slightly smaller, with yellow faces and longer antennae.

Genotype *M. longifrons*, n. sp.

Allied to *Euryglossidia* of Cockerell by the neurulation of the wings, but these almost hairless bees are undoubtedly the smallest yet described, and are easily separated from *Euryglossidia*, which has a narrow pterostigma, and is much larger (5).

MICROGLOSSA LONGIFRONS, new species.

Male: Length, 2.5 mm: approx.

Head broad, black, bright, laterally a wide oval; face-marks pale yellow, wider than clypeus, oval at apex, reaching two-thirds up orbital margins; frons excessively large, black, bright, with a coarse tessellate pattern, a few punctures; clypeus excessively narrow, yellow, almost hidden from view; supraclypeal area large, yellow, apex of pyramidal form; vertex black, broadly developed, with three black small ocelli in an equilateral triangle; compound eyes black, converging above, facets large; genae black, a large yellow patch at base of mandible, minute, stiff white hair; labrum yellow, very small; mandibulae acute, yellow, a minute red spot apically; antennae with scape slightly dilated, yellow, flagellum dark amber, prominent white hair.

Prothorax hardly visible from above, black, rugose when viewed laterally. Tubercles yellow, with white hair. Metathorax black, shining, with a coarse tessellate pattern, a few scattered punctures, half-a-dozen very minute white plumose hairs just over the tubercles; scutellum similar to mesothorax; metathorax excessively large, forming half the thorax, black, posteriorly a transverse rim, a large dome-shaped area rugose, superimposed is an isosceles triangle, with transverse rugae. Abdomen with dorsal segments black, shining basally, obscurely lighter, first very large, forming half the abdomen, a few minute white hairs at apex; ventral segments similar.

Legs, anterior and median yellow, hind femora dark amber; tarsi light amber; claws light amber; hind calcariae short, broad, pale, almost white, shaped like an isosceles triangle. Tegulae pallid, dull. Wings hyaline, slightly iridescent; nervures dilute sepia, heavy, basal not arched, falling a long way short of the nervulus; cells, first cubital and the sole discoidal of equal size, second cubital smaller; pterostigma dilute amber, with a darker margin, half a circle in form, very large. Hamuli exceedingly weak, five in number.

Locality.—Sandringham, Victoria (February 20th, 1929).

Collected from a flower of *Eucalyptus calophylla*. (Rayment).

Type in the collection of the author.

Allies: *M. rufitarsus*, n. sp., which has a fine striation covering the frons, and *M. bimaculata*, n. sp., which has black tubercles.

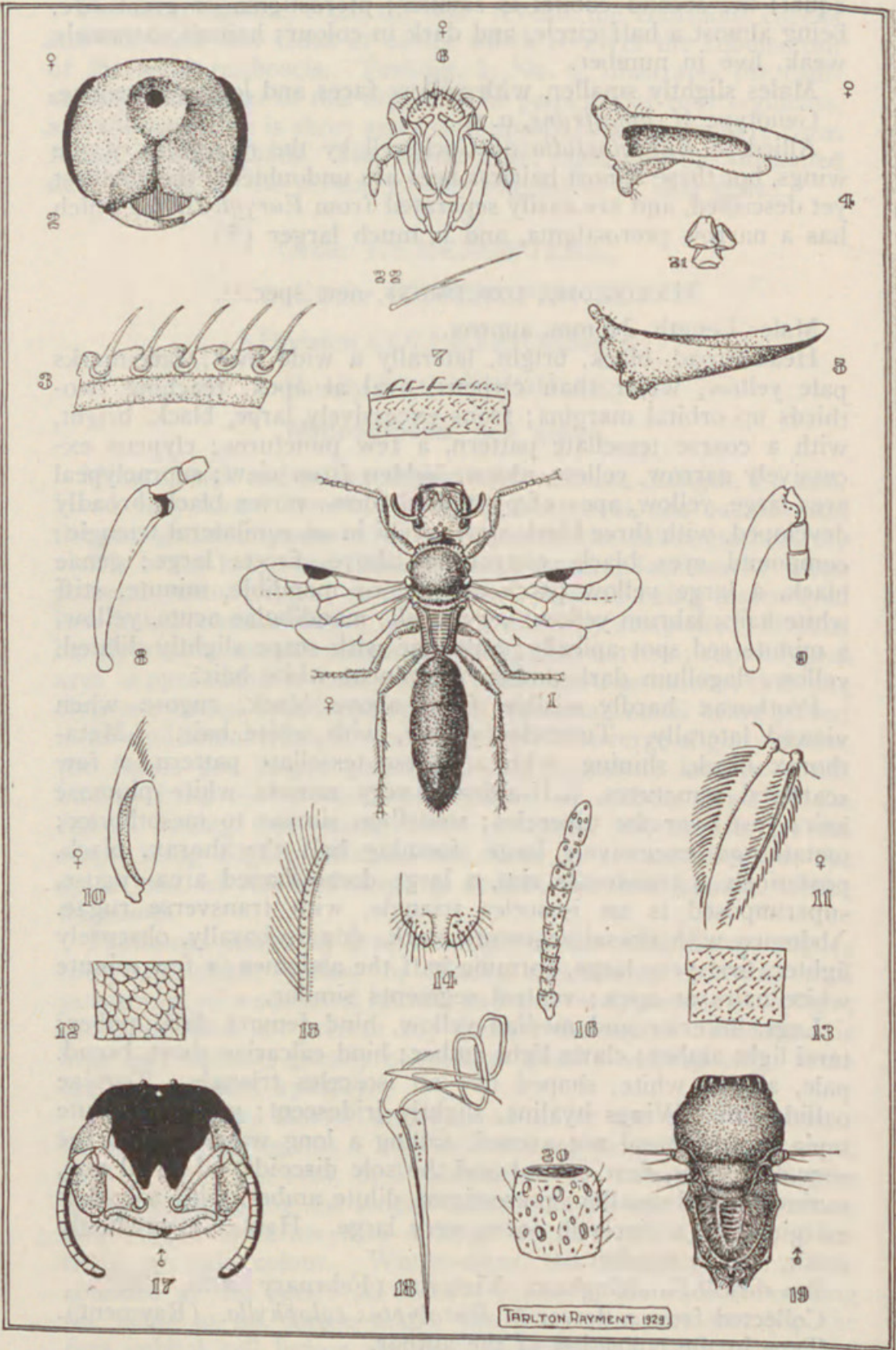


Fig. 1—*Microglossa longifrons*, gen. et. sp.nov.

MICROGLOSSA RUFITARSUS, new species.

Female: Length, 2.5 mm. approx.

Head very wide, black, shining, laterally a wide oval; face-marks nil; frons with an extremely delicate striation covering the large area, and scattered punctures visible under a one-inch lens; clypeus extremely small, yellowish amber; supraclypeal area comparatively large; of pyramidal form, obscure amber; vertex broad, with wine-colour ocelli; compound eyes black, converging above, large facets; genae black, shining, with striation and punctures similar to the frons; labrum pale amber; mandibulae yellow, with reddish tips, two strong teeth; antennae submoniliform, pale amber beneath, darker above, the scape dilated, with a depression which receives the first segment of the flagellum.

Prothorax just visible from above as a narrow area finely rugose. Tubercles black, shining. Mesothorax black, shining, with the delicate striate pattern and puncturing of the frons; scutellum with the colour and sculpture of the mesothorax; post-scutellum black, rough, narrow; metathorax black, excessively large, forming half the thorax, a large, wide, lunate area rugose, fine rugae covering the angle of truncation. Abdomen with dorsal segments showing a delicate, transverse striation, black, shining, with a few punctures; ventral segments similar.

Legs amber, except femora and hind tibiae, which are suffused with black; tarsi amber; claws amber; hind calcariae amber, with numerous minute serrations; tegulae black, shining, with a ferruginous margin. Wings hyaline, iridescent, widely rounded at apex; nervures dilute sepia, heavy, the basal not arched, radius nervure meeting the costa at an obtuse angle;

FIG. 1.—*Microglossa longifrons*, new species.

1. Adult female: note the scarcity of hair and the large pterostigma.
2. Posterior view of head-capsule, showing the abnormal genae, and the very small fosse which receives the glossa.
3. A row of stiff bristles fringe the hollow at the apex of the scape.
4. Anterior view of mandible, showing the strong teeth.
5. Lateral view of mandible, exhibiting its spoon-like hollow.
6. The short wide tongue with maxillae; the labial palpi have a thick basal joint.
7. The hamuli, or hooklets, of the small wing are irregular and few in number.
8. The scape, with the flagellum extended, to shew the cavity.
9. Scape with the first joint of the flagellum resting in the hollow at apex.
10. Antenna-cleaner, on the tibia of the front leg, has numerous serrations.
11. Two views of the hind calcariae, or tibial spurs; the left-hand one is viewed laterally.
12. Portion of the minute sculpture of the integument highly magnified.
13. Minute hairs, and still more minute "pegs," cover the surface of the wings.
14. The extreme tip of the abdomen has a rima or furrow.
15. The edges of the wings have a fringe of comparatively long hair.
16. Flagellum, with joints wider than long, has three kinds of pore organs.
17. Anterior view of head-capsule of male. Anterior view of the "face", the clypeus and supraclypeal area, together with the lateral face-marks, are pale primrose-yellow.
18. The sting of the female is very wide at the base, and there are several pores that may be olfactory in function.
19. The thorax of male, showing the ridged prothorax, the convex mesothorax, and the sculpture of the large metathorax.
20. One of the antennal joints highly magnified to show three kinds of pores.
21. Pollen-granules (*Eucalyptus*) removed from the hairs at the apex of abdomen.
22. A forked hair from near the base of the mandible or jaw. The bee had to be dissected, and the parts mounted for study with a 1-6th in. objective, before a forked hair could be identified.

cells: first cubital and the sole discoidal of equal size, second cubital smaller, radial abnormally large; pterostigma large, dilute sepia; hamuli of weak development, five in number.

Locality: Sandringham, Port Phillip (February 20th, 1929), and Malvern, Victoria.

Collected on flowers of *Eucalyptus calophylla*. (Rayment).

Type in the collection of the author.

Allies: *M. longifrons*, n. sp., which has yellow spots on the genae.

MICROGLOSSA BIMACULATA, new species.

Female: Length, 3 mm. approx.

Head black, wide, shining; face-marks, two minute yellow spots near mandibulae; frons excessively large, shining, minutely striate, with scattered punctures; clypeus excessively narrow, yellow; supraclypeal area resembling a yellow pyramid, darker apically; vertex with wine-pink ocelli; compound eyes blackish, slightly converging above; genae black, shining, with a large yellow spot at bases of mandibulae; labrum yellow; mandibulae yellow, with reddish tips, two strong teeth; antennae with scape black, and a depression to receive the first segment of flagellum, which is dark above and amber beneath; inserted just above mandibulae.

Prothorax black, rugose; tubercles black, shining; mesothorax black, shining, finely tessellate, with scattered punctures; scutellum similar to mesothorax; metathorax long, transversely striate, black. Abdomen with dorsal segments black, shining, margins narrowly lighter; ventral segments similar.

Legs amber, anterior femora, middle and hind coxae, femora and tibiae all suffused with black; tarsi amber; claws light amber, with large dark empodium; hind calcaria pale, with numerous fine teeth; tegulae shining, black. Wings hyaline, iridescent; nervures dark amber, basal straight, falling far short of nervulus; cells, first cubital and the sole discoidal equal, the second cubital smaller; pterostigma dark amber, large; hamuli weakly developed, five in number.

Locality: Sandringham, Port Phillip, Victoria (February 20th, 1929). Collected from flowers of *Eucalyptus calophylla*. (Rayment).

Type in the collection of the author.

Allies: *M. rufitarsus*, n. sp., which has no spots on cheeks and no face-marks.

Melitribus, a New Colletid Bee.

The number of honey-gatherers described from West Australia is not large, but I am convinced the State has perhaps more species than the eastern portion of the Commonwealth.

Only a few collectors have given the bees much attention, chiefly because Australia owns so few of the types described by Fred. Smith (6) in England, and, later, by Professor Cockerell (7) in America.

Henry Hacker (8) lists only one species of *Exoneura* for West Australia, yet Mr. T. Greaves, who has just returned from a collecting excursion, brought back great numbers of these reed-dwelling bees, which, he states, were the most numerous, and Mr. J. Clark, sometime of Perth, but now of Melbourne Museum, assures me that this is correct. I propose to publish a list of these bees at a later date.

Among the large honey-gatherers he collected was a fine black male that could not easily be allied, except to *Gastropsis victoriae*, which was described by Professor Cockerell (9), and, though he thought it should have formed the type of a new genus, he deferred doing so. He recognised many characters of the European *Meliturga* and discussed that aspect in 1904 (10), but the tongues are altogether different. This new bee provides additional material for study, and I consider it advisable to erect the new genus *Melitribus*, and append the generic diagnosis and specific description. The families are those of Cockerell and Robbins (11) and the neuration of the wings is based on the arbitrary method of Rohwer and Gahan (12).

Family COLLETIDAE.

Melitribus, new genus.

Large, black, hairy bees. Length, 15-17 mm.

Head with occipital region but little developed, the glossa being short, wide and bristly; the paraglossae short and thick; six segments in the maxillary palpus, and four in the labial palpus; face-marks are confined to coloured hair; frons constricted by the enormous development of the compound eyes; clypeus convex, the anterior edge with two noduliform processes; supraclypeal area small; vertex weakly developed, the large ocelli placed nearer the insertion of the antennae; compound eyes greatly developed, converging above, prismatic emerald-green in life; genae obscure; labrum hidden; mandibulae strong, bidentate; antennae with large scape, third antennal joint very long and slender.

Prothorax not visible from above; tubercles of no significance. Mesothorax large, convex, and hairy; scutellum large, higher than the disc of the mesothorax; postscutellum of little significance; metathorax granular, angles prominent, but hidden under much hair; abdominal dorsal segments shining, hairy, but bands not conspicuous; ventral segments with much long hair.

Legs stout, coxae triangular, large; tarsi with first segment narrow; claws deeply bidentate; hind calcariae finely serrated

in male; malus or strigil somewhat truncate. Tegulae with large tuft of plumose hair; wings dusky or subhyaline; nervures heavy, the recurrents entering the middle of the cubital cells; cells: radial long and narrow, the second and third cubitals contracted at apex; pterostigma obsolete; hamuli seventeen in number, well developed.

Genotype *M. greavesi*, n. sp.

Allies: Professor Cockerell suggests some alliance with the European genus *Meliturga*, but that has a long, fine glossa. *Gastropsis victoriae*, then, becomes *M. victoriae* (Ckll.). I have a specimen of *Meliturga clavicornis* Latr. from the Paris Museum, and the second segment of the flagellum is reduced, though it is short. Professor Cockerell described the "first joint" as being attenuated, though I think he meant "second." The compound eyes of *Meliturga* are hairy, like those of *Trichocolletes* and *Apis*.

MELITRIBUS GREAVESI, new species.

(Plate XX., Figs. 1-14.)

Female: Length, 16 mm. approx.

Head black, almost a circle viewed from the front; face-marks nil; the face narrowed by the great development of the compound eyes, the ocelli on an elevation almost level with the insertion of the antennae: frons shining, with a rough puncture-like sculpture under numerous long, black, plumose hairs, a median patch of dull white hair; clypeus large, prominent, black, shining, coarsely punctured, a dense covering of long, orange-coloured plumose hairs; supraclypeal area similar to clypeus in colour and hair, but rising to a strong carina that reaches to and encloses the median ocellus; vertex with numerous black plumose hairs; compound eyes dull green, in life bright emerald, large, converging strongly at vertex; genae black, shining, numerous punctures, a dense covering of long, silvery plumose hair; labrum small, black, shining; mandibulae black, shining, with obscure red tips, and one large and one small tooth, numerous long hairs; antennae black, shining, the scapes stout, with long hair, the third segment slender and long, the flagella obscurely reddish beneath.

Prothorax not visible from above, but the mesothorax has a fringe of white hair on anterior margin; tubercles hidden under long, silvery, plumose hair; mesothorax shining black, with an obscure iridescence, densely and coarsely punctured, a thick covering of short black plumose hair on the disc, mesopleura and sternum with long pale hair; scutellum similar to mesothorax, but anteriorly with an extremely thin margin of pale white hair, posteriorly a thick fringe; postscutellum covered with long, white hair; metathorax completely hidden under long, silvery-white plumose hair. Abdomen with dorsal segments

black, shining, numerous punctures and short black hairs, hind margins obscurely and narrowly lighter, a minute fringe of short white hair, one and two are covered with numerous white hairs; ventral segments black, shining, with much long white hair.

Legs black, coxae and long trochanters with white hair, femora with a few white and many black hairs, tibiae with dense, coarse, black, forked hairs; tarsi reddish, with long golden hair; claws bifid, long, reddish amber; hind calcaria with long fine serrations, amber; malus of strigil truncated. Tegulae shining black, with a dense tuft of long black hair separated from that of the mesothorax by a fine crescent of white hair. Wings subhyaline, anterior 12 mm. Nervures strong, blackish-brown, first and second recurrents entering second and third cubital cells at about the middle, basal falling short of the nervulus; cells: second and third cubitals sub-equal, contracted at apex; pterostigma obsolete; hamuli seventeen in number, strongly developed.

Locality: Bungulla, Western Australia (November 1st, 1929). Collected by Mr. Tom Greaves, the Secretary of the Melbourne Entomological Club, on flowers of *Callistemon*.

Type in the collection of the author.

Allies: Near to *Gastropsis victoriac* Ckll., this large and beautiful bee is most distinctive. The white hair of the metathorax and the first and second abdominal segments is combined as a wide median band across the black, shining body, and is suggestive of *Megachile lucidiventris*.

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Explanation of Plate XXI

MELITRIBUS GREAVESI, new species.

- Fig. 1.—Adult male.
 Fig. 2.—Front view of head.
 Fig. 3.—Truncated strigil or antenna-cleaner.
 Fig. 4.—Glossa or tongue and palpi.
 Fig. 5.—Serrated calcar.
 Fig. 6.—Antenna showing slender joint.
 Fig. 7.—Short, peg-like hairs of the wing.
 Fig. 8.—Another view of strigil showing cavity at top.
 Fig. 9.—The seventeen hamuli are well developed.
 Fig. 10.—Maxilla and palpus, showing the long plumose hairs.
 Fig. 11.—Edge of maxilla more highly magnified.
 Fig. 12.—Underneath of fifth tarsal joint with claws and empodium.
 Fig. 13.—The coxa is large and angular.
 Fig. 14.—Genitalia.



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