THE UNIVERSITY OF KANSAS
SCIENCE BULLETIN

VOL. XLIX PAGES 337-344 DEC. 11, 1970 NO. 5

On the Status of the Caecilian *Indotyphlus battersbyi* Taylor

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The genus *Indotyphlus* was proposed by me for a species of Caecilian from Khandala, Poona District, Bombay, India (Taylor, 1960). Three additional specimens were later found in the Bombay Natural History Museum and data taken from these were recorded by Taylor (1961, 1968). Recent acquisition of four specimens, EHT-HMS Nos. 6951-6954, from the "Bombay area" now permit further study, including the skull characters of the type-species, *I. battersbyi* Taylor.

Two other caecilian genera have representatives in this area. These are *Gegeneophis carnosus* Peters, a small species of comparable size and bearing a superficial resemblance to *I. battersbyi,* and *Ichthyophis bombayensis* Taylor, a large species, adults of which are at least double the length and three times the body width of *battersbyi* and having a longitudinal vent and a relatively long tail. The vent in the two preceding genera is transverse, and there is no tail.

The diagnosis of *Indotyphlus battersbyi* may be amplified as follows:

A slender species with head width somewhat less than the greatest body width. Body width contained in total length from about 45 to 53 times. Primary body folds vary from 130 to 144; secondary folds from 17 to 32, with 9 or 10 folds complete. Dental formula varies, but in the oldest (largest) specimens it is approximately 14-14 for the combined premaxillary-maxillary series, 17-17 prevomeropalatine, 12-11 dentary, and 2-2 for splenial. Teeth relatively large. Tentacular aperture in the adult fixed at a point twice as close to eye as to nostril, and in a nearly direct line between eye and nostril. Eye usually visible through the skin, in a socket that is continuous with the tentacular groove. Two nuchal collars more or less distinct, each with a dorsal transverse groove. Anal vent transverse; tail absent. Scales, in two or three rows posteriorly, in folds. Tongue with two well-defined black narial plugs. Large elongate recumbent glands especially prominent in posterior part of body.

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A prominent elongate cream-white spot present on sides of head, covering eye and tentacular aperture.

A skull prepared from EHT-HMS No. 6954 displays the following characteristics:

Skull proportionally longer than other caecilian skulls examined, being more than twice as long as wide (5.0 mm × 2.2 mm). The number of separate skeletal elements reduced as in other genera of the Caeciliidae.

The anterior dorsal part of skull covered by the nasopremaxillae which completely surround the nostrils. The lower anterior section of these elements narrowed below nostrils and along inner borders of nostrils, the median dorsal suture between the bones almost equal to their greatest length. Posteriorly they extend slightly between the following frontal bones. The common median suture between frontals considerably shorter than their lateral length. Frontals separated from parietals by a sinuous transverse suture. Parietals longer than frontals, their common suture about length of the bones, which are somewhat wider posteriorly than anteriorly. The foramen magnum surrounded by the posterior dorsal wings of the basisphenoid which form a short median suture.

On sides of skull posterior to the nasopremaxillae are the maxillopalatines which form the border of jaw behind; these followed by the squamosals which extend farther back bordering frontals and parietals above for some distance. Anteriorly squamosals notched by the eye sockets which are continuous with the large tentacular groove on the maxillopalatines. Quadrates attach to the posterior part of squamosals by long curving sutures. Stapes lying in a depression on the lateral part of basisphenoid, contacts both quadrate and pterygoid. A small spinelike anteriorly directed projection from basisphenoid passes above stapes.

Viewing the skull from the ventral (palatal) side, the basisphenoid is seen to cover most of the surface; posterior part, serving as part of braincase, somewhat inflated laterally. Immediately preceding this the element is much narrowed, then widens to form the "wings" which are scarcely discernable. The width diminishes gradually to about a point near posterior level of the internal nares where it becomes greatly narrowed, forming three anterior points, the median one separating prevomers for a very short distance.

Prevomers triangular, together occupying a diamond-shaped area about as wide as long. That on the right side bears 4 teeth, that on left, 3 teeth. Preceding these bones are the ventral parts of the nasopremaxillae, each bearing 5 teeth. These followed by the ventral parts of the maxillopalatine. The maxillary portion with 7 teeth and the palatine with 8 on right side (presumably the same on the left). Several replacement teeth of variable size present.

Dentaries 10-11, the larger anterior ones rather strongly hooked as well

Table 1. Data on *Indotyphlus battersbyi*. Measurements in mm.

Number (EHT-HMS)	6951	6952	6953	6954
Locality	"Near Bombay"	"Near Bombay"	"Near Bombay"	"Near Bombay"
Total length	208.	238.	212.	229.
Head width	3.2	3.2	3.2	3.2
Body width	4.6	4.9	4.5	4.6
Snout tip to 1st groove	4.4	4.8	5.0	5.0
Snout tip to 2nd groove	6.0	6.3	6.7	6.3
Snout tip to 3rd groove	7.7	8.	8.5	8.2
Tentacle to eye	0.56	0.6	6.4	0.65
Tentacle to nostril	1.3	1.3	1.3	1.3
Snout projects	0.75	0.8	0.6	0.6
Primary annuli	130	138	139	139
Secondaries	17	28	32	18
Complete secondaries	11	10	9	9
Premax-maxillary teeth	11-12	12-11	8-8	11-11
Prevom-palatine teeth	13-12	6-7	?-13	14-15
Dentary teeth	10-10	9-7	10-10	11-12
Splenial teeth	2-2	2-2	2-2	2-2
Width in length, times	45.2	48.5	47.1	50.

as being the largest teeth of all the series. Splenials, 2-2, the second tooth on each side being nearly directly behind first.

The greatly reduced numbers of the separate head bones separates this genus from the family Ichthyophiidae and associates it with the Caeciliidae, two genera of which also occur in India (*Gegeneophis* and *Uraeotyphlus*).

A male specimen, EHT-HMS No. 6951, had the anterior part of the snout from the region of the tentacle to the tip thickly covered with minute hair-like processes. Effort was made to photograph these, but they unfortunately do not show in the photograph (Fig. 1A). Much of the growth has been destroyed, since a rough touch serves to break or remove much of it. I suspect that this growth may be a temporary phenomenon, occurring during the breeding season. It is not visible on the other specimens.

The narial plugs on the tongue are strongly developed, and blackish in color. Their presence suggests that the species has a free swimming period at sometime in the life cycle.

A young specimen 115 mm in length having the following characters may or may not be of this species: EHT-HMS No. 6950, India. Data arranged as in Table 1. Length 115; 2.4, 3.8, 3.7, 4.6, 5.7, 0.2, 0.8, 0.9, 132, 24±, Dentition, 10-11, 12-11, 10-11, 1-?.

The specimen is light colored gray with a whitish area over the eye and tentacular aperture. The narial plugs on tongue are blackish.

The head is more rounded in lateral profile than in the described *Indotyphlus battersbyi*. The specimen has been in a preservative that has permitted an accumulation of crystals on many scales in the caudal region,

thus obscuring significant characters. Consequently, I am uncertain as to its placement.

I wish to acknowledge my obligation to Mr. R. Whitaker of Madras, India, and offer him my gratitude for making the new material available to me.

LITERATURE CITED

TAYLOR, E. H. 1960. A new caecilian genus in India. Univ. Kansas Sci. Bull., vol. 40 no. 3, pp. 31-36, figs. 1-4.

———. 1961. Notes on Indian caecilians. Jour. Bombay Nat. Hist. Soc., pp. 355-365.

———. 1968. Caecilians of the World. A Taxonomic Review. Univ. of Kansas Press, Lawrence, pp. i-xiv, 1-848.

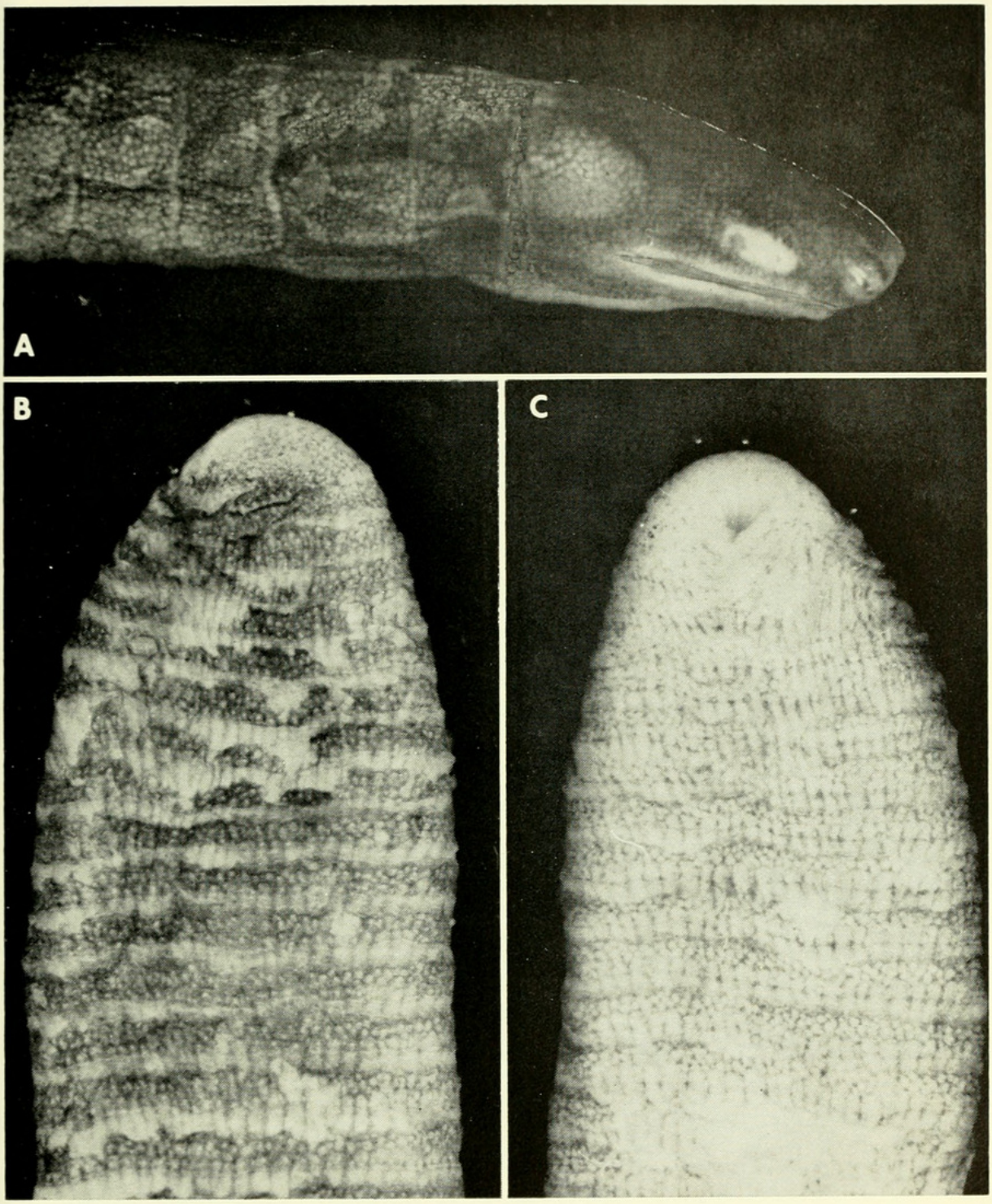

Fig. 1. *Indotyphlus battersbyi* Taylor, EHT-HMS No. 6951. A. Lateral view of head and neck (actual width of head, 3.2 mm). B. Dorsal view of terminal part of body showing glandular development under the skin. C. Same, ventral view, showing position of vent (distorted somewhat).

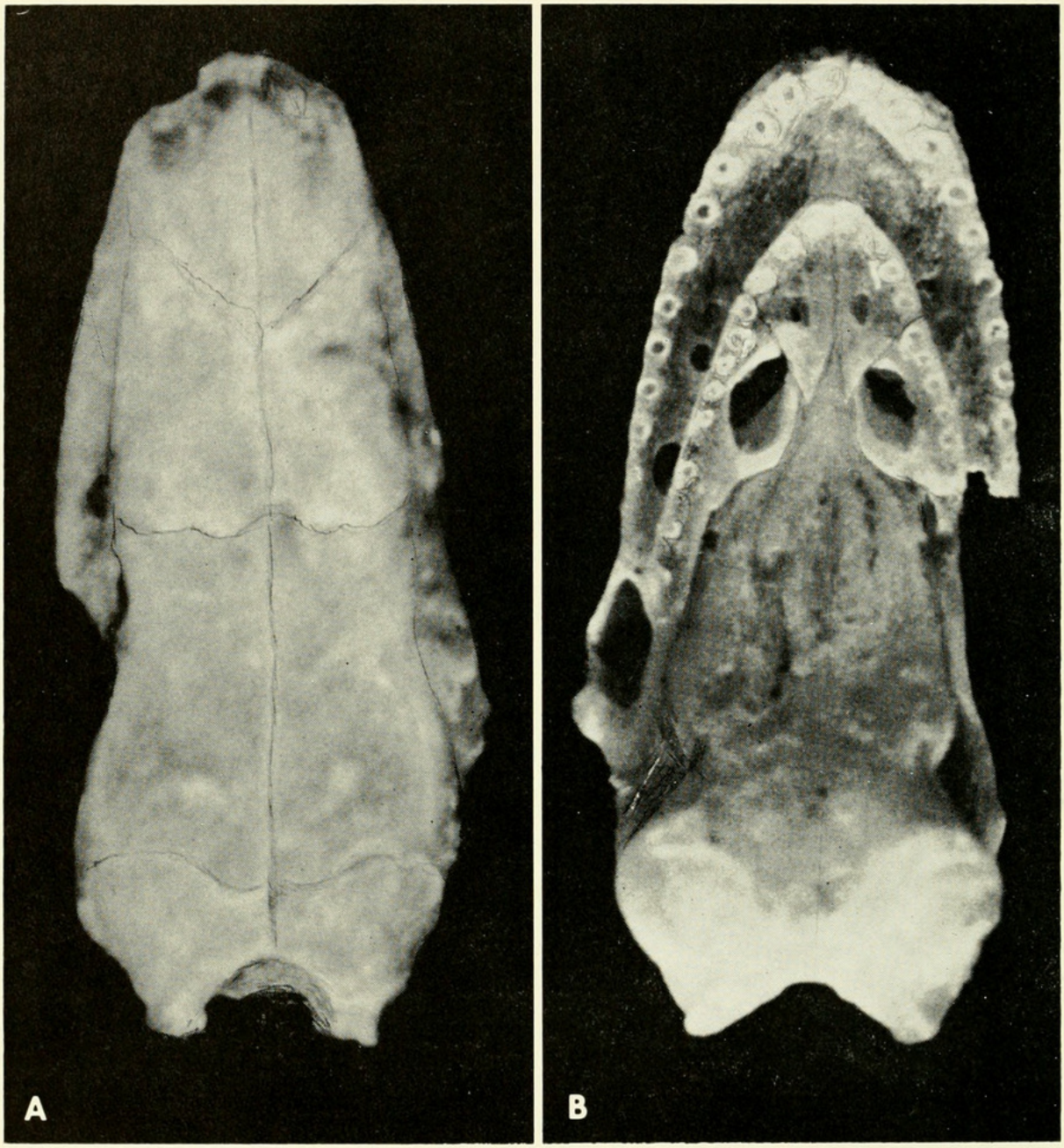

FIG. 2. *Indotyphlus battersbyi* Taylor, EHT-HMS No. 6954. A. Dorsal view of skull. B. Palatal view of skull. (Greatest length, 5 mm; width, 2.2 mm.)

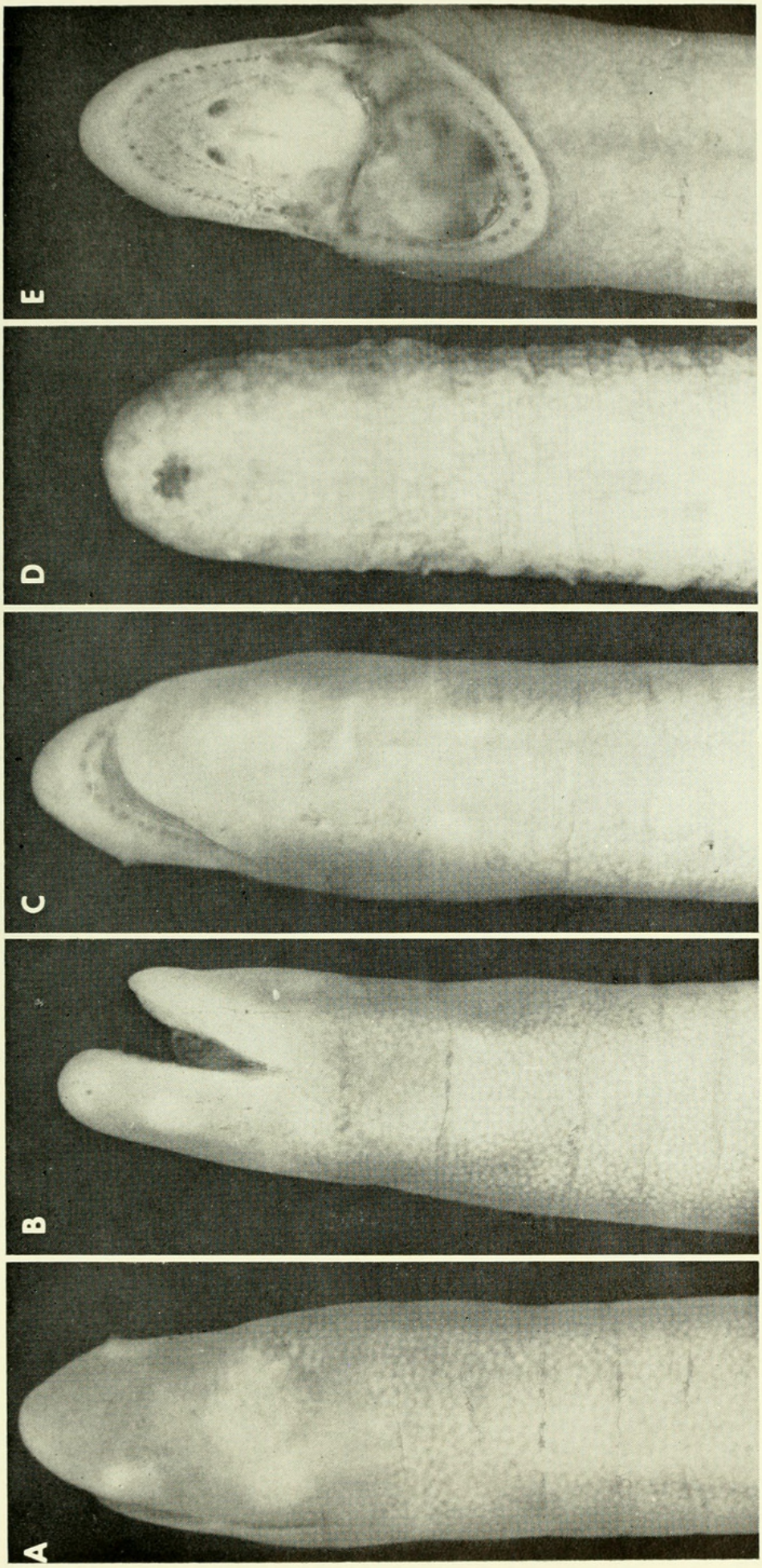

Fig. 3. *Indotyphlus battersby* Taylor ?, EHT-HMS No. 6950, young. A, B, C. Three views of head and neck. D. Subterminal region showing position of vent (distorted). E. Open mouth. (Actual width of head, 2.4mm.)