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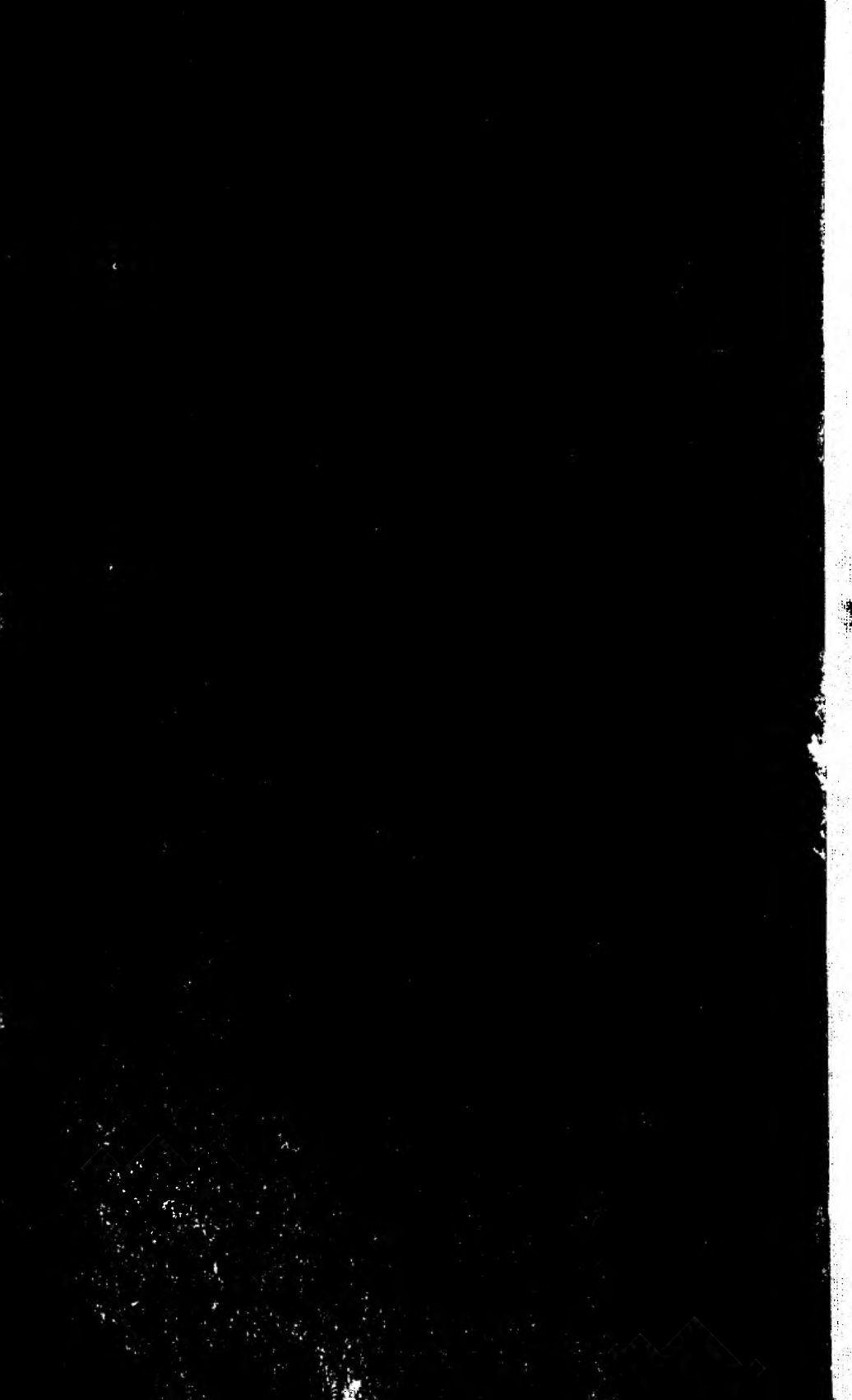
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A NEW CROCODILE FROM
NEW GUINEA

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A NEW CROCODILE FROM NEW GUINEA

BY KARL P. SCHMIDT

In arranging the crocodylian material in the collections of Field Museum of Natural History, I find two skulls which represent a strikingly distinct new species of crocodile. These skulls were received by the Department of Zoology as a transfer from the Department of Anthropology, where they had long been stored with the Museum's very extensive New Guinean collections. The skulls in question were secured by Dr. George A. Dorsey in the course of his expedition of 1908. I am indebted to Dr. A. B. Lewis for kindly aid in searching for the second of the two skulls now before me.

Crocodylus novae-guineae sp. nov.

Type from Ibundo, lower Sepik River, northern New Guinea. No. 13092, Field Museum of Natural History. A juvenile skull without mandibles. Collected in 1908 by George A. Dorsey.

Range.—Known only from the Sepik River, Northern New Guinea.

Diagnosis.—A crocodile with a moderately acute snout, intermediate between *C. porosus* and *C. johnstoni*. Allied to *porosus* by the presence of anteorbital ridges, to *johnstoni* by the sharper snout and the form of the palatines. Length of snout slightly more than twice its breadth. No bulbous swelling at the base of the palatines.

Description of type.—General form of skull acutely triangular, much depressed, and without median ridge or swelling, lightly and slenderly built throughout. Supratemporal fenestrae large. Orbits about twice the diameter of the narial aperture. Palatine fenestrae with a well-marked angulation in their posterior border. Internal narial aperture rounded, longer than wide. Premaxillaries little expanded, pierced by the anterior mandibular teeth, separated by the entry of the nasals into the external narial aperture. Maxillary-premaxillary suture produced backward to the second maxillary tooth. Premaxillary foramen arrow-head shaped. An obtuse ridge from the anteorbital border on each lacrymal. Cranial table flat. Palatines with an acute anterior angle, (as in other sharp-snouted crocodiles), nearly parallel sided, narrow. Pterygoids distinctly stalked, i. e.

palato-pterygoid suture anterior to the posterior border of the palatal fenestrae. Upper teeth 18-19.

Notes on paratype.—A larger skull, Field Museum No. 2854, is labeled "Probably from Lower Sepik River," and was received with the same collection of anthropological material as the type. The smaller specimen is made the type in order to fix the type locality more definitely.

The paratype is an excellently preserved skull, with the mandibles, slightly charred in two places and with one pterygoid angle broken away. Although nearly twice as large as the smaller skull, there is remarkably little difference in proportions. It agrees very satisfactorily with the type in all essential characters.

Comparing the proportionate length of snout with that of *porosus* given by Mook (1921, p. 191), we have the following figures, (a) being the ratio of the breadth of the snout at its base to the length, (b) that of the breadth at the fifth maxillary tooth to the same length:

Museum Number	<i>C. novae-guineae</i>		<i>C. porosus</i>	
	F.M.N.H. 13092	2854	A.M.N.H. 7115	15179
Length of skull	150 mm.	271 mm.	305 mm.	642 mm.
Ratio (a)	.46	.48	.55	.56
Ratio (b)	.34	.34	.42	.47

Remarks.—It is highly remarkable to find a well characterized new species of crocodile, even from New Guinea. It seems certain that other material of the present species must exist in museums, and the anthropological collections of the Berlin Museum, especially, should be searched for additional specimens.

It seems probable that this species is a fresh-water crocodile, with the same mutual exclusiveness of range with that of the salt-water crocodile, *C. porosus*, as exists between the north Australian fresh-water species and the wide-ranging *porosus*. The Sepik River, (Kaiserin Augusta on German maps), is the largest river of northern New Guinea, and in view of the existence of *C. johnstoni* in Australia, it is less surprising to find a fresh-water species in New Guinea. In many respects the new form is intermediate between *porosus* and *johnstoni*, being allied to *johnstoni* in the depressed snout and narrow pointed palatines. However, it seems certain, from comparison with other species, that these characters are parallel modifications accompanying elongation of the snout, and that *novae-guineae* is not especially available as a form ancestral to *johnstoni*, though it illustrates well enough how *johnstoni* may have been developed.

In view of the detailed account of the skull characters of recent crocodilia on a uniform plan drawn up by Dr. Charles C. Mook, (Mook, 1921, 1923; Longman, 1925; supplemented by Schmidt, 1924), I have prepared an account of the single paratype (the more complete skull) with the same headings, comparing the respective bones with those of *Crocodylus porosus*, employing Mook's description and a large skull, Field Museum No. 13219, for comparison.

General form.—The skull of *Crocodylus novae-guineae* has the general proportions of the skull of *Crocodylus acutus*, from which it differs in being flat and depressed from the orbits forward. The skull is more acute than in *porosus*, with much lower pre-orbital ridges, and is much less massive in almost every bone. The lateral constrictions and the vertical festooning are slight.

Cavities of skull.—The supratemporal fenestrae are large and rounded. The infratemporal fenestrae are proportioned as in *acutus*. The orbits are relatively large, their length twice the width of the interorbital space. The external narial aperture is an elongated oval, with a re-entrant angle in front and at the rear, its length nearly one and a half times its breadth. The premaxillary foramen has the shape of a blunt arrow-head. The palatine fenestrae differ from those of *porosus* in the rather sharp angulation of their ectopterygoid border. They are slightly longer than the maxillary suture, nearly as wide as the base of the palatines, and wider than the palatines at the middle. The internal narial aperture is broken away anteriorly, but is evidently round, and not expanded from side to side as in *porosus*.

Premaxillaries.—The premaxillaries are much narrower than in *porosus*, and barely meet behind the narial aperture, over the nasal process. Their posterior extensions are acute. On the palate their greatest length is once and a half their combined width. The maxillary-premaxillary suture is weakly produced backward, not reaching the second maxillary tooth.

Maxillaries.—The maxillaries are elongate and their ectopterygoid suture does not reach the tenth maxillary tooth. They are very little expanded at the fifth tooth. There is only a trace of the ridge on the dorsal surface along their suture with the nasals, so characteristic of *porosus*.

Nasals.—The nasals are more elongate than in *porosus*, and their sutures with the lacrymals even shorter. They are separated posteriorly by a very acute process of the frontal.

Lacrymals.—These bones are proportionately shorter and wider than in *porosus*, in contrast with the form of other bones. They bear a prominent obtuse ridge, below which is a deep pit. Their nasal suture is extremely short.

Prefrontals.—The prefrontals are also less elongate than in *porosus*. Their share of the orbital border is about equal to that of the lacrymals.

Frontal.—The frontal differs in outline from that of *porosus* in its angularity. Mook describes the acuminate forward process as present in one of his specimens of *porosus*. The suture with the prefrontals falls much in advance of the center of the orbits.

Postorbitals.—The postorbitals are smaller than those of *porosus*, and their suture with the frontal falls farther back on the orbits.

Squamosals.—Similar to those of *porosus*.

Parietal.—Similar to that of *porosus*, but the width at the constriction exceeds the width of the lateral part of the squamosal on the cranial table.

Supraoccipital.—The supraoccipital occupies a very small triangular space on the cranial table.

Quadrates, Basioccipitals, Exoccipitals, and Basisphenoid.—These bones are more slender in *novae-guineae* than in *porosus*.

Quadratojugals.—The quadratojugals are parallel sided, not narrowed anteriorly. The spine is close to the jugal.

Jugals.—The jugals are notably slender in proportion when compared with those of *porosus*.

Palatines.—These bones present the most striking characteristics of the new species. They are narrow, little wider at the pterygoid suture than at the middle, sharp pointed in front. Their suture with the pterygoids is anterior to the posterior extension of the palatine fenestrae. There is no trace of the bulbous posterior expansion shown by the palatines in *porosus*.

Pterygoids.—The lack of the superior expansion of *porosus* is the most notable difference, together with the broad entry into the palatine fenestrae, and minor differences in outline.

Ectopterygoids.—These bones present an obtusely angular inner border. They do not extend as far forward as the tenth maxillary tooth.

Mandibles.—The mandible of *novae-guineae* is slender in comparison with that of *porosus*. The symphysis between the two rami extends to a point midway between the fifth and sixth teeth.

No. 13092 No. 2854

Tip of snout to supraoccipital	150mm	271mm
Tip of snout to ends of quadrates	160	303
Tip of snout to anterior border of orbits	94.4	183
Width of snout at base	43.7	89.4
Width of snout at 5th maxillary tooth	32.1	63.0
Greatest width of premaxillaries	21.2	45.7
Width of skull across quadratojugals	68.2	133.7
Least width of frontal between orbits	8.2	19.0
Length of orbit	26.6	41.3
Width of orbit at middle	22.2	33.0
Width of cranial table behind	44.0	82.8
Width of cranial table in front	37.3	65.3
Length of premaxillary suture on palate	31.8	55.5
Length of maxillary suture	30.0	60.3
Length of palatine suture	55.0	95.6
Length of pterygoid suture	—	43.9
Width of palatines at base	12.6	25.7
Least width of palatines	9.7	18.8
Width of palatine fenestrae	11.9	24.0
Length of palatine fenestrae	34.7	63.5
Length of mandibles	—	335
Length of mandibular symphysis	—	53.7

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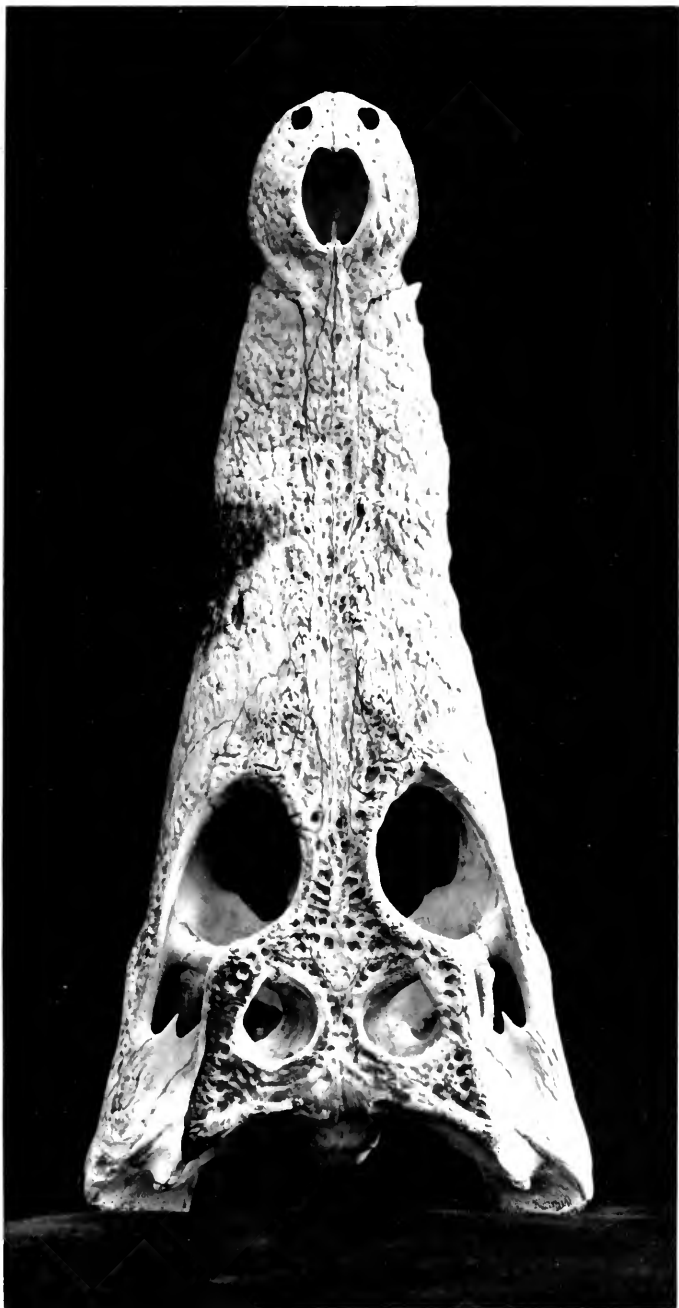
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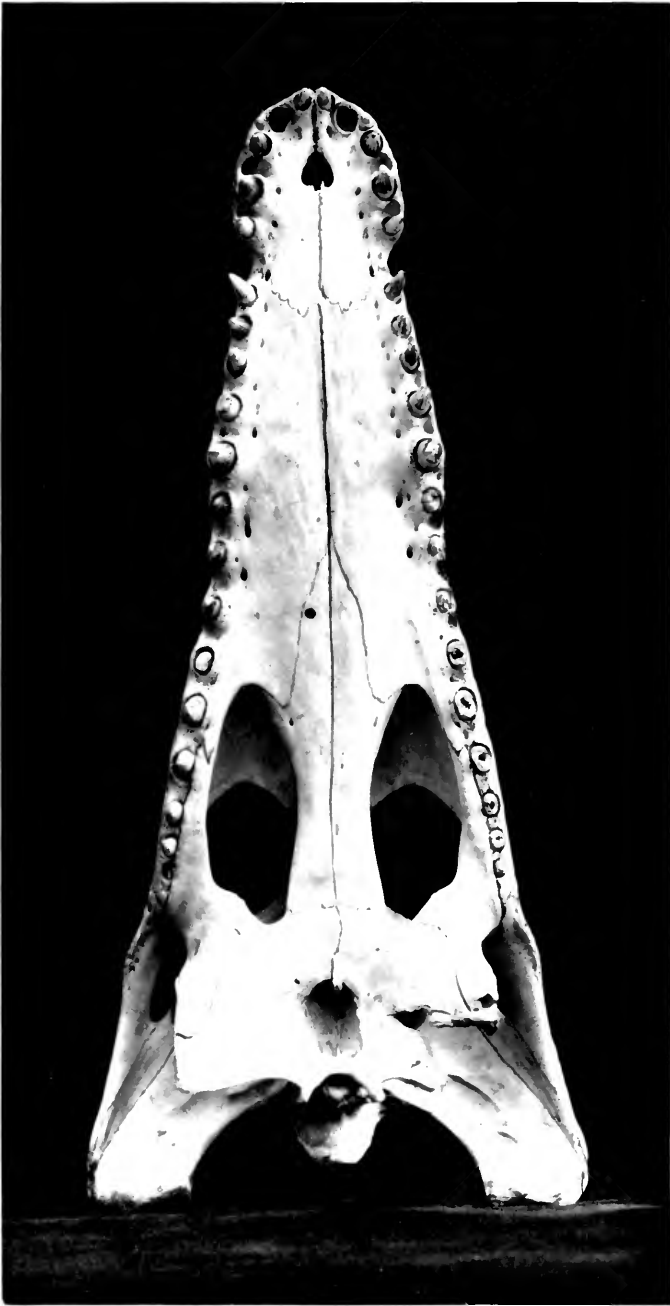
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DORSAL VIEW OF SKULL OF *Crocodilus novae-guinaeae*, F.M.N.H. NO. 2854, X 1/3.

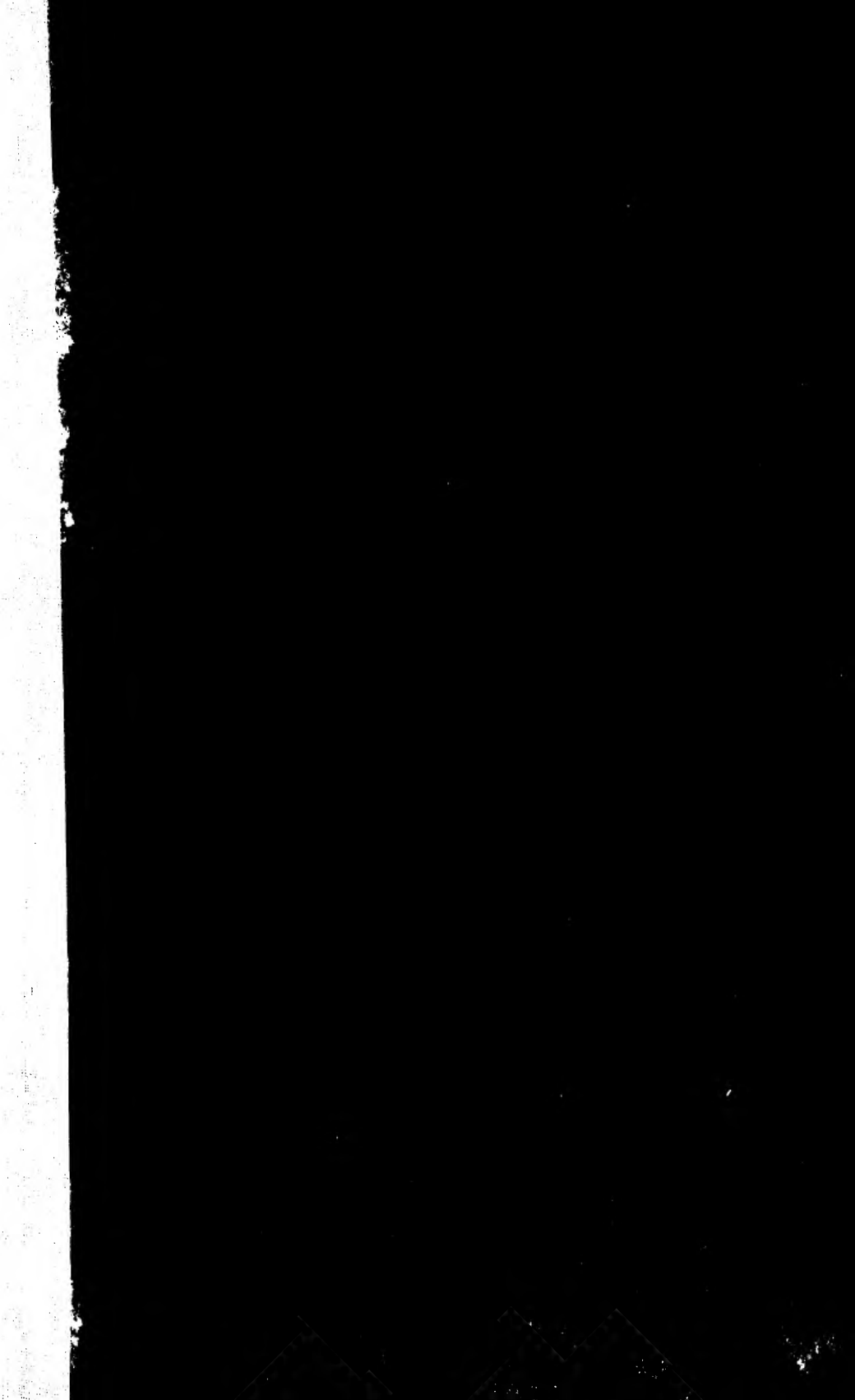
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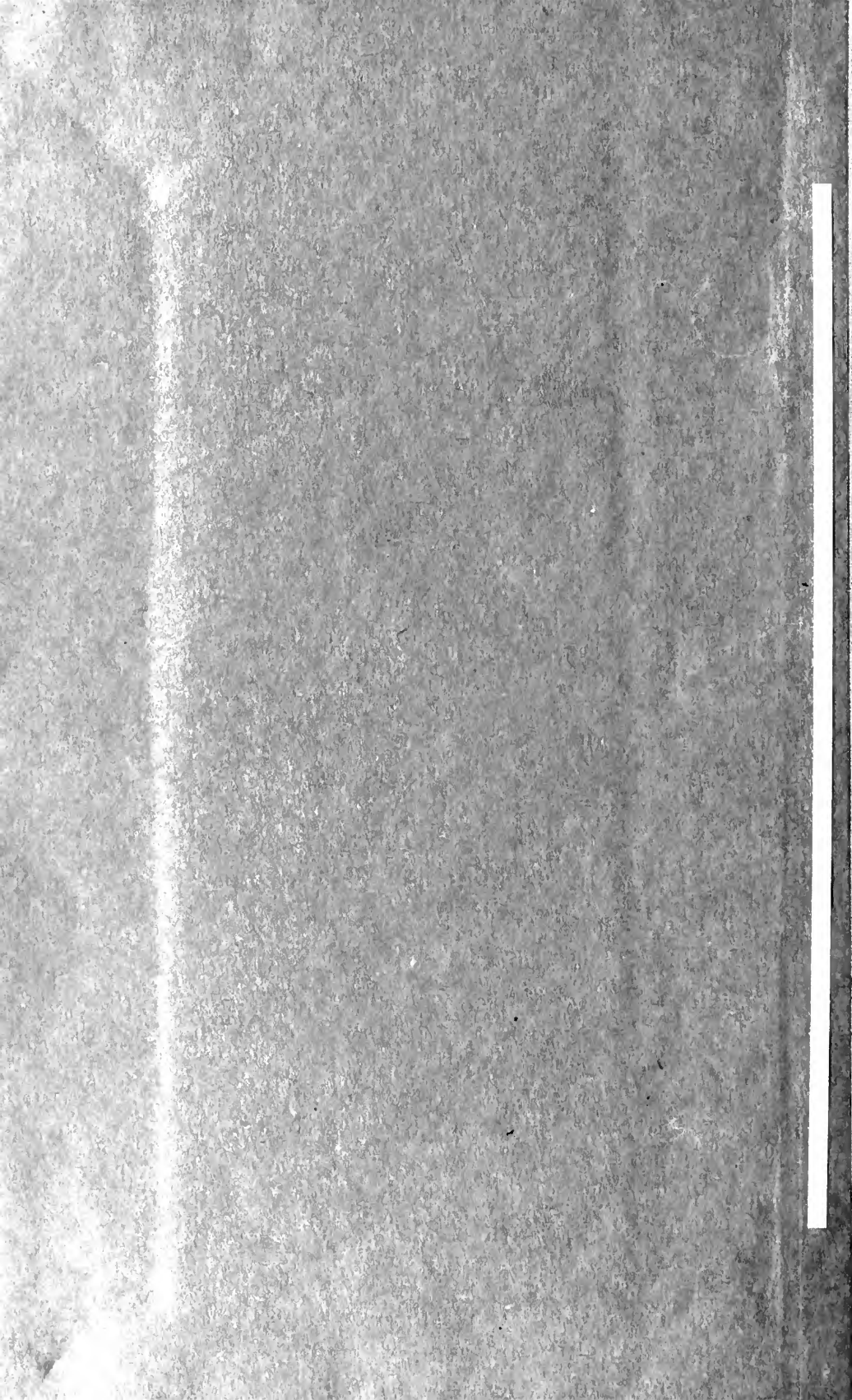


PALATAL VIEW OF SKULL OF *Crocodilus novae-guineae*, F.M.N.H. NO. 2854, X 1/3.

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