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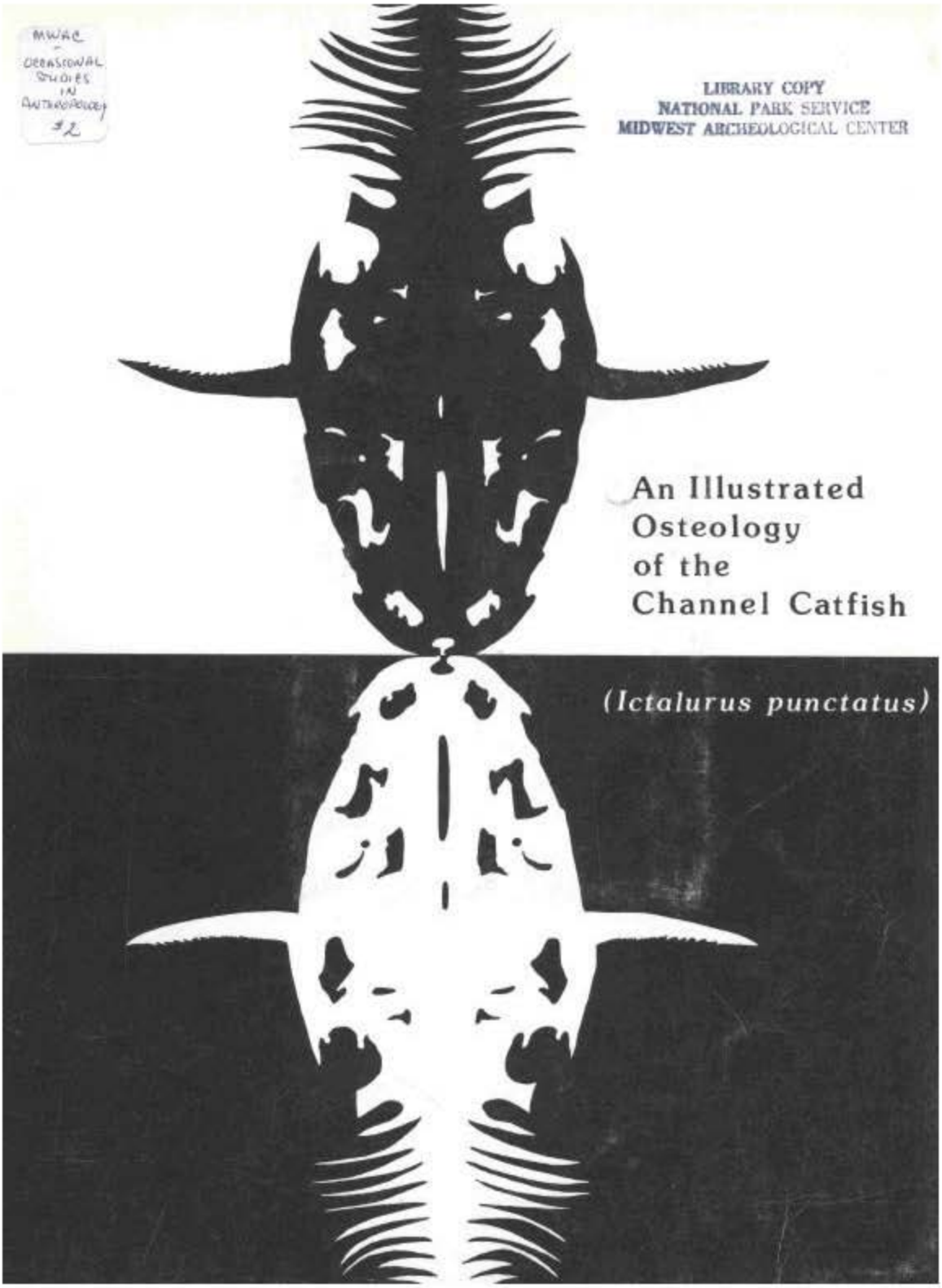

# An Illustrated Osteology of the Channel Catfish

*(Ictalurus punctatus)*

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# An Illustrated Osteology of the Channel Catfish

*(Ictalurus punctatus)*

by

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National Park Service
Midwest Archeological Center
Lincoln, Nebraska
1975

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# INTRODUCTION

There is a deficiency of published material illustrating Piscian osteology in a manner useful for element and/or taxonomic identification. The purpose of this paper is to provide an illustrated atlas of the osteology of the Channel Catfish *(Ictalurus punctatus)* to aid the zooarcheologist in the identification of Ictalurid remains. The illustrations are not intended to serve as a substitute for comparative materials, but rather, as a supplement to a comparative collection, aiding in element nomenclature and taxonomic assignment to the family level.

Three specimens have been utilized in the figures. Specimen 1 was 500mm in total length; standard length was 408mm and head length 110mm. Total length for specimen 2 was 600mm, standard length 510mm and head length 115mm. Specimen 3 was 473mm in total length; standard length was 370mm and head length 108mm. Specimens 1 and 2 were prepared by enzyme (papain) maceration, degreased in an acetone bath and reconstructed. Specimen 3 was evicerated, defleshed and placed outdoors where beetles rendered a fairly clean, articulated skeleton. For photographic purposes all specimens were coated with a "smoke film," utilizing burning magnesium ribbon, to provide a uniform surface color for clarification of small features. Specimen 1 was utilized in Figures 1 and 2, Specimen 2 in Figure 3 and Specimen 3 in Figures 4 and 5. All three specimens were used in compiling Figures 6, 7 and 8.

Identification of the elements was facilitated through the use of specimens which are a part of the comparative vertebrate collection developed by the staff of the Midwest Archeological Center in conjunction

with archeological programs of the National Park Service. References utilized in element nomenclature include: Gregory (1932), Kindred (1919), Lundberg (1975), Olsen (1968) and Starks (1901).

## ILLUSTRATIONS

Dorsal and ventral views of the neurocranium with the various component elements identified (Fig. 1) initiate the series of figures. Progressively through Figure 5, additional elements are included in order to more clearly demonstrate the association of the various elements. Figure 2 demonstrates the relationship of the major left dorso-lateral cranial elements and the neurocranium. Figure 3, a lateral view of the right side of the cranium, is relatively complete, lacking only the hyoid bar and the nasal bones. The latter are illustrated in Figures 4 and 5. Figure 5 is a lateral view of the left side of the complete cranium. This illustrates the articulation of the cranium and the post-cranial skeleton. Figures 6 through 8 present the individual elements with notes on orientation. These figures were included to facilitate the identification of individual or disarticulated elements and to clarify their orientation within the articulated skeleton.

Figure 1.

A. Neurocranium (dorsal view)

B. Neurocranium (ventral view)

| | |
|---|---|
| bo | basioccipital |
| epo | epiotic |
| eth cr | ethmoid cornu |
| fr | frontal |
| l eth | lateral ethmoid |
| pro | prootic |
| ps | parasphenoid |
| pt | posttemporal |
| ptr | pterotic |
| se | supraethmoid |
| so | supraoccipital |
| sph | sphenotic |

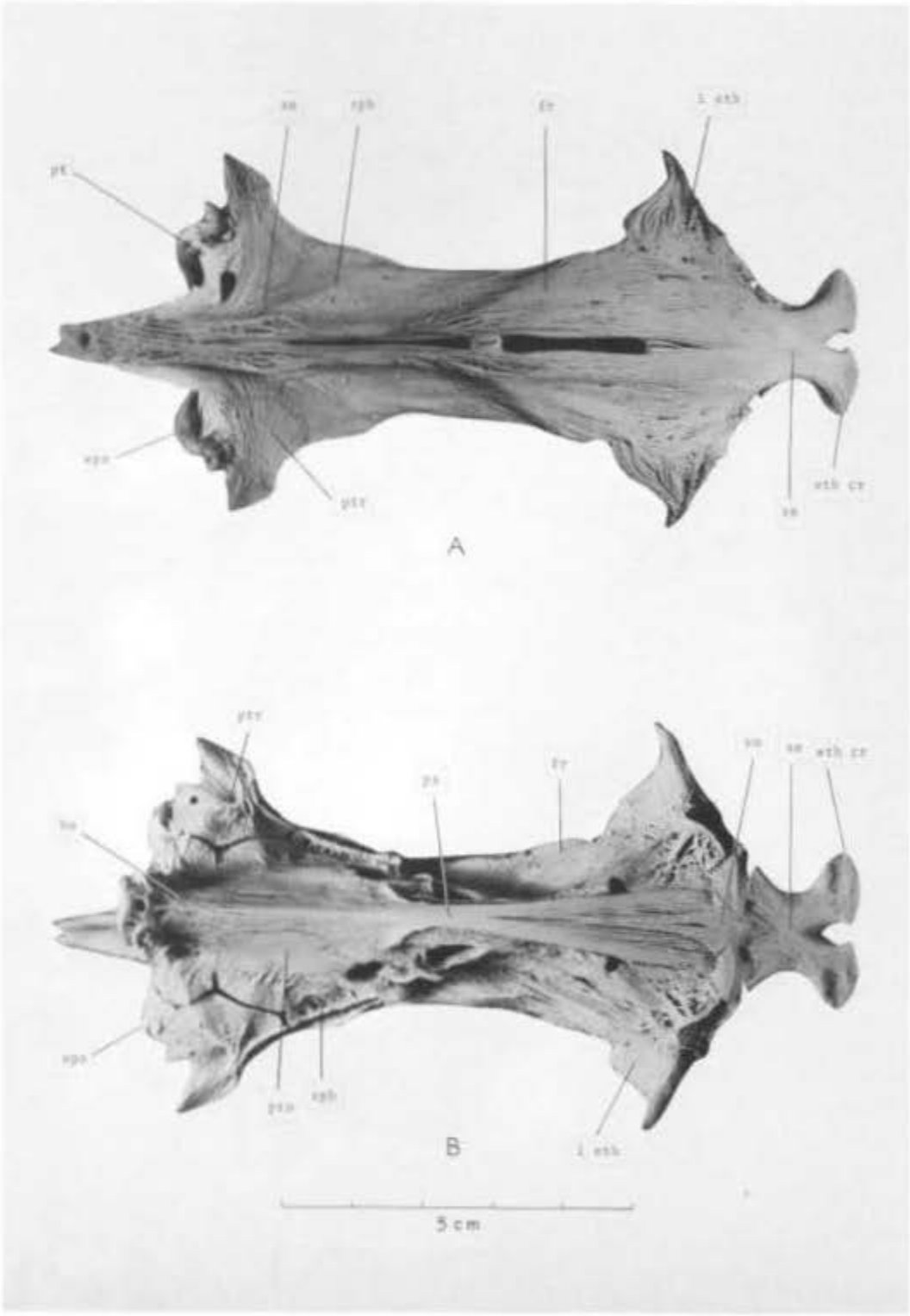


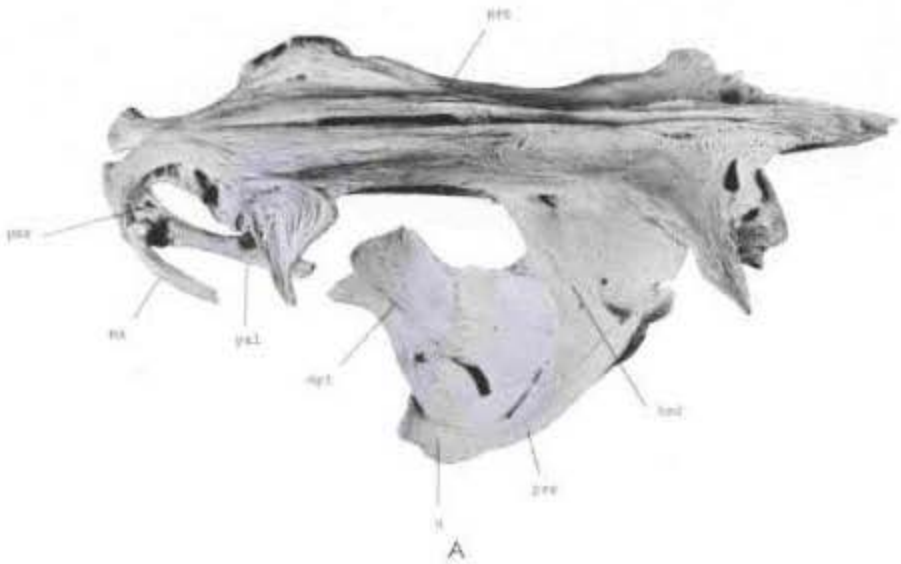

Figure 1. Neurocranium, dorsal and ventral views.

Figure 2.

A. Neurocranium and associated left cranial elements (dorso-lateral view)

B. Neurocranium and associated left cranial elements (ventral view)

| | |
|---|---|
| hmd | hyomandibular |
| mpt | metapterygoid |
| mx | maxilla |
| nrc | neurocranium |
| pal | palatine |
| pmx | premaxilla |
| pre | preopercle |
| q | quadrate |



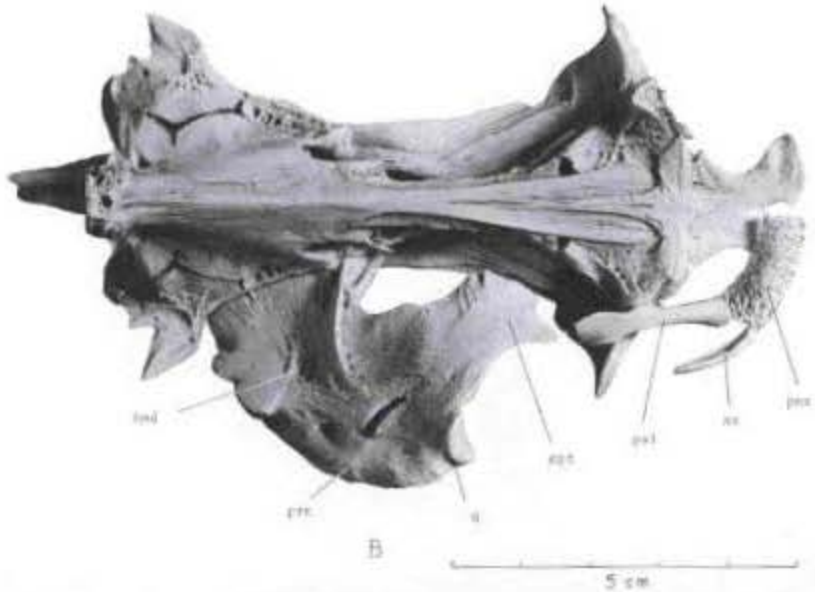




Figure 2. Neurocranium and associated left cranial elements.

Figure 3.

Lateral view of right side of cranium

| | |
|---|---|
| an | angular |
| art | articular |
| clt | cleithrum |
| cor | coracoid |
| dn | dentary |
| hmd | hyomandibular |
| iop | interopercle |
| mpt | metapterygoid |
| mx | maxilla |
| nrc | neurocranium |
| op | opercle |
| pal | palatine |
| pec sp | pectoral spine |
| pre | preopercle |
| q | quadrate |
| sclt | supracleithrum |

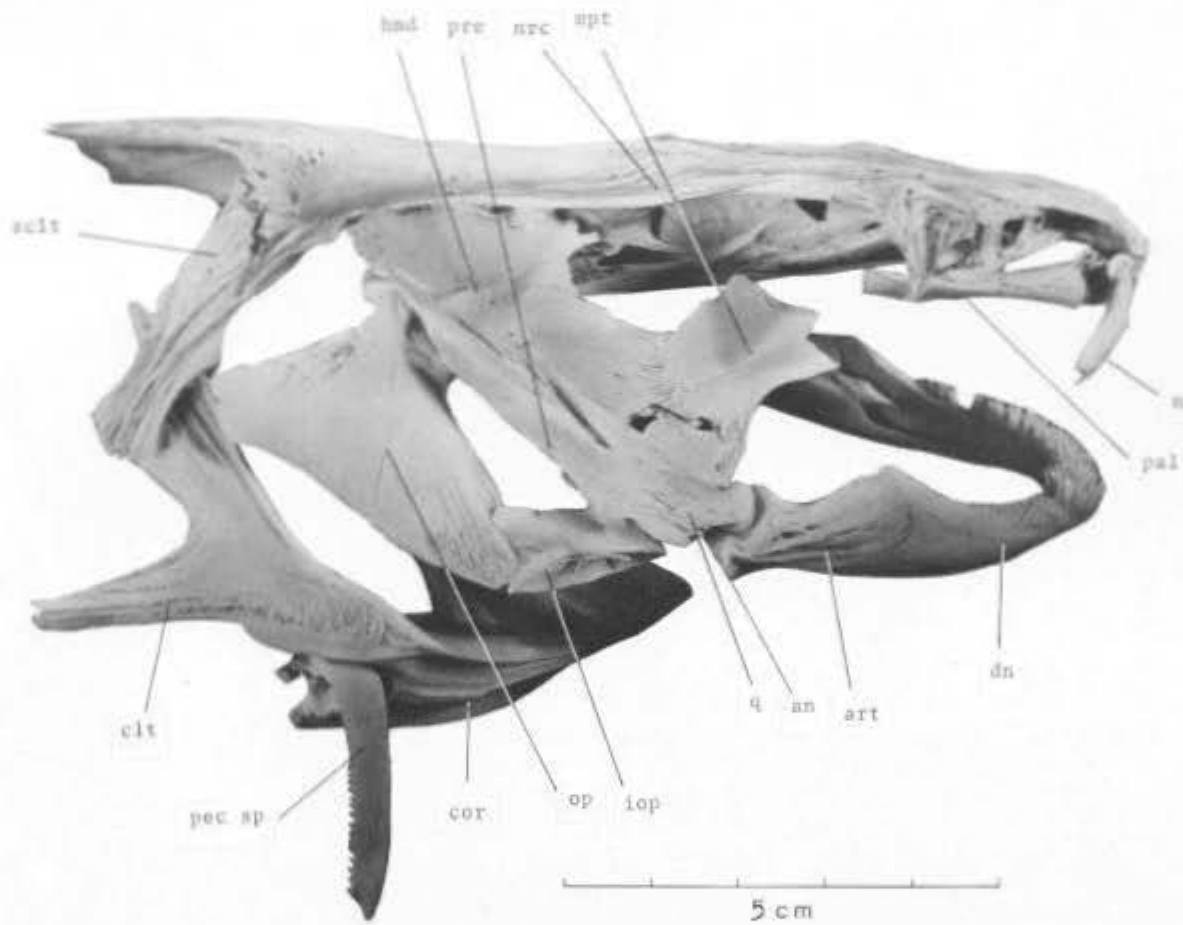



Figure 3. Lateral view of right side of cranium

Figure 4.

Ventral view of mandibles, hyoid bar and pectoral girdle

| | |
|---|---|
| art | articular |
| brstg | branchiostegals |
| cerhy | ceratohyal |
| clt | cleithrum |
| cor | coracoid |
| dn | dentary |
| epi | epihyal |
| hyp | hypohyal |
| iop | interopercle |
| pec sp | pectoral spine |
| uro | urohyal |

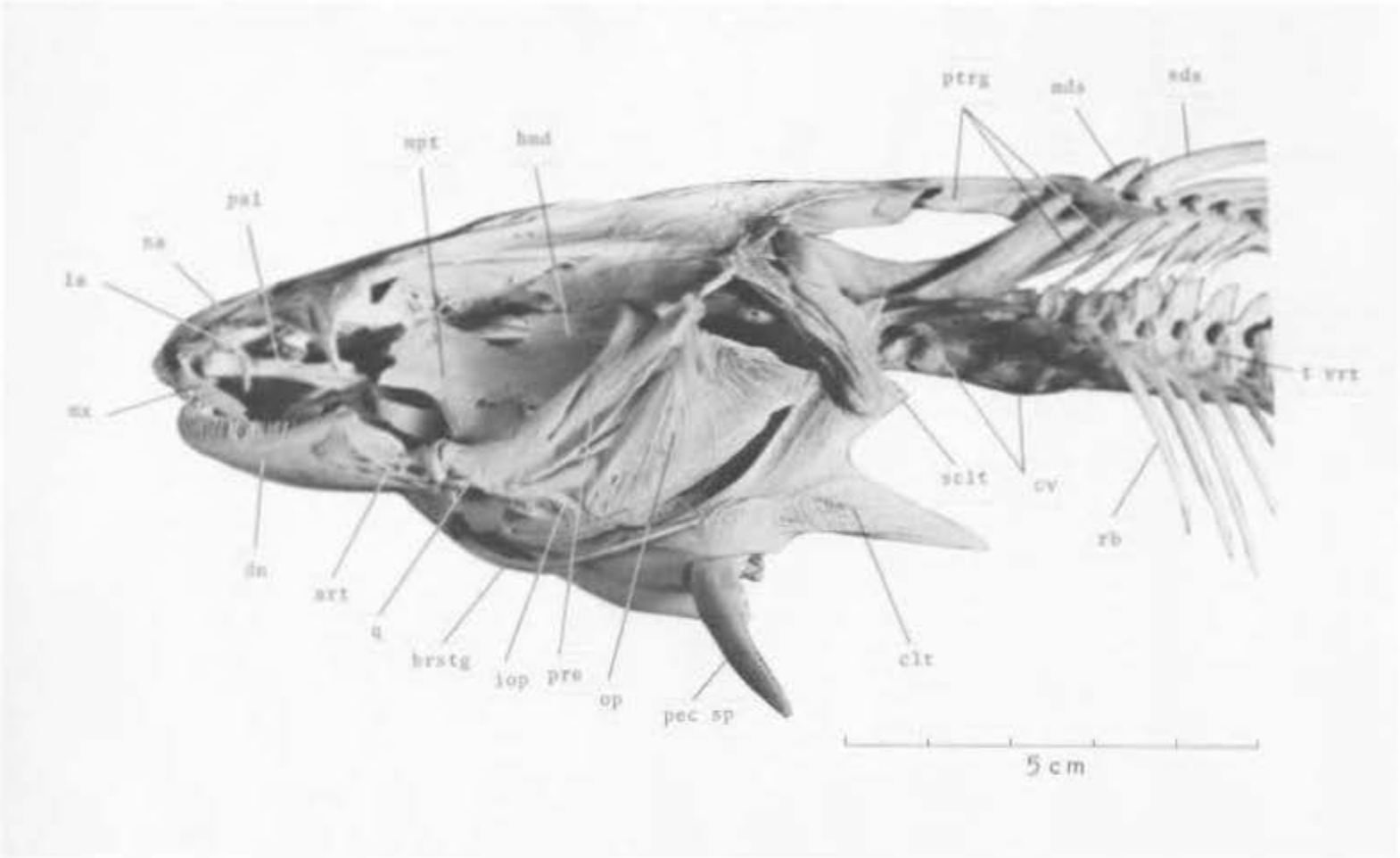



Figure 5. Lateral view of left side of anterior portion of skeleton.

Figure 6.

Individual elements (except extreme lower right) of the Channel Catfish (left to right, top to bottom)

| | |
|---|---|
| mpt | left metapterygoid (lateral view, posterior to right) |
| hmd | left hyomandibular (lateral view, dorsal to right) |
| pre | left preopercle (lateral view, posterior to right) |
| pal | left palatine (dorsal view, posterior at top) |
| mx | right maxilla (medial view, posterior to right) |
| iop | left interopercle (lateral view, posterior to right) |
| uro | urohyal (dorsal view, posterior at top) |
| q | left quadrate (lateral view, posterior at right) |
| pec sp | right pectoral spine (posterior view, proximal at top) |
| s ptrg | second pterygiophore (dorsal view, posterior at top) |
| mds | modified first dorsal spine (dorsal view, anterior at top) |
| sds | second dorsal spine (dorsal view, proximal at top) |
| f ptrg | first pterygiophore (ventral view, posterior at top) |

Dorsal spine support and complex vertebrae (extreme lower right)

| | |
|---|---|
| tpcv | transverse process of complex vertebrae |

other abbreviations as above

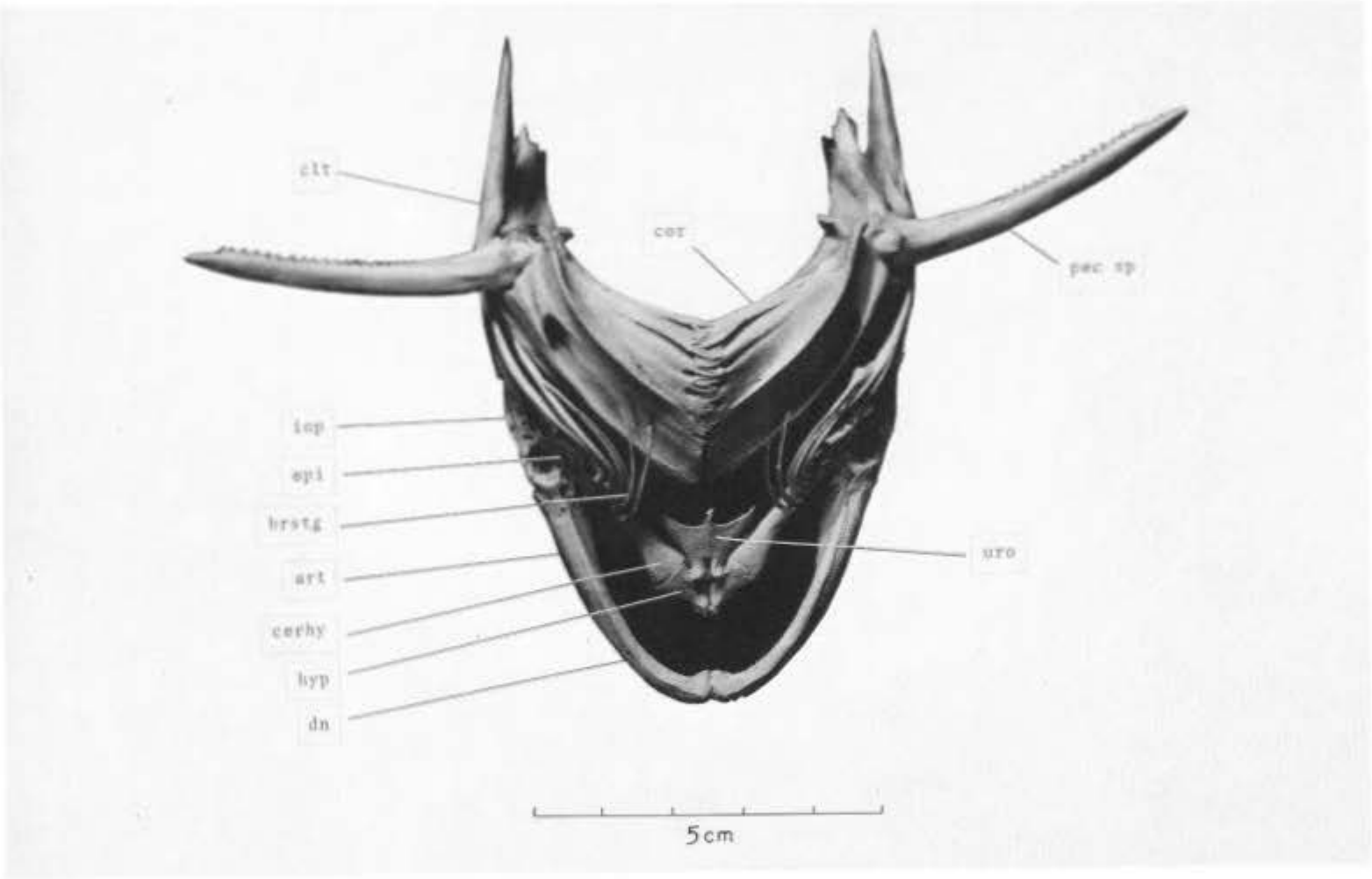



Figure 4. Ventral view of mandibles, hyoid bar and pectoral girdle.

Figure 5.

Lateral view of left side of anterior portion of the skeleton

| | |
|---|---|
| art | articular |
| brstg | branchiostegals |
| clt | cleithrum |
| cv | complex vertebra |
| dn | dentary |
| hmd | hyomandibular |
| iop | interopercle |
| la | lacrimal |
| mds | modified first dorsal spine |
| mpt | metapyerygoid |
| mx | maxilla |
| na | nasal |
| op | opercle |
| pal | palatine |
| pec sp | pectoral spine |
| pre | preopercle |
| ptrg | pterygiophores |
| q | quadrate |
| rb | ribs |
| sclt | supracleithrum |
| sds | second dorsal spine |
| t vrt | trunk vertebrae |

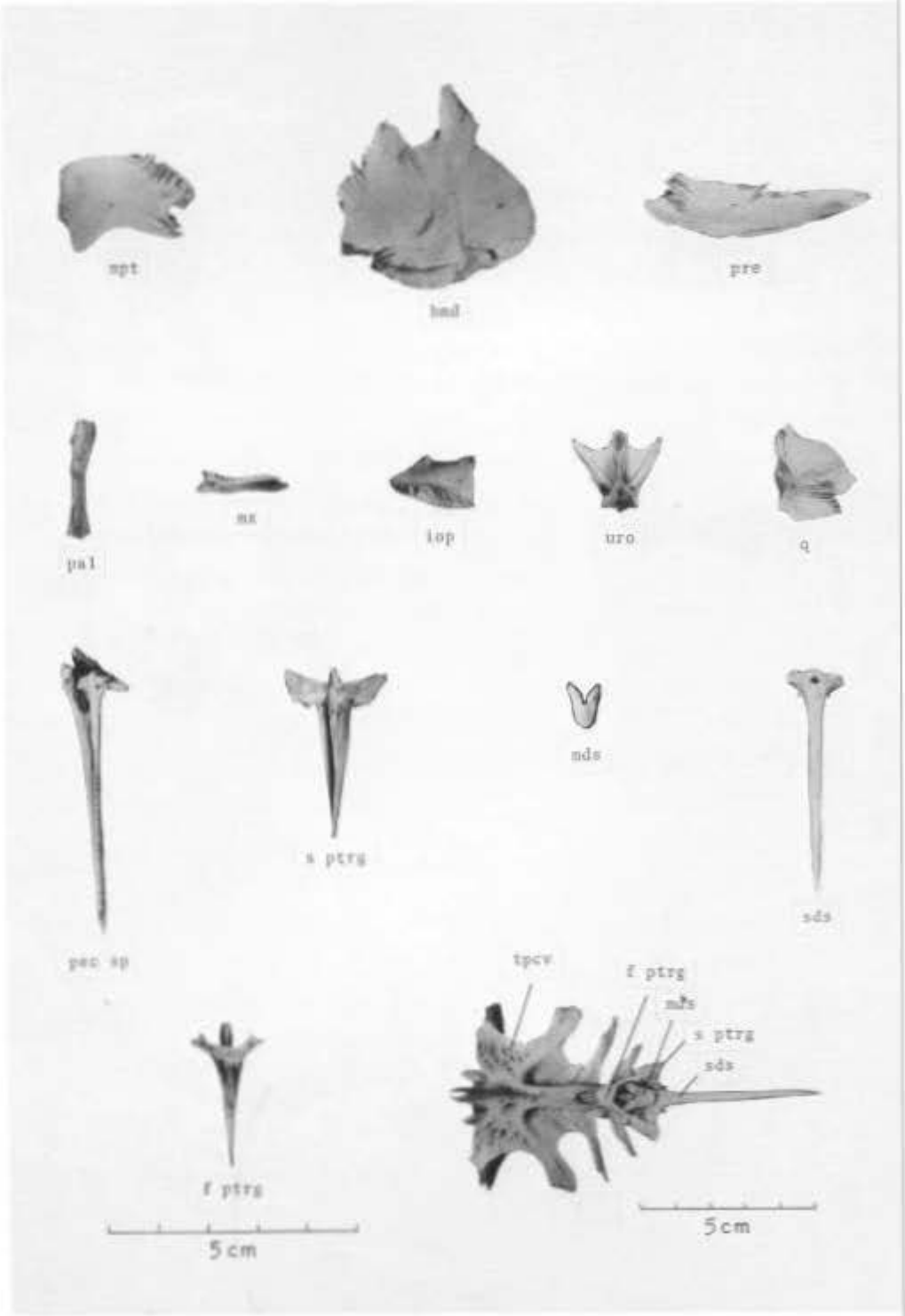



Figure 6. Individual Elements of the Channel Catfish.

Figure 7.

Individual elements of the Channel Catfish

| | |
|---|---|
| bapt | right basipterygium |
| sclt | left supracleithrum (posterior view, dorsal to right) |
| op | left opercle (medial view, anterior to right) |
| clt+cor | left cleithrum + coracoid (posterior view, medial to right) |
| hyp | right hypohyal |
| cerhy | right ceratohyal |
| epi | right epihyal |
| dn | left dentary |
| art | left articular |
| an | left angular |
| clt | right cleithrum (posterior view, lateral to right) |
| cor | right coracoid (posterior view, lateral to right) |

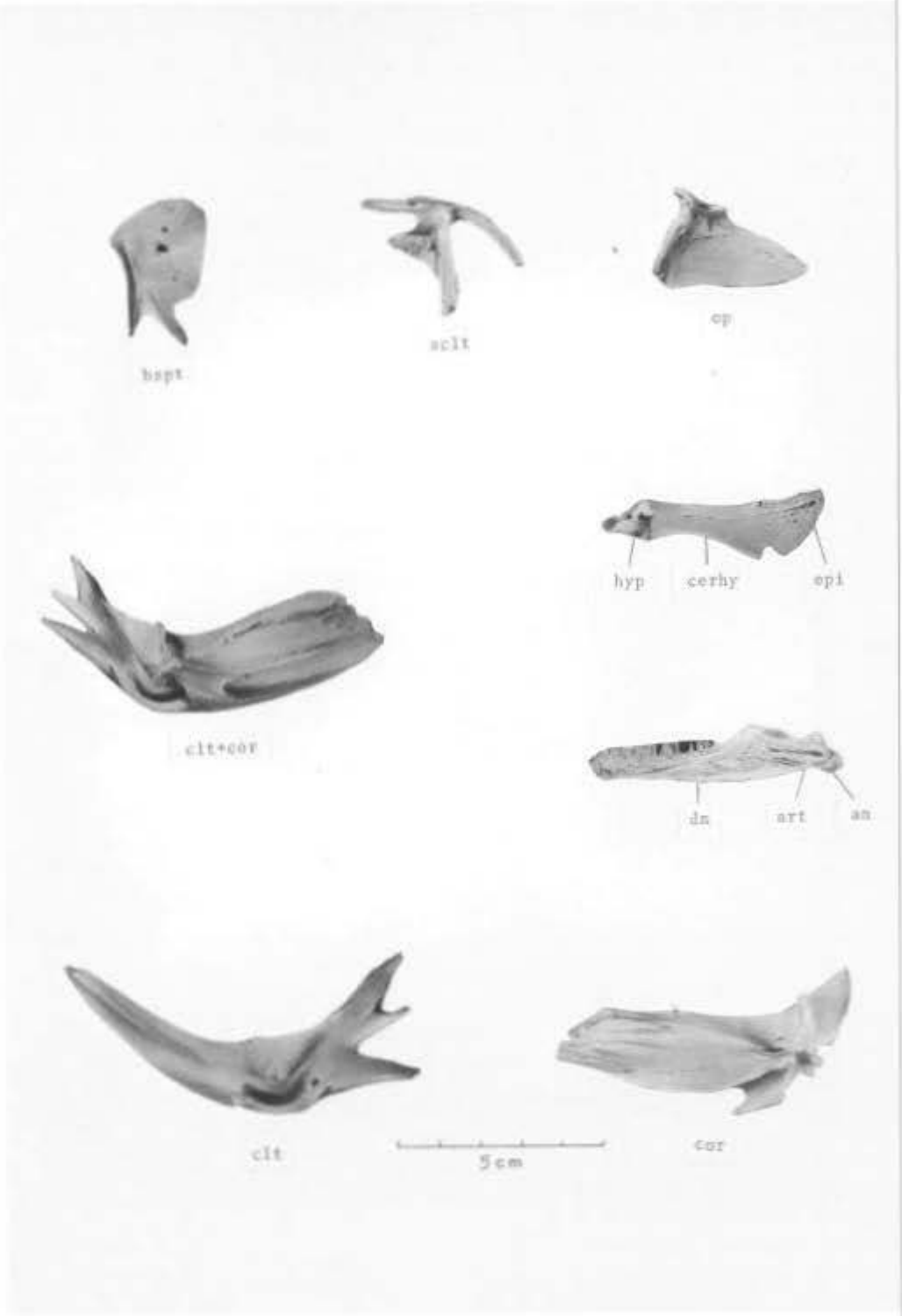



Figure 7. Individual elements of the Channel Catfish.

Figure 8.

Vertebrae of the Channel Catfish

a. an anterior trunk vertebra
(posterior view)
b. a posterior trunk vertebra
(lateral view)
c. first caudal vertebra
(anterior view)
d. a typical caudal vertebra
(lateral view)
e. terminal vertebra
(lateral view, w/o upper hypurals)

Complete vertebral column of the Channel Catfish posterior to the complex vertebrae

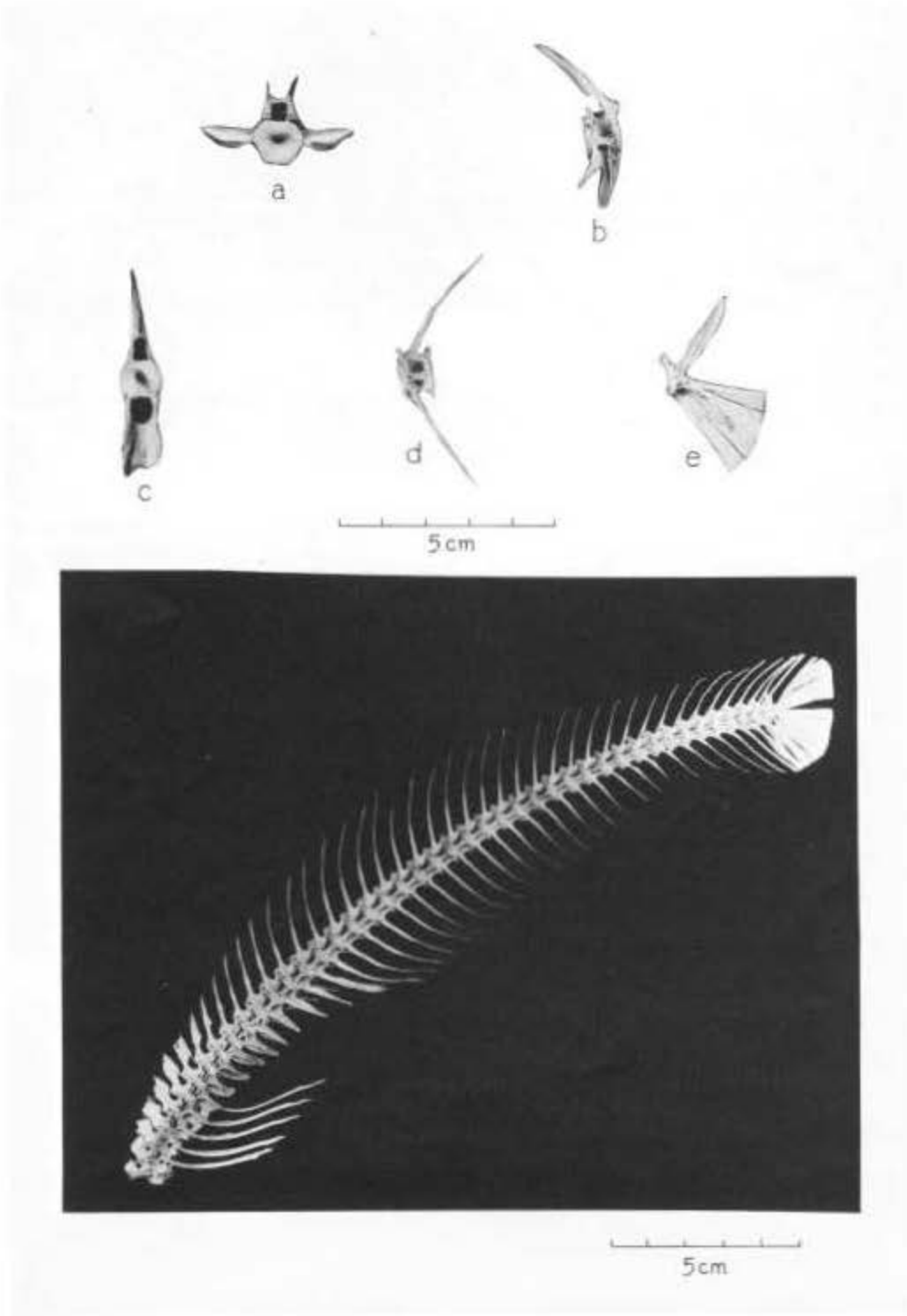



Figure 8. Vertebrae of the Channel Catfish.

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