

# TRANSITION ANALYSIS AGE ESTIMATION: ILLUSTRATIONS

**Fordisc Version 1.03  
August 2016**

Specimens are from France Casting pubic symphysis casts and bones from collections at several institutions, designated as follows: France Casting Suchey-Brooks Male and Female Stages, Male and Female Instructional casts, and Epiphyseal casts (FC); Mercyhurst University forensic cases (MU); Terry Collection, Smithsonian Institution (T); Bass Donated Collection, University of Tennessee (B); University of Pretoria (P); and the Norris Farms site, Illinois State Museum Collection (NF).

Photographs are accompanied by stage names and numerical designations; the part of interest, if relevant; and specimen designations. Some images are reversed to make it easier to compare specimens. Multiple examples of stages illustrate variation encountered when examining skeletons.

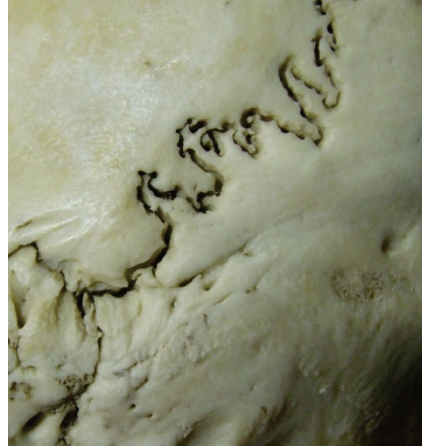
## **Cranial Sutures**

*Coronal Pterica (left), Sagittal Obelica, Lambdoidal Asterica (left), Zygomaticomaxillary (left), Interpalatine (median palatine, posterior portion)*

### **Characteristics**

1. Open
2. Juxtaposed
3. Partially obliterated
4. Punctuated
5. Obliterated

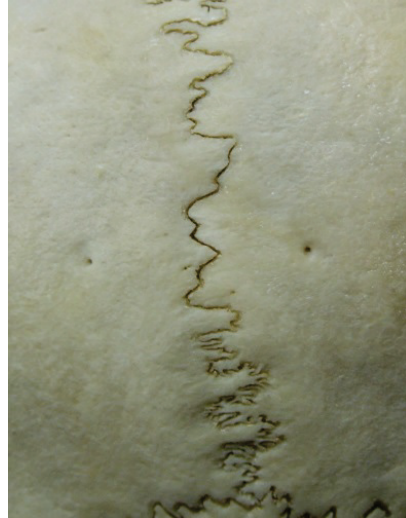
Open 1, Lambdoidal Asterica (MU 7-76)



Open 1, Coronal Pterica (MU 6-69)



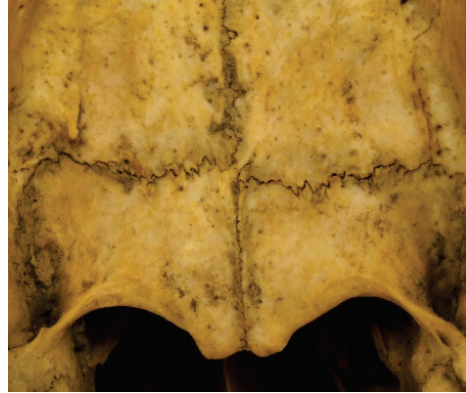
Open 1, Sagittal obelica (MU 7-76)



Juxtaposed 2, Coronal pterica (NF 229)



Open 1 & Juxtaposed 2, Interpalatine, combined for Interpalatine only (NF 229)



Juxtaposed 2, Zygomaticomaxillary, especially noticeable in superior part (MU 6-69)



Partly obliterated 3, Coronal Pterica (MU 6-69)



Open 1 & Juxtaposed 2, Interpalatine, combined for Interpalatine only (MU 6-69)

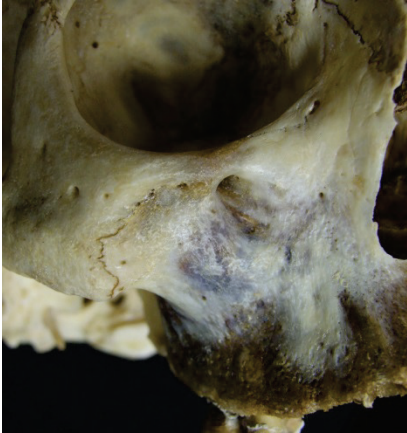


Partly obliterated 3, Coronal Pterica (NF 225)

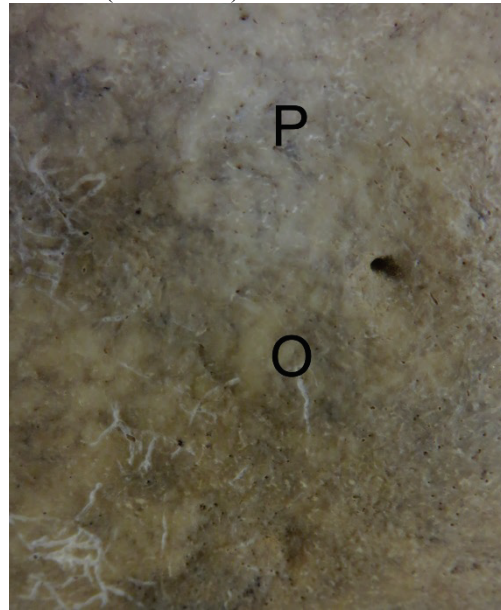




Partly obliterated 3, Zygomaticomaxillary (MU 7-55)



Punctuated 4 and Obliterated 5, Sagittal Obelica (NF 28) Punctuated superior to parietal foramen (to left of P) and obliterated inferior to parietal foramen (to left of O).



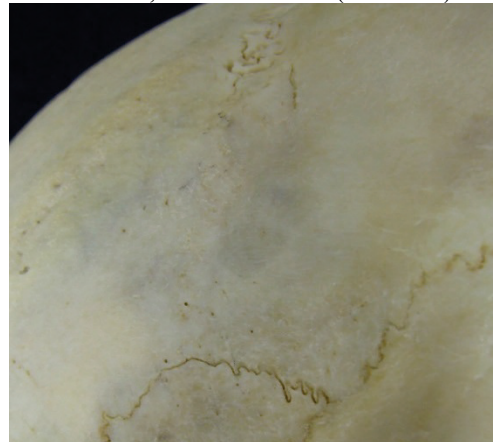
Partly obliterated 3, Interpalatine (NF 225)



Punctuated 4, Sagittal Obelica (only Obelica, not segments on either side) (MU 7-55)



Obliterated 5, Coronal Pterica (MU 7-55)



## Pubic Symphysis

### *Symphyseal Relief*

1. Sharp billowing
2. Soft, deep billowing
3. Soft, shallow billowing
4. Residual billowing
5. Flat
6. Irregular

Sharp billowing 1 (FC M-I-1)



Soft, deep billowing 2 (FC E-A)



Soft, deep billowing 2 (T 222R, image reversed)



Soft, deep billowing 2 (P 6192, image reversed)



Soft, shallow billowing 3 (FC M-III-1)



Soft, shallow billowing 4 (P 5152, image reversed)



Soft, shallow billowing 4, (T 385, image reversed)

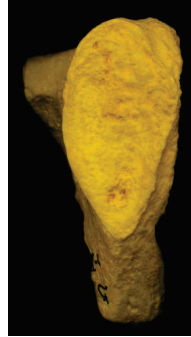




Residual billowing 4, inferior part (FC M-13)



Flat 5 (FC M-V-1) A flat symphyseal face with the slightly pebbly surface that can occur in this stage.



Residual billowing 4, inferior part (P 6120, image reversed) This specimen shows residual billowing with ventral rampart formation, a good example of how a somewhat older characteristic (residual billowing) can show up on a young individual. Score what is observable.



Irregular 6 (FC F-12C)



*Dorsal Symphyseal Texture*

1. Smooth (fine grained)
2. Coarse grained
3. Microporosity
4. Macroporosity

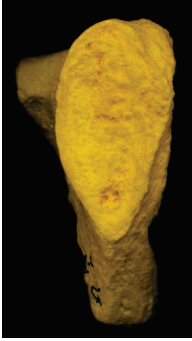
Residual billowing 4, inferior part (MU 7-76)



Smooth 1 (FC M-I-1)



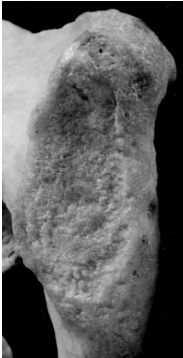
Coarse grained 2 (FC M-V-1)



Microporosity 3 (NF 19)



Coarse grained 2 (T 862)



Macroporosity 4 (FC F-12C)



Microporosity 3 (MU 6-69)



Macroporosity 4 (NF 191)



Microporosity 3 (MU 7-55, image reversed)



*Superior Protuberance*

Characteristics

1. No protuberance
2. Early protuberance
3. Late protuberance
4. Integrated

No protuberance 1 (FC F-I-1)



No protuberance 1 (NF 44)



Early protuberance 2 (FC M-I-2)



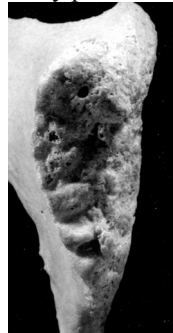
Early protuberance 2 (T-?)



Early protuberance 2 (P 5152, image reversed)



Early protuberance 2 (T 255, image reversed)

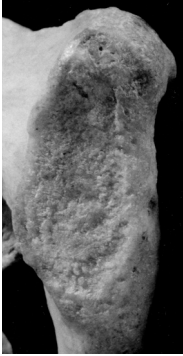


Late protuberance 3 (FC M-III-1)





Late protuberance 3 (T 862)



Serrated 1 (FC M-I-1)



Integrated 4 (MU 7-55)



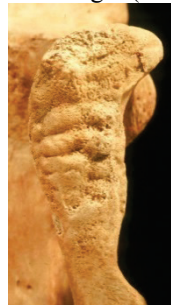
Beveling 2 (FC M-12)



*Ventral Symphyseal Margin*

1. Serrated
2. Beveling
3. Rampart formation
4. Rampart completion with anterior sulcus
5. Rampart completion without sulcus
6. Rim
7. Breakdown

Beveling 2 (NF 44)



Serrated 1 (FC F-I-1)



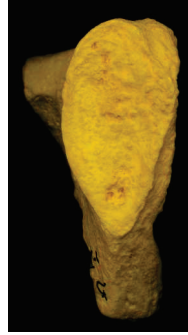
Rampart formation 3 (P 6120, image reversed)



Rampart formation 3 (FC M-1B, image reversed)



Rim 6 (FC M-V-1)



Rampart formation 3 (T 255)

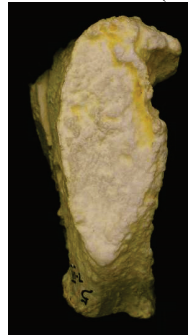


Rim 6 (T 862)

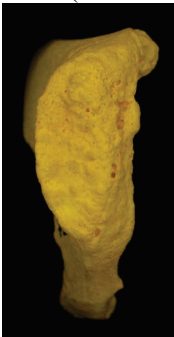


Rampart Completion With or Without Sulcus (Stages 4 and 5) The stages are distinguished by the appearance of the ventral surface, not the symphyseal face. Look for the presence (Stage 4) or absence (Stage 5) of a deep sulcus on the ventral surface immediately lateral to the anterior margin of the symphyseal face. The groove corresponds to where the Ventral Rampart formed over the previously Beveled surface.

Breakdown 7 (FC M-VI-2)



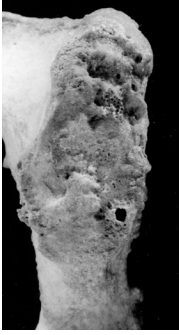
Rampart completion (symphyseal face only shown) 4 & 5 (FC F-IV-1)



Breakdown 7, breakdown superiorly and rim inferiorly (MU 7-55)



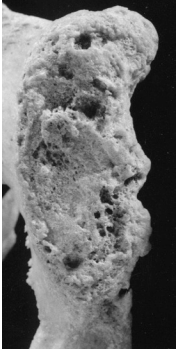
Breakdown 7 (T 500)



Serrated 1 (FC M-I-1)



Breakdown 7 (T 1115)



Serrated 1 (FC F-I-1)



Breakdown 7 (NF 191)



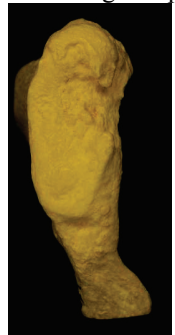
Flattening incomplete 2 (FC M-II-1)



*Dorsal Symphyseal Margin*

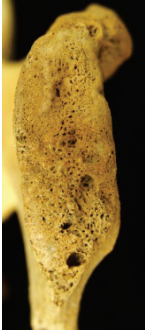
1. Serrated
2. Flattening incomplete
3. Flattening complete
4. Rim
5. Breakdown

Flattening complete 3 (FC M-III-2)





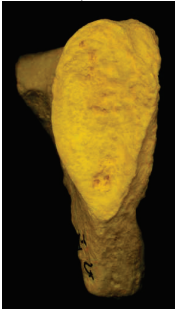
Flattening complete 3 (NF 229)



Breakdown 5 (FC F-12C)



Rim 4 (FC M-V-1)



Breakdown 5 (NF 191)



Rim 4 (NF 19)



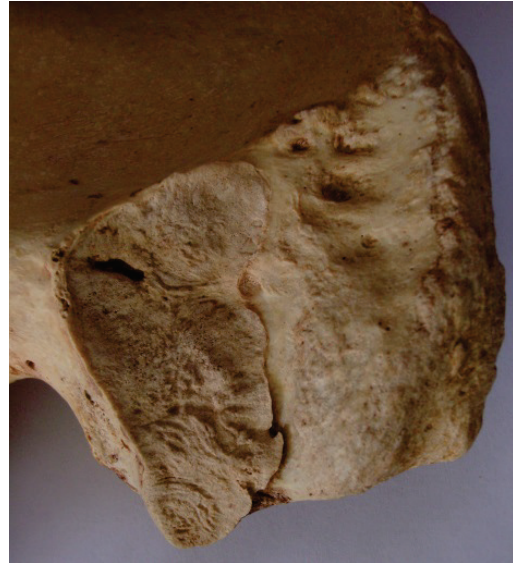
## Iliac Auricular Area

*Superior and Inferior demiface topography*

1. Undulating
2. Median elevation
3. Flat to irregular

Undulating 1, inferior and superior (subtle) parts (P 5897) Although there is a distinctive linear defect in the auricular surface at the apex, the bone can still be scored.

Undulating 1, inferior part (T 269, image reversed)



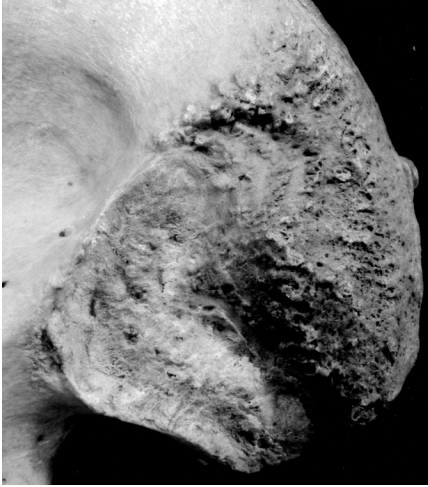
Undulating 1, superior and inferior parts (T 385, image reversed)



Median elevation 2, superior part (MU 6-73)



Median elevation 2, inferior part (T 274, image reversed)



*Superior, Middle, and Inferior surface characteristics*

1.  $>2/3$  covered by billows
2.  $1/3$ - $2/3$  covered by billows
3.  $<1/3$  covered by billows
4. Flat (no billows)
5. Bumps

Examples of billows are shown, but without looking at actual specimens it is typically impossible to determine how much of the surface is covered by them.

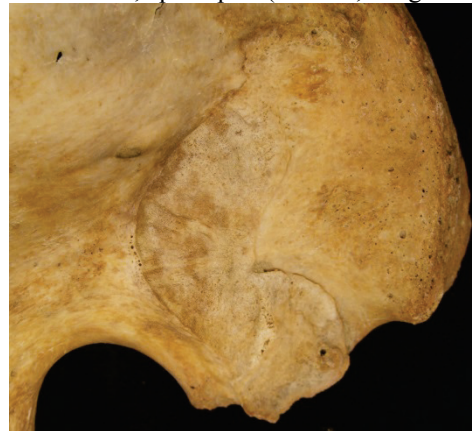
Flat 3, inferior part (MU 6-73)



Billows 1-3, inferior part (P 5897)



Billows 1-3, apical part (NF 225, image reversed)

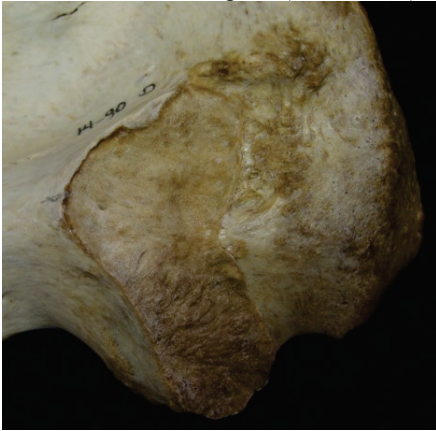


Flat 3, superior and inferior parts (T 500)





Billows 1-3, inferior part (Bass 14-90)



Flat 4, superior part (MU 7-55, image reversed)



Billows 1-3, apical and inferior parts (T-1023)



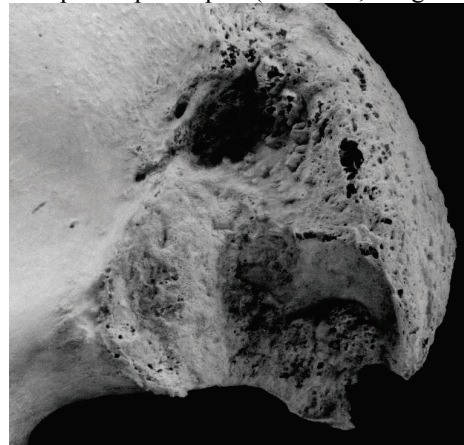
Flat 4, superior part (T 269, image reversed)



Flat 4, apical and inferior parts (T-500)



Bumps 5 superior part (T-1103R, image reversed)



Bumps 5 middle part (P 5750, image reversed)



Microporosity 2 (MU 6-73)



*Inferior surface texture*

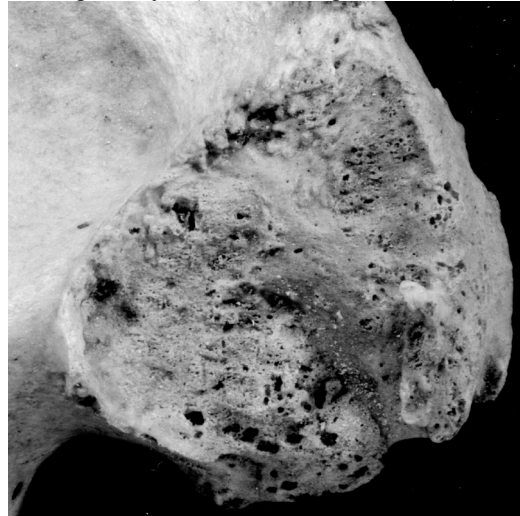
Characteristics

1. Smooth
2. Microporosity
3. Macroporosity

Smooth 1 (MU 6-69)



Macroporosity 3 (T 1394, image reversed)





*Superior & Inferior posterior iliac exostoses*

1. Smooth
2. Rounded exostoses
3. Pointed exostoses
4. Jagged exostoses
5. Touching exostoses
6. Fusion

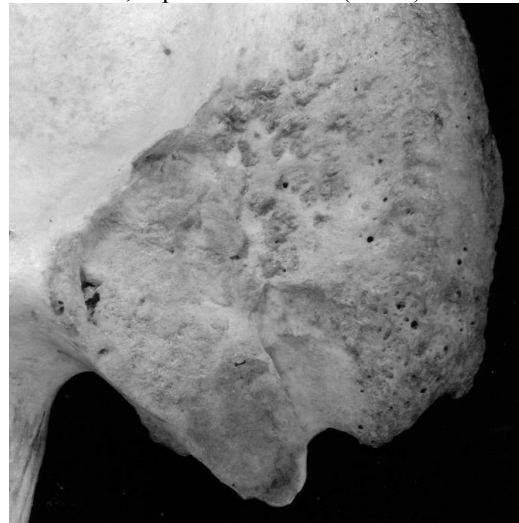
Smooth 1, inferior exostoses (T 862)



Rounded 2, superior exostoses (T 862)



Rounded 2, superior exostoses (T 500)



Smooth 1, inferior exostoses (MU 6-69)





Rounded 2, superior and inferior exostoses (MU 7-55, image reversed)



Pointed 3, inferior (MU 7-76) Sometimes sharp ones can approximate linear ridges.



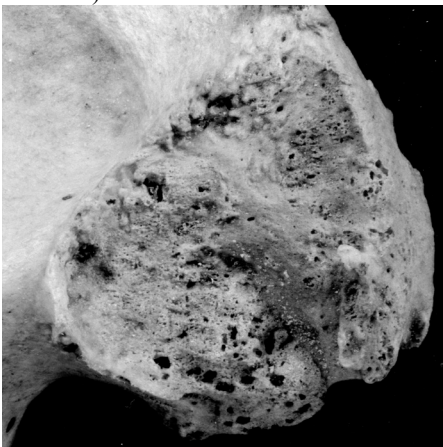
Rounded 2, superior exostoses (MU 7-76)



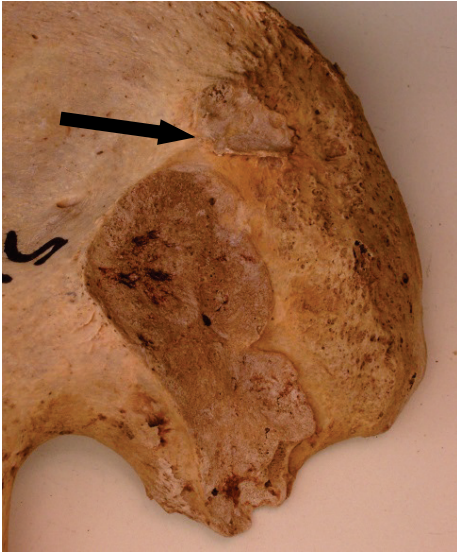
Touching 5, inferior (P 6001, image reversed)  
Form of the facet on the inferior exostosis area that appears reasonably often.



Pointed 3, superior exostoses (T 1394, image reversed)



Touching 5, inferior (P 5172) Facet on the superior exostosis area.



Smooth 1 (MU 6-69)



#### *Posterior exostoses*

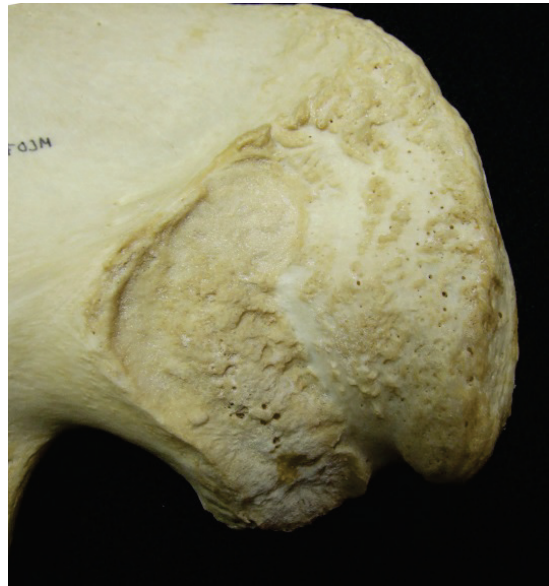
##### Characteristics

1. Smooth (no exostoses)
2. Rounded exostoses
3. Pointed exostoses

Smooth 1 (T 862)



Smooth 1 (MU 7-55, image reversed) While exostoses are present, significant areas of smooth bone remain.





Smooth 1 (MU 7-76) While exostoses are present, significant areas of smooth bone remain.



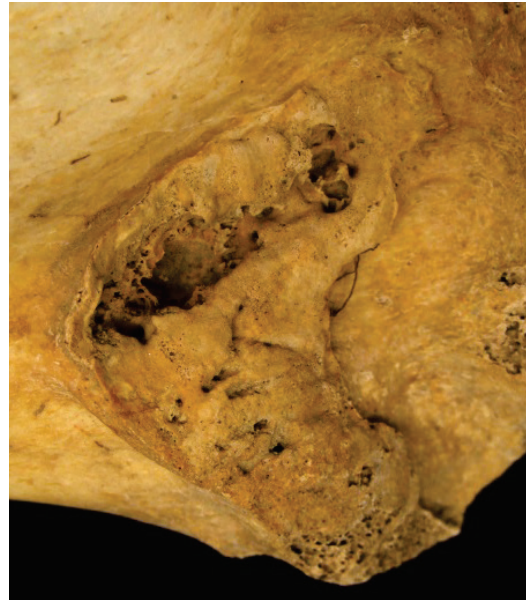
Rounded 2 (P 6001, image reversed)



### **Sacroiliac Joint, Not Scorable**

Superior part of sacroiliac joint surface cannot be scored because of significant abnormal pitting (NF 229, image reversed). Sometimes defects in the surface take the form of single or multiple grooves extending across the joint in a roughly transverse direction. Multiple closely spaced grooves often prevent the scoring of surface characteristics.

Not scorable



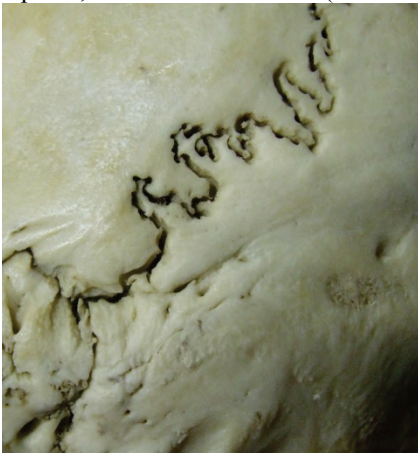
## Cranial Sutures

*Coronal Pterica (left), Sagittal Obelica, Lambdoidal Asterica (left), Zygomaticomaxillary (left), Interpalatine (median palatine, posterior portion)*

### Characteristics

1. Open
2. Juxtaposed
3. Partially obliterated
4. Punctuated
5. Obliterated

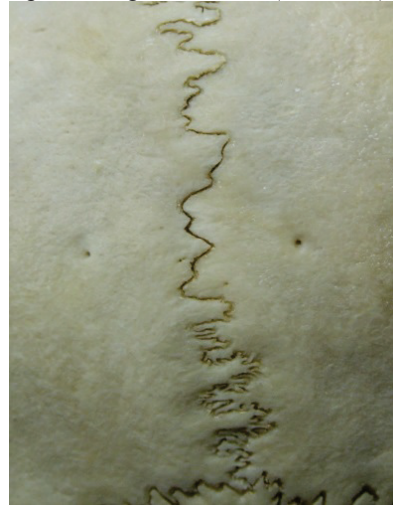
Open 1, Lambdoidal Asterica (MU 7-76)



Open 1, Coronal Pterica (MU 6-69)



Open 1, Sagittal obelica (MU 7-76)



Juxtaposed 2, Coronal pterica (NF 229)



Juxtaposed 2, Zygomaticomaxillary, especially noticeable in superior part (MU 6-69)

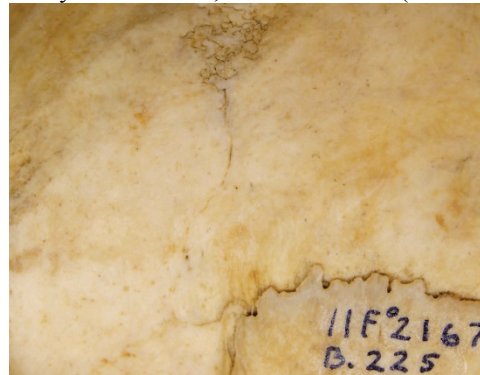




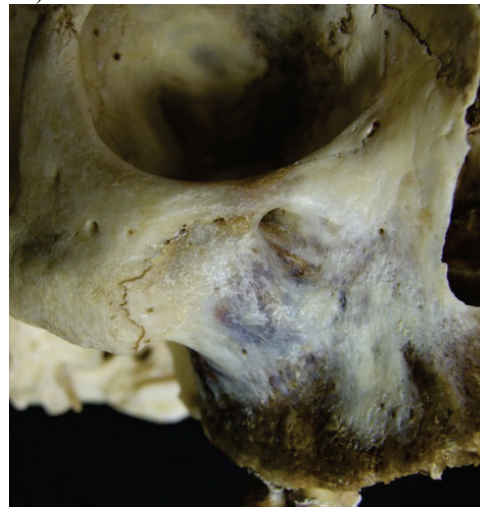
Open 1 & Juxtaposed 2, Interpalatine, combined  
for Interpalatine only (MU 6-69)



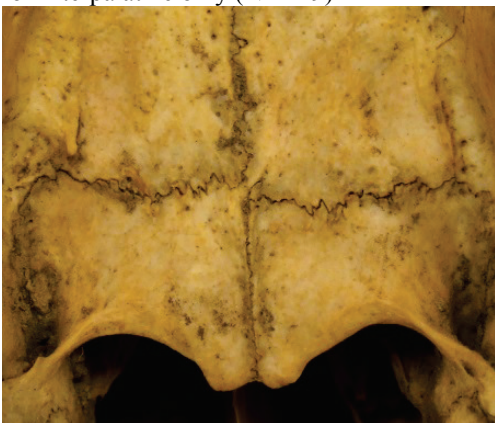
Partly obliterated 3, Coronal Pterica (NF 225)



Partly obliterated 3, Zygomaticomaxillary (MU 7-55)



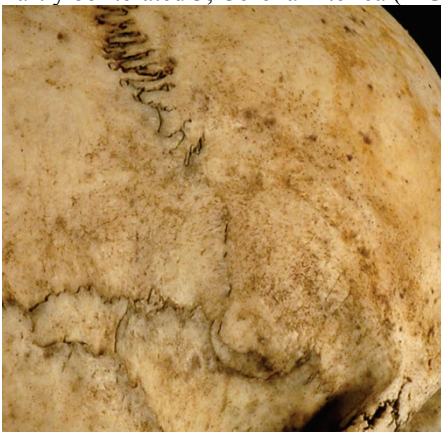
Open 1 & Juxtaposed 2, Interpalatine, combined  
for Interpalatine only (NF 229)



Partly obliterated 3, Interpalatine (NF 225)



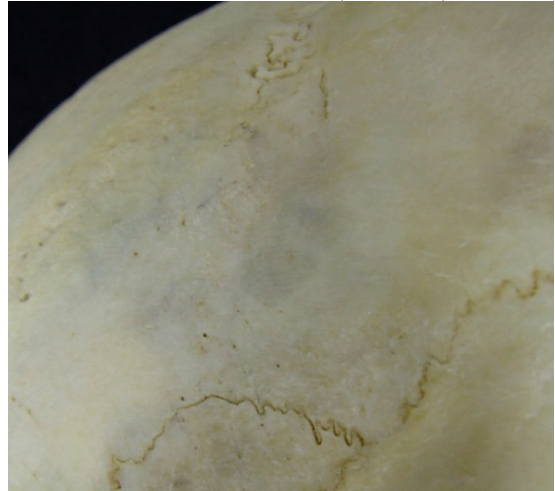
Partly obliterated 3, Coronal Pterica (MU 6-69)



Punctuated 4, Sagittal Obelica (only Obelica, not segments on either side) (MU 7-55)



Obliterated 5, Coronal Pterica (MU 7-55)



Punctuated 4 and Obliterated 5, Sagittal Obelica (NF 28) Punctuated superior to parietal foramen (to left of P) and obliterated inferior to parietal foramen (to left of O).

