

Pre-Columbian Goldworking in Panama

Technological Study of Finds from Cerro Juan Díaz



Harriet F. (Rae) Beaubien
Robert J. Speakman
Richard G. Cooke



AURUM 2009

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Paris



Smithsonian
Museum Conservation Institute
Smithsonian Tropical Research Institute



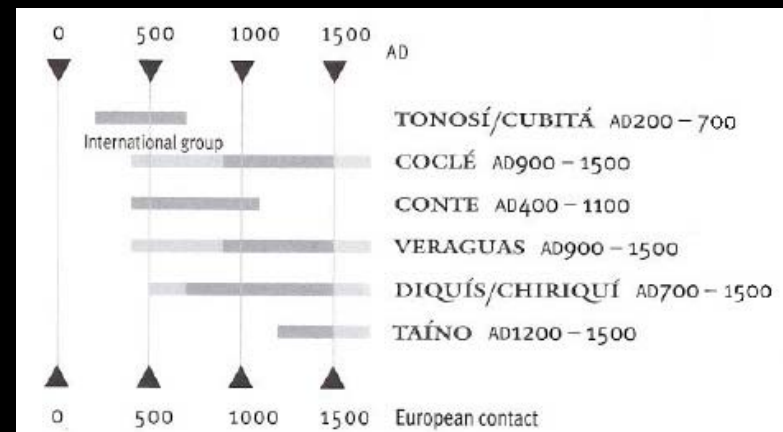
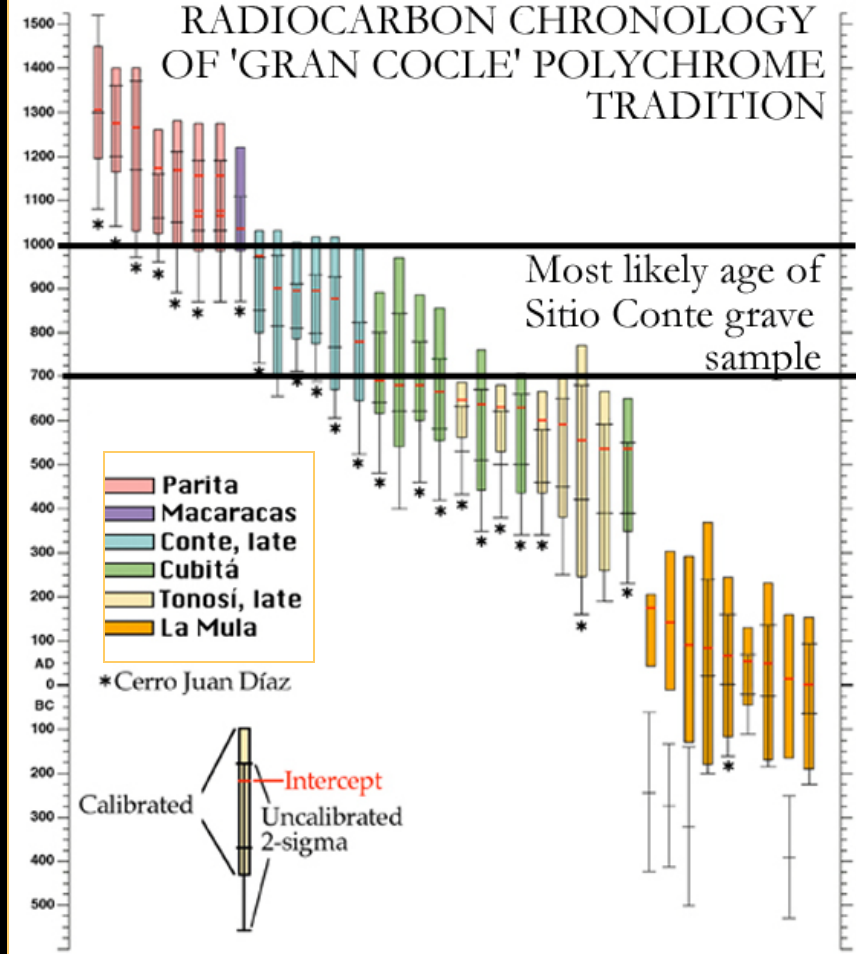
Sitio Conte
Coclé province





Museo Antropológico Reina Torres de Araúz
Panama City

RADIOCARBON CHRONOLOGY OF 'GRAN COCLE' POLYCHROME TRADITION



Panama City



Dr. Tomás Mendizábal



575 gold items - including:

- 7 Sitio Conte
- 9 El Caño
- 4 Cerro Juan Díaz
- 4 El Cafetal
- 5 Las Huacas
- 2 Miraflores
- 1 Playa Venado

Smithsonian Tropical Research Institute (STRI)

Panama City



Dr. Richard G. Cooke



109 Cerro Juan Díaz

Smithsonian's Museum Conservation Institute (MCI)

Suitland, Maryland

Harriet F. (Rae) Beaubien
Robert J. (Jeff) Speakman
Christie M. Pohl
Tara L. Hornung
Kim C. Cobb
Ellen G. Howe



X-Ray Fluorescence Spectrometry

ElvaX XRF spectrometer



TOTAL = 478 objects

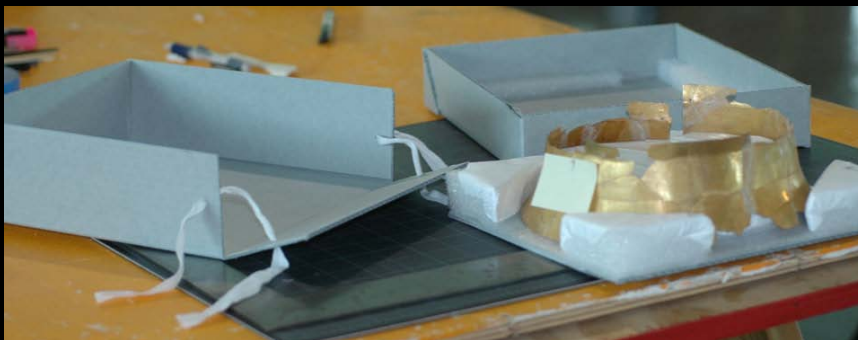
Optical Microscopy

Wild binocular microscope



TOTAL = 67 objects

Preventive conservation



TOTAL = ~700 objects

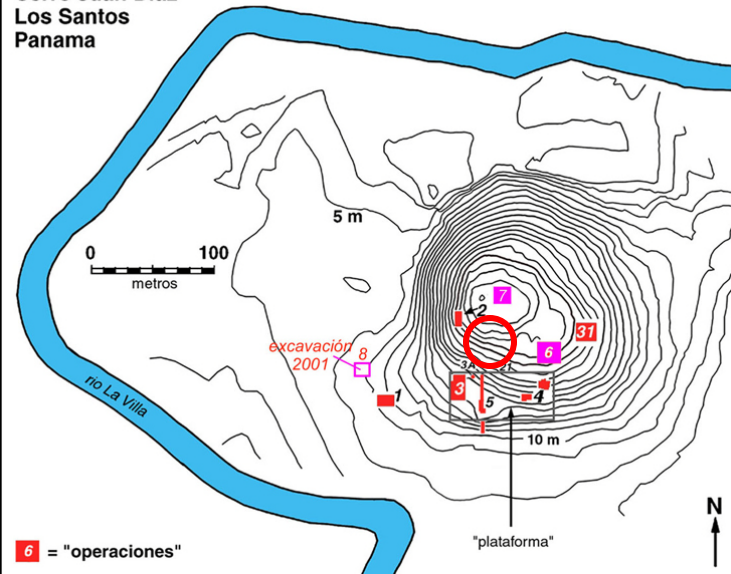


Cerro Juan Díaz

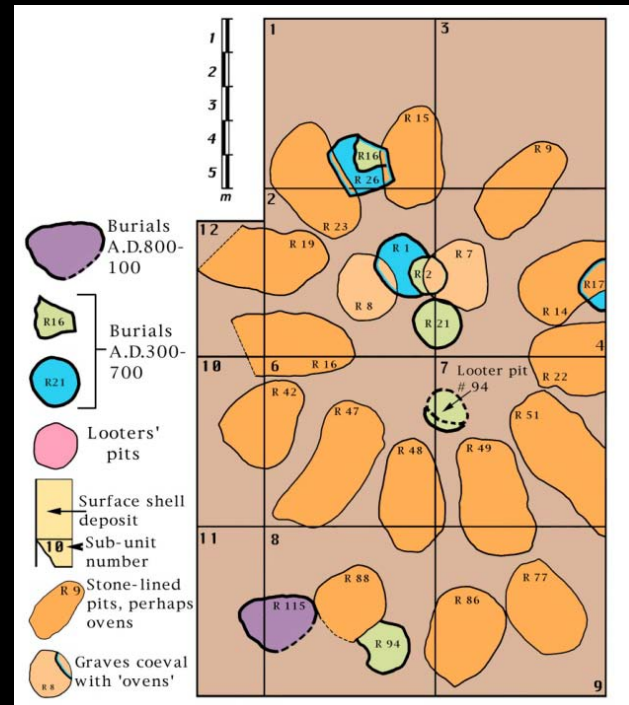
Los Santos province



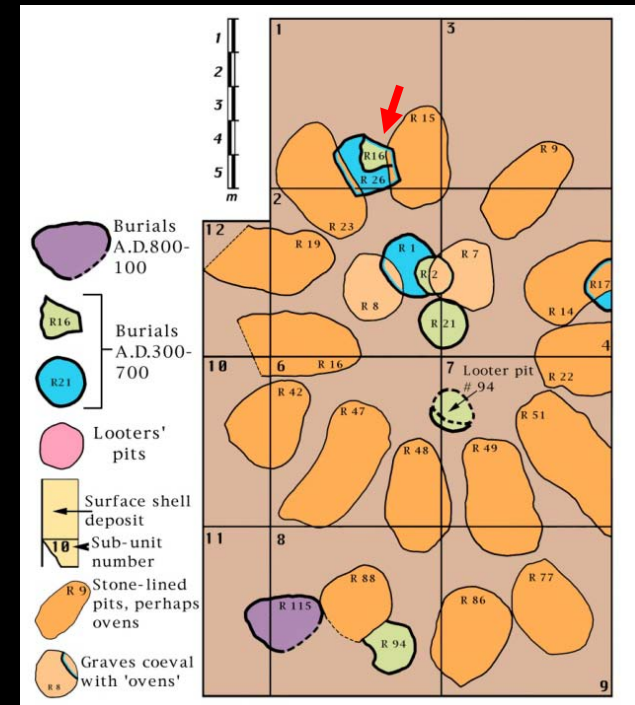
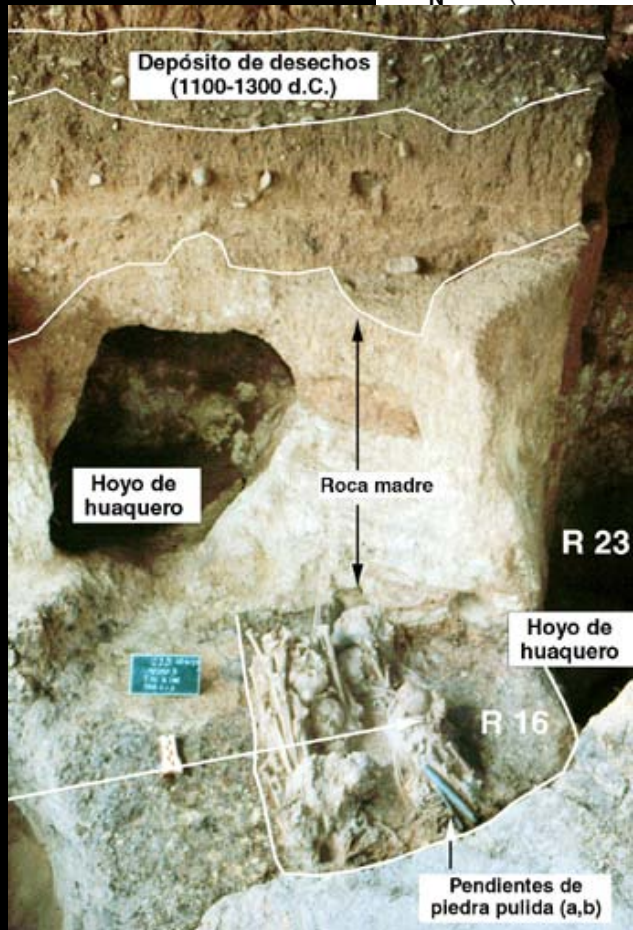
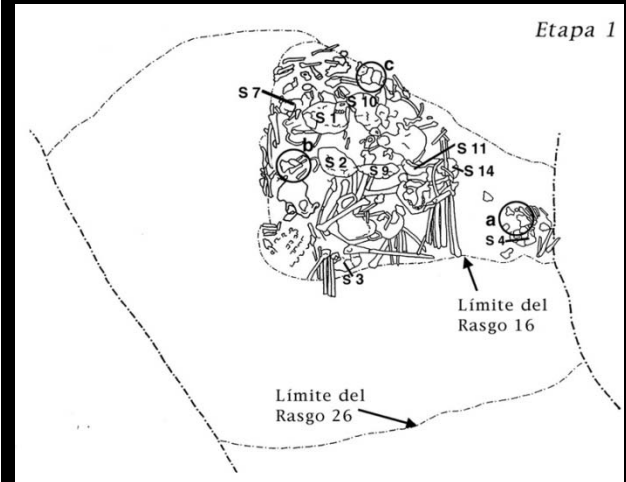
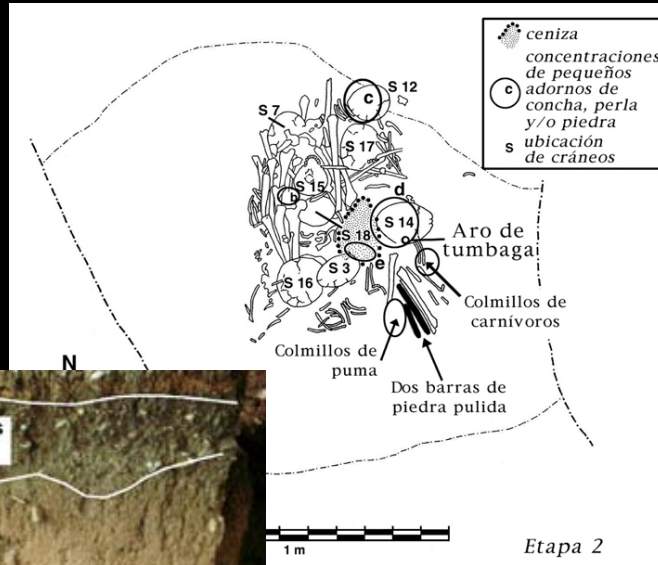
Cerro Juan Díaz
Los Santos
Panama



Operation 3



Operation 3 Tomb 16

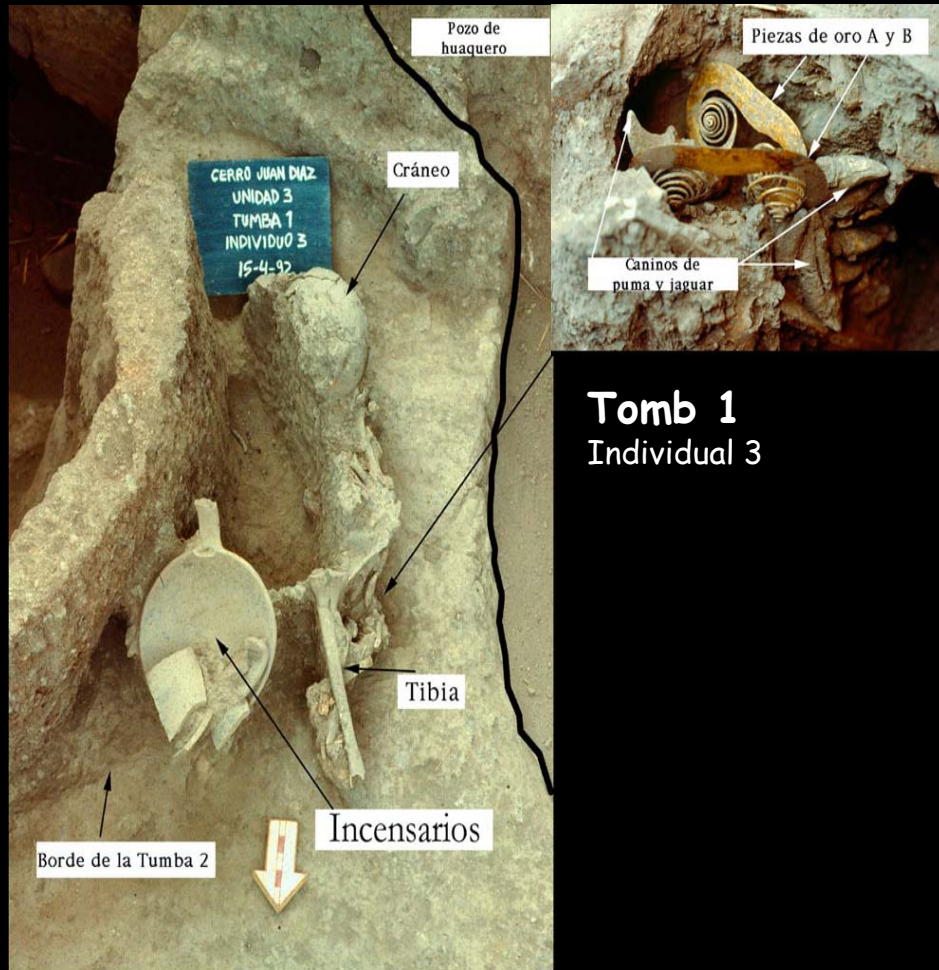




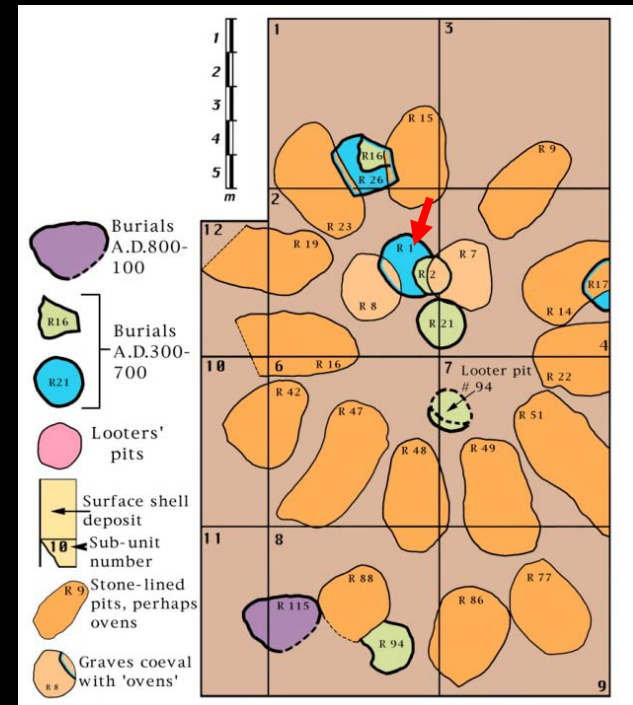
	Gold	Silver	Copper
Op3 T.16 M-046	0.0	0.0	100.0
Op3 T.16 M-071	58.6	4.7	36.7
Op3 T.16 MIT 5136	~32	~2	~66

Operation 3

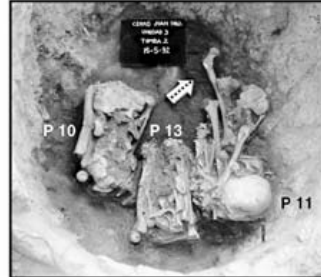
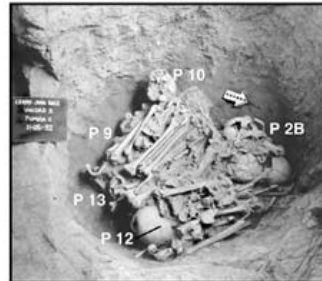
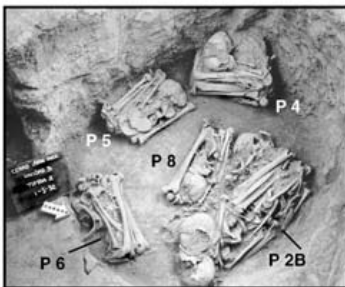
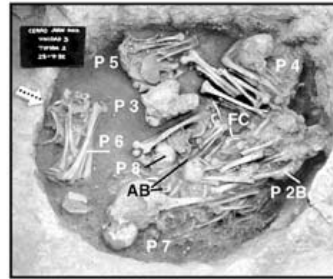
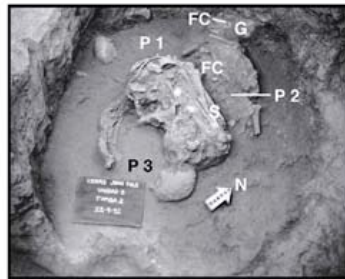
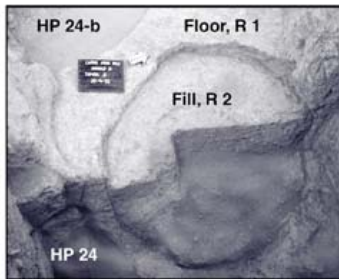
Tombs 1 and 2



Tomb 1
Individual 3



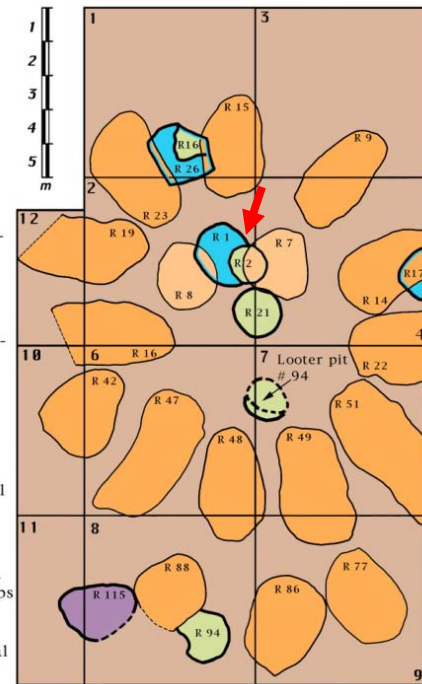
Top



Tomb 2
3 packets - 25 individuals

Bottom

- Burials A.D.800-100
- Burials A.D.300-700
- Looters' pits
- Surface shell deposit
- Sub-unit number
- Stone-lined pits, perhaps ovens
- Graves coeval with 'ovens'

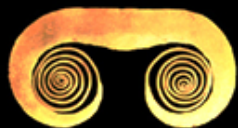




			Gold	Silver	Copper
Op3	T.1	Ao-1-0429	87.6	11.8	0.6
Op3	T.1	Ao-1-0431	88.4	11.2	0.4
Op3	T.2	Ao-1-0430	91.4	8.2	0.4



Ao-1-0429



Ao-1-0431

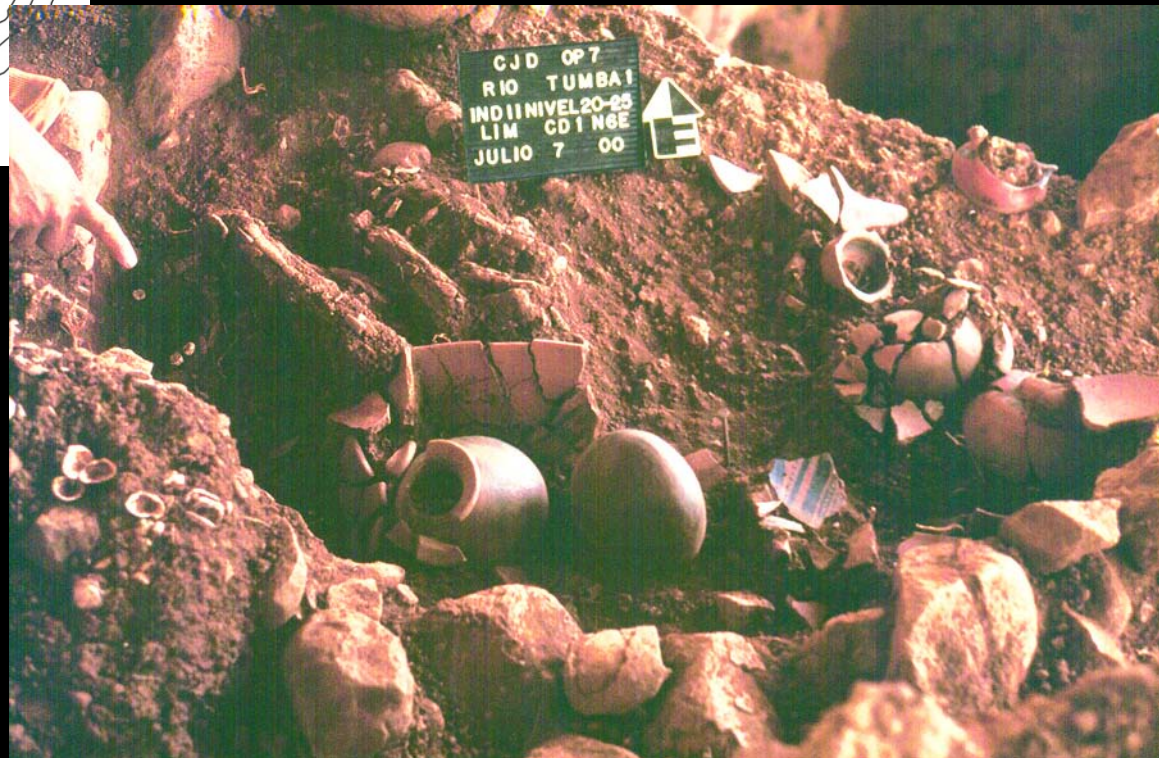
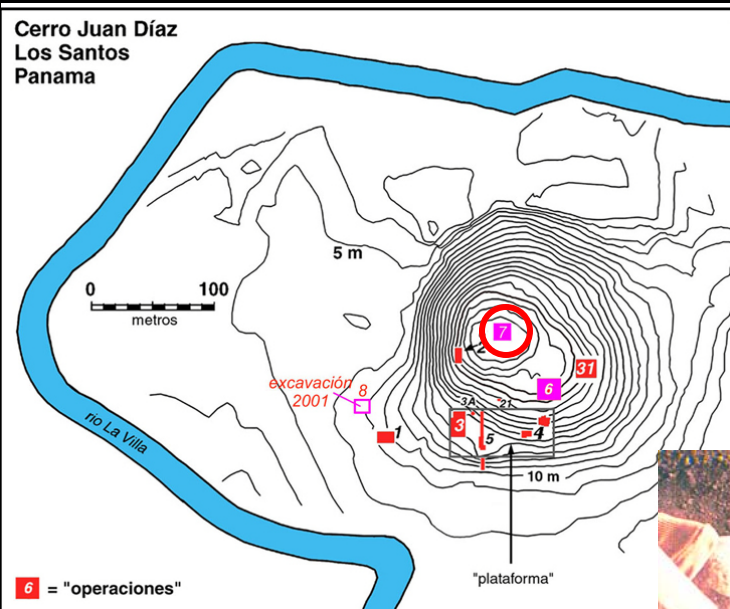


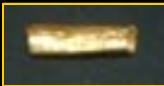
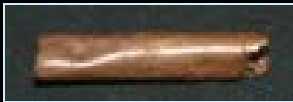
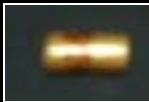
Ao-1-0430



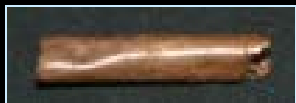
Operation 7

Tomb 1



	Gold	Silver	Copper	Examples of each group		
Op7 T.1				• item illustrated		
M-035-1	52.3	1.6	46.1	  		
-2	63.2	1.7	35.2			
-3	90.5	6.6	2.9			
-4	51.9	2.9	45.3			
-5	52.9	2.9	44.2			
-6	82.7	12.4	4.9			
-7	90.7	6.6	2.7			
M-036-1	50.7	2.0	47.3	  		
-2	54.5	1.7	43.8			
-3	90.7	6.8	2.5			
-4	45.2	4.2	50.5			
-5	90.6	6.8	2.6			
-6	90.2	7.0	2.8			
-7	53.0	2.0	45.1			
-8	54.6	2.7	42.8			
-9	45.3	3.1	51.5			
-10	55.3	2.5	42.2			
-11	60.6	2.7	36.7			
-12	65.5	13.3	21.2			

1 cm



M-035 4 (of 7)
M-036 8 (of 12)



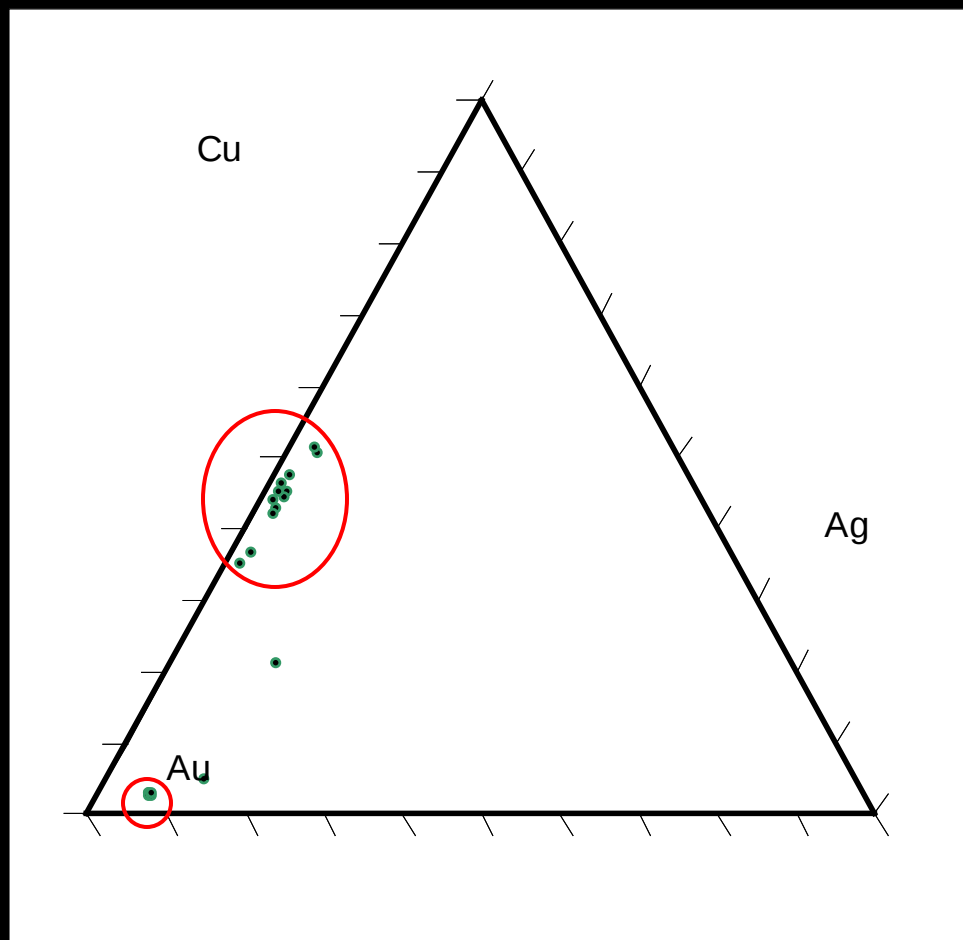
M-035 2 (of 7)
M-036 3 (of 12)



M-035 1 (of 7)



M-036 1 (of 12)





0046

1 cm



Las Huacas T.47

	Gold	Silver	Copper
Ao-1-0042	88.7	8.2	3.1
Ao-1-0043	89.2	8.0	2.9
Ao-1-0044	88.9	8.2	2.9
Ao-1-0045	89.4	8.0	2.7
Ao-1-0046	89.5	7.8	2.7





Op3 T.1 Ao-1-0429
Op3 T.1 Ao-1-0431
Op3 T.2 Ao-1-0430

Gold Silver Copper

87.6 11.8 0.6
88.4 11.2 0.4
91.4 8.2 0.4

El Cafetal Ao-1-0300

55.1 3.0 41.9

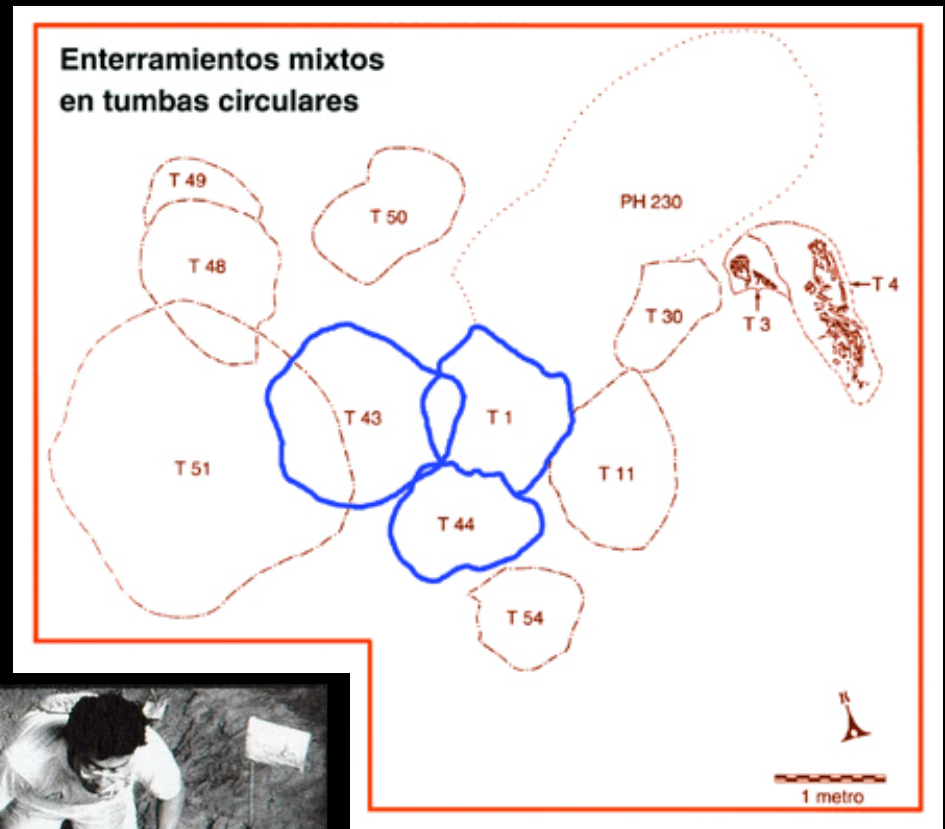
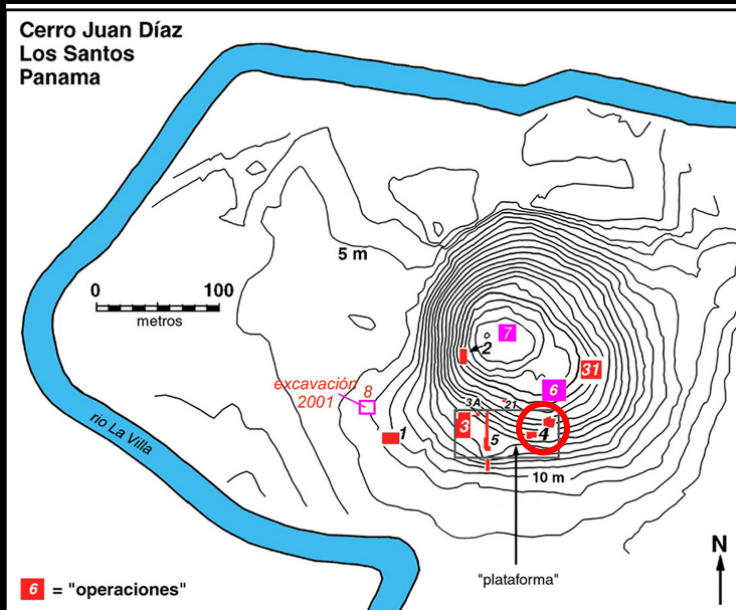


0300

1 cm



Operation 4

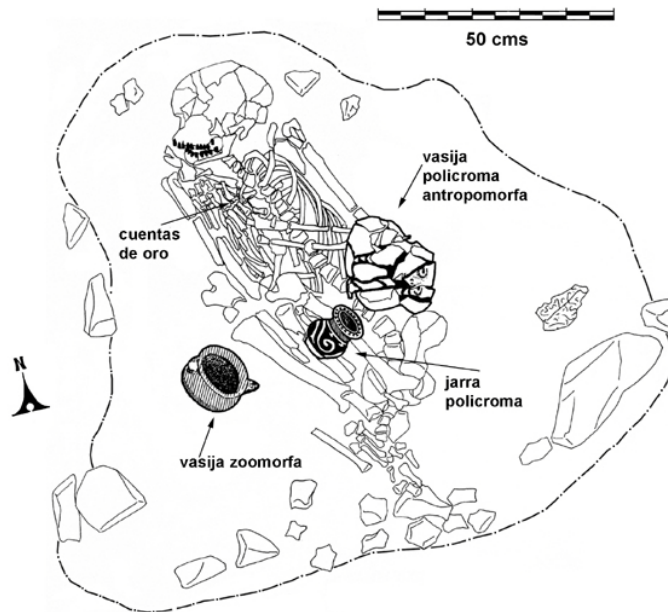


Op4 T.1 levels 1-2-3

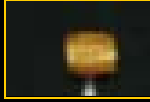
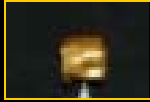
Operation 4

Tomb 44 - Individual 55

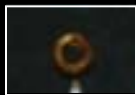
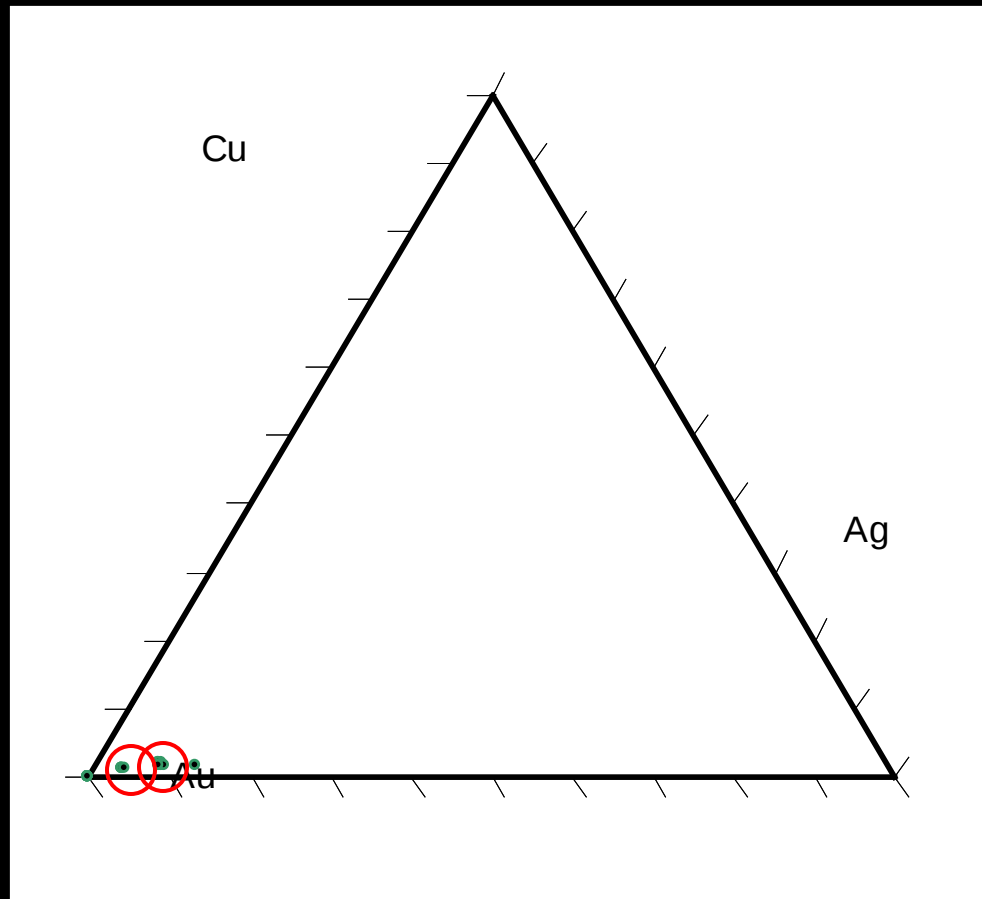
Enterramientos mixtos en tumbas circulares



CERRO JUAN DIAZ
OPERACION 4-A
TUMBA 44 Individuo 55

	Gold	Silver	Copper	Examples of each group
Op4 T.44				• item illustrated
M-018	85.9	12.5	1.6▪	
M-019-1	90.4	8.0	1.6▪	
-2	90.0	8.4	1.6	
-3	90.6	7.8	1.6	
M-020-1	90.3	7.8	1.9	
-2	90.1	8.0	2.0	
-3	90.2	7.8	1.9▪	
-4	95.1	3.6	1.2	
-5	95.2	3.6	1.2	
-6	95.3	3.6	1.1▪	
-7	94.9	3.7	1.3	
M-053-1	91.2	3.6	1.0	Fe - 4.2▪ 
-2	90.0	3.6	1.1	Fe - 5.3
-3	92.7	3.7	1.0	Fe - 2.6

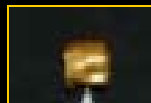
1 cm



M-020 4 (of 7)



M-053 3 (of 3)



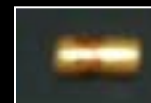
M-019 3 (of 3)
M-020 3 (of 7)



M-035 2 (of 7)
M-036 3 (of 12)



M-018



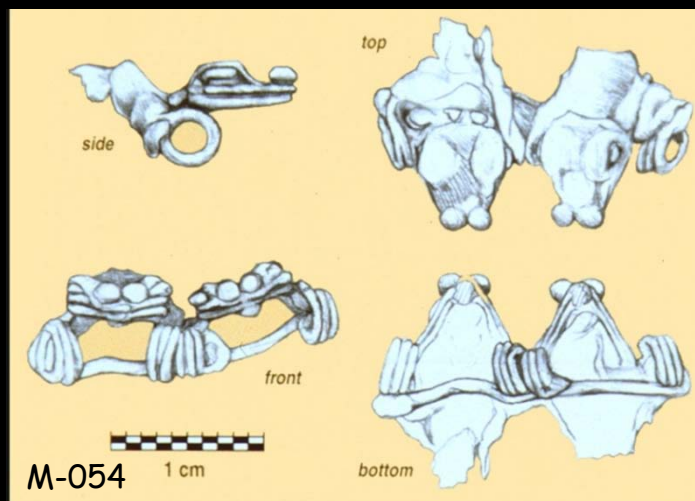
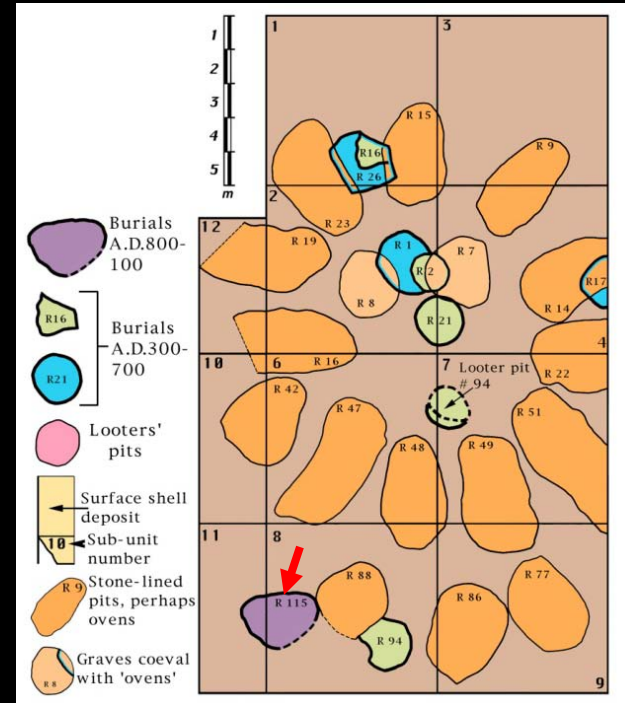
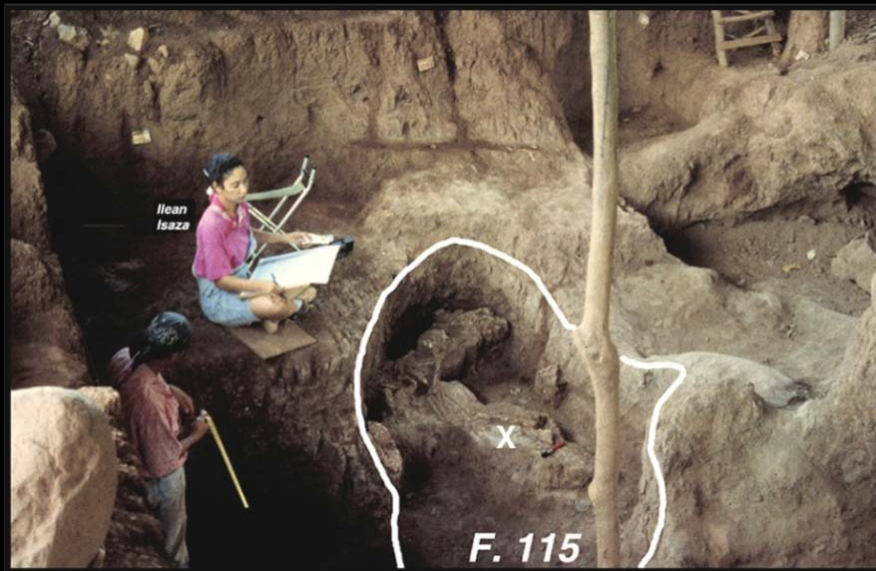
M-035-6



M-036-12

Operation 3

Tomb 115



	Gold	Silver	Copper
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Op3 T.115 M-054	24.6	1.2	74.2
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Op8 M-073 exterior	7.6	0.5	91.9
interior	10.3	1.2	88.4



El Caño Op2 R4774

► Forming technology of beads



► Silver concentration / Ore sources

	Gold	Silver	Copper
CJD Op3 T.1 Ao-1-0431	88.4	11.2	0.4
Op4 T.44 M-018	85.9	12.5	1.6



Playa Venado Ao-1-0069	56.3	26.3	17.4
Ao-1-0296	56.3	26.0	17.7



0069

1 cm



0296

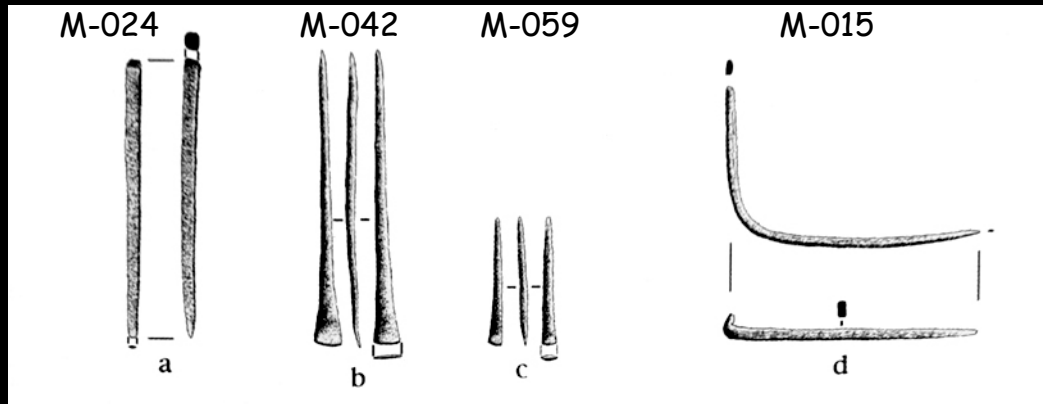


Cerro Cebollal

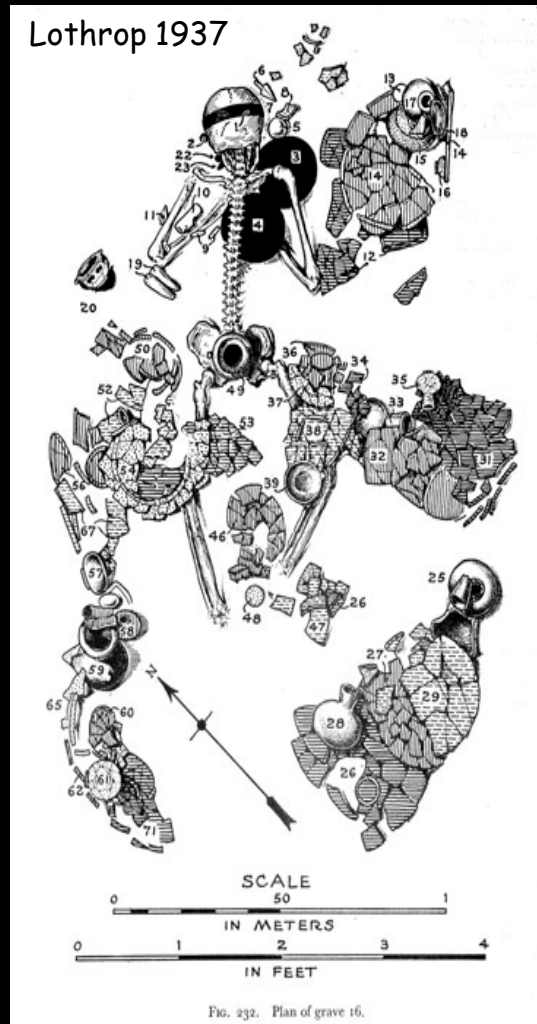
► Tools and tool marks

Cerro Juan Díaz

8 copper tools



► Archaeological context

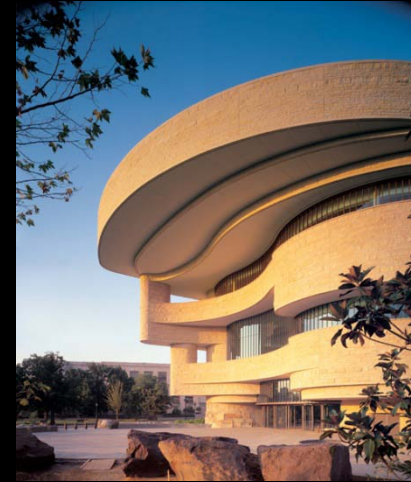


Sitio Conte Grave 16

- | | |
|-------------|---------------|
| 33-42-20 | |
| 1080 | Head band |
| 1081 | Copper bell |
| 1082 | Pectoral disk |
| 1083 | Pectoral disk |
| 1102 | Nose ring |
| Conte coll. | Nose ring |



Smithsonian Institution Washington DC



National Museum of
the American Indian
(NMAI)



National Museum of
Natural History
(NMNH)



Smithsonian Institution Suitland, Maryland



MUSEUM SUPPORT CENTER

- Museum Conservation Institute
- NMNH collection storage



CULTURAL RESOURCES CENTER

- NMAI collection storage





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National Museum of the American Indian

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