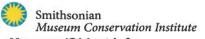
Appendix A
Database of NMNH Objects



Pre-Columbian Gold in the Smithsonian Collections

Museum/Object Info

maseann object i						
Object/Catalogue #	A74676-a Owner NMNH Count 4 Curation Location MSC					
Object Class	Object Sub-Class					
Country	Panama Province Chiriquí Province Area					
Site	No info Geographic Zone VGC Style					
Provenience Documentation	Field Notes Accession docs/letters Stylistic Other Publication Inferred None					
Accession #	013654 Name in Records Small Gold Bells					
Collector	J.A.Mcniel Date Collected					
Donor	Mcniel, J. A.; through Agents J. Date Accessioned 1883					
Cultural ID	Period					
Catalogue Info	Panama, Chiriqui, Chiriqui Accession Info Collected by McNiel by 1883					
Research Notes	Find info on McNiel excavations. Illustrated in Holmes 1887. "I have no positive assurance that any of the References Holmes, W.H. 1887 "The Use of Gold and Other Metals among the Ancient Inhabitants of Chiriqui" Bureau of American Ethnology					
Technical Exami	nation Examination ☑ Visual ☑ Microscopy ☐ MicroPhoto ☐ Other Exam Operator ACH					
Descrip	tion The largest bell. This bell is cast with a large suspension loop at the top that may also represent a zoomorphic figure (perhaps dog)					
	as there is additional cast detail extending from the suspension loop. The bell has an extant clapper inside. The shape of the body is biconical? with the opening slit extending halfway up body.					
Measureme	ents					
	Length: Width: Height: Diam.: Thickness: Weight:					
Condition/Treatment No	The bell appears to have been cleaned as there are scratches in the surface and a very flat surface mottled with different colors from corrosion products. No breaks					
Corros	ion ☐ None ☒ Green-Surface ☐ Green-Core ☐ Black-Surface ☐ Black-Core ☒ Red-Surface ☐ Red-Core ☐ Other					
Corrosion no	tes compact red and green copper corrosion products present but surface is flat and stable					
Primary Fabrica	tion Cast- Open Back Cast- Solid Hammered-Sheathing Other/Unknown Cast- Closed Core Hammered-Sheet Wire/Rod					
Fabrication No	The interior is open					
Mate	erial Copper Gold Alloy Organic Resin Stone Shell Composite Unknown Not present Other					
Material No	May be copper or gold alloy. Material appears similar to bronze					
Surface Colora	tion Coppery Gold Reddish Pinkish Mixed Other					
Coloration No	tes The surface is mostly a mixture of colors from the corrosion: coppery, reddish, and green					
Finish	ning Surface Enrichment Polished None Other					
Finishing No	otes					
Decorative de	tails 🛮 All cast 🗆 Embossed 🔲 Incised 🔲 Chased 🔝 Filigree 🔲 Granulation 🔲 Punched 🔲 Other					
Decorative detail no	otes All in wax model					
Joir	nery 🛮 All cast 🔲 Mechanical 🔲 Solder 🔲 Other/Unknown					
Joinery No	otes All in wax model					
Usewear/toolma	arks Abrasion Rubbed Scratches Burr(s) Cracking Incised Core/Investment Other					
Usewear/toolmarks No						
Pseudomor	phs ☐ Pseudomorph ☐ Organics ☒ None ☐ Other Notes					
Analysis r	ec's 🛮 XRF 🖾 X-ray radiograph 🗆 ESEM-EDS 🗆 PIXE 🗆 LA-ICPMS 🗆 Metallography 🗖 Other					
Analysis Rec No						
	☐ Special ☐ Followup ☐ Re-do ☐ Conservation required ☐ Re-packaging required ☐ Other					
Analysis #1	Type XRF Analysis Operator ACH Analysis Date 12/4/2009 IIII Reliability questionable accuracy					
Location of analy	sis Opposite of # ,Center body Analysis location notes Some surface corrosion					
Element Cu	Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed					
(%) 21.4	73.0 5.4 0.2 Results					
Analysis #2	Type Analysis Operator Analysis Date Reliability					
Location of analy	sis Analysis location notes					
Element Cu	Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed					
(%)	Results					



Museum/Object I						
Object/Catalogue #	4676-b Owner NMNH Count 4 Curation Location MSC					
Object Class	Object Sub-Class					
Country	Province Chiriquí Province Area					
Site Provenience	No info Geographic Zone Style Style					
Documentation	☐ Field Notes ☑ Accession docs/letters ☐ Stylistic ☐ Other ☑ Publication ☐ Inferred ☐ None					
Accession #	013654 Name in Records Small Gold Bells					
Collector	J.A.Mcniel Date Collected					
Donor	Mcniel, J. A.; through Agents J. Date Accessioned 1883					
Cultural ID	Period Pe					
Catalogue Info	Panama, Chiriqui, Chiriqui Accession Info Collected by McNiel by 1883					
Research Notes	Find info on McNiel excavations. Illustrated in Holmes References Holmes, W.H. 1887 "The Use of Gold and Other Metals among the Ancient Inhabitants of Chiriqui" Bureau of American Ethnology					
Technical Exami	nation Examination ☑ Visual ☑ Microscopy ☐ MicroPhoto ☐ Other Exam Operator ACH					
	tion Small cast bell with thick suspension loop/tubular bead. Small rattle bell attached to tubular bead. Missing clapper					
Measureme						
	Length: Width: Height: Diam.: Thickness: Weight:					
Condition/Treatment No	Missing half of the body. Enriched gold surface layer has flaked off or been abraded off most of the bell. Break edge reveals black core with flecks of metal. Some light brown accretion on surface of interior.					
Corros	ion ☐ None ☑ Green-Surface ☐ Green-Core ☐ Black-Surface ☑ Black-Core ☐ Red-Surface ☐ Red-Core ☐ Other					
Corrosion no	Patches of green corrosion on surface. Black core					
Primary Fabrica	tion					
Fabrication No	Open interior covered in light brown accretion, pitted, and irregular					
	erial Copper S Gold Alloy Organic Resin Stone Shell Composite Unknown Not present Other					
Material No	Surface layer is gold colored but interior appears more coppery					
Surface Colora	tion Coppery Gold Reddish Pinkish Mixed Other					
Coloration No						
	ning Surface Enrichment Polished None Other					
	Surface appears gold and burnished					
	tails All cast Embossed Incised Chased Filigree Granulation Punched Other					
	otes All in wax model					
32.7474.0	nery All cast Mechanical Solder Other/Unknown					
Joinery No						
Usewear/toolmarks No						
Pseudomor	phs Pseudomorph Organics None Other Notes					
Analysis re						
Analysis Rec No	Good opportunity to study interior of bell					
	☑ Special ☐ Followup ☐ Re-do ☐ Conservation required ☐ Re-packaging required ☐ Other					
Analysis #1	Type XRF Analysis Operator ACH Analysis Date 12/4/2009 E Reliability questionable accuracy					
Location of analy	sis Opposite of # ,Center body Analysis location notes Some surface corrosion					
Element Cu (%) 21.4	Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed 73.0 5.4 Results					
Analysis #2	Type ESEM-EDS Analysis Operator ACH Analysis Date 5/29/2009 IIII Reliability					
Location of analy	sis interior of body facing up Analysis location notes					
Element Cu	Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed Results body did not show Au					



Pre-Columbian Gold in the Smithsonian Collections

Object Report Museum/Object Info

Obiec	ct/Catalogue #	A74676-c Owner NMNH Count 4 Curation Location MSC				
187	Object Class	Bell Object Sub-Class				
	Country	anama Province Chiriquí Province Area				
	Site	No info Geographic Zone Style				
D	Provenience Occumentation	Field Notes Accession docs/letters Stylistic Other Publication Inferred None				
	Accession #	013654 Name in Records Small Gold Bells				
	Collector	J.A.Mcniel Date Collected				
	Donor	Mcniel, J. A.; through Agents J. Date Accessioned 1883				
	Cultural ID	Period				
(Catalogue Info	Panama, Chiriqui, Chiriqui Accession Info Collected by McNiel by 1883				
	esearch Notes	Find info on McNiel excavations. Illustrated in Holmes 1887. "I have no positive assurance that any of the Ancient Inhabitants of Chiriqui" Bureau of American Ethnology				
i ecn		nation				
	Descrip	tion medium sized cast bell with extant clapper. Single suspension loop at top extending from slight ring above body. Body is flattened hemisphere and the slip extends halfway up body.				
	Measureme	ents				
		Length: Width: Height: Diam.: Thickness: Weight:				
Condition	on/Treatment No	No losses or break edges. The surface appears a bit pitted and has undergone some interdendritic corrosion.				
	Corros	ion None Green-Surface Green-Core Black-Surface Black-Core Red-Surface Red-Core Other				
	Corrosion no	Very small amount of green corrosion at surface				
	Primary Fabrication Cast- Open Back Cast- Solid Hammered-Sheathing Other/Unknown Cast- Closed Core Hammered-Sheet Wire/Rod					
	Fabrication No	The interior is open and there are pits and casting flaws visible on the interior side. There is also some evidence of dendrites in the outer surface where there has been some corrosion				
	Mate	erial Copper Gold Alloy Organic Resin Stone Shell Composite Unknown Not present Other				
	Material No	otes				
	Surface Colora	tion Coppery Gold Reddish Pinkish Mixed Other				
	Coloration No	otes				
	Finish	ning Surface Enrichment Polished None Other				
	Finishing No					
		tails All cast Embossed Incised Chased Filigree Granulation Punched Other				
Dec		otes All in wax model				
		nery 🛮 All cast 🗌 Mechanical 🔲 Solder 🔲 Other/Unknown				
	Joinery No					
	Usewear/toolma ear/toolmarks No					
	Pseudomor					
:	Analysis Rec No	sis rec's XRF X-ray radiograph ESEM-EDS PIXE LA-ICPMS Metallography Other				
		☐ Special ☐ Followup ☐ Re-do ☐ Conservation required ☐ Re-packaging required ☐ Other				
A	Analysis #1	Type XRF Analysis Operator ACH Analysis Date 12/4/2009 IIII Reliability questionable accuracy				
L	ocation of analy	sis Opposite of # ,Center body Analysis location notes Some surface corrosion				
- 1	Element Cu (%) 21.4	Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed 73.0 5.4 0.2 0.2 Results				
A	Analysis #2	Type Analysis Operator Analysis Date Reliability				
	Analysis #2					



Museum/Object	
Object/Catalogue #	A74676-d Owner NMNH Count 4 Curation Location MSC
Object Class	Bell Object Sub-Class
Country	Panama Province Chiriquí Province Area
Site Provenience	No info Geographic Zone Style
Documentation	☐ Field Notes ☐ Accession docs/letters ☐ Stylistic ☐ Other ☐ Publication ☐ Inferred ☐ None ☐ None
Accession #	013654 Name in Records Small Gold Bells
	J.A.Mcniel Date Collected
Donor Cultural ID	Mcniel, J. A.; through Agents J. Date Accessioned Period
	Panama, Chiriqui, Chiriqui Accession Info Collected by McNiel by 1883
Catalogue Info	
Research Notes	Find info on McNiel excavations. Illustrated in Holmes References Holmes, W.H. 1887 "The Use of Gold and Other Metals among the Ancient Inhabitants of Chiriqui" Bureau of American Ethnology
Technical Exami	ination Examination ☑ Visual ☑ Microscopy ☐ MicroPhoto ☐ Other Exam Operator ☐ ACH ☐ Exam date ☐ 11/25/2008 ☐ ☐
Descrip	Small bell with single suspension loop at top over slight ring at top of body. Body is hemispherical and the slit extends almost all the way up the body (3/4). clapper is extant
Measuremo	nata .
Measurern	Length: Width: Height: Diam.: Thickness: Weight:
Condition/Treatment No	
	to strong dendrite pattern
Corros	Enterior Electronical Electrication Electrication Electrication Electronical Enterior Electronical Electronic
Corrosion no	slight amount of green surface corrosion. Clapper has lots of green corrosion on surface
Primary Fabrica	tion ☑ Cast- Open Back ☐ Cast- Solid ☐ Hammered-Sheathing ☐ Other/Unknown ☐ Cast- Closed Core ☐ Hammered-Sheet ☐ Wire/Rod
Fabrication No	otes Interior is open and has pitted surface
Mate	erial Copper S Gold Alloy Corganic Resin Stone Shell Composite Unknown Not present Other
Material No	otes
Surface Colora	tion Coppery Gold Reddish Pinkish Mixed Other
Coloration No	
Finis	
Finishing No	otes
Decorative de	tails All cast Embossed Incised Chased Filigree Granulation Punched Other
	otes all in wax model
	nery All cast Mechanical Solder Other/Unknown
Joinery No	500-407 (00-407) (00-407) (00-407) (00-407)
Usewear/toolmarks No	
Pseudomor	phs Pseudomorph Organics None Other Notes
Analysis r	ec's ☑ XRF ☑ X-ray radiograph ☑ ESEM-EDS ☐ PIXE ☐ LA-ICPMS ☐ Metallography ☐ Other
Analysis Rec No	
	☐ Special ☐ Followup ☐ Re-do ☐ Conservation required ☐ Re-packaging required ☐ Other
Analysis #1	Type XRF Analysis Operator ACH Analysis Date 12/4/2009 IIII Reliability questionable accuracy
	sis Opposite of # ,Center body Analysis location notes Some surface corrosion
Element Cu (%) 21.4	Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed 73.0 5.4 Results
Analysis #2	Type Analysis Operator Analysis Date Reliability
Location of analy	
Element Cu (%)	Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed Results



Analysis #2

Element

(%)

Location of analysis

Type

Zn

Cd

As

Pre-Columbian Gold in the Object Report Smithsonian Collections Museum/Object Info Object/Catalogue # A438144-a Owner NMNH Count 3 Curation Location MSC Object Sub-Class Band Object Class Ornament Panama Area Province Herrera Country Site El Hatillo, Site He-4 Geographic Zone Azuero Peninsula-Parita Style Provenience ☑ Field Notes ☐ Accession docs/letters ☐ Stylistic ☐ Other... Documentation ☑ Publication ☐ Inferred ☐ None Name in Records Gold Ornaments: 2 Circular, 1 219603 Accession # Collector Date Collected BAE, Stirling and Willey Date Accessioned Donor Bureau Of American Cultural ID Prehistoric Period Site extends from Late Cocle phase Catalogue Info Panama, Herrera Province, El Hatillo, Site He-4 Accession Info | Found accession docs in NMNH Hardcopy files Find 381: Mound VII, Trench 7, depth 4.7-5m. north References | Site Report: Ladd (1968) Archaeological investigations into the Research Notes 2.7m, East profile. The unit contained a few fragments Parita and Santa Maria Zones Technical Examination

Examination

Visual

Microscopy

MicroPhoto

Other...

Exam Operator

ACH Exam date | 11/21/2008 | IIII Description Hammered sheet reeliform(?) four cornered goemetric shape with two holes punched from front (numbered side) to back. Curved slightly with front convex side. Measurements Width: Height: Diam .: Weight: Length: Thickness: Good condition but scratched on front and slightly bent at location of scratch. Slight amount of brown accretion and tarnish Condition/Treatment Notes Corrosion ☑ None ☐ Green-Surface ☐ Green-Core ☐ Black-Surface ☐ Black-Core ☐ Red-Surface ☐ Red-Core ☐ Other... Corrosion notes Primary Fabrication ☐ Cast- Open Back Cast- Solid ☐ Hammered-Sheathing ☐ Other/Unknown ☐ Cast- Closed Core ☑ Hammered-Sheet ☐ Wire/Rod Fabrication Notes No facets visible □ Copper ☑ Gold Alloy □ Organic □ Resin □ Stone □ Shell □ Composite □ Unknown □ Not present □ Other... Material Notes Surface Coloration ☐ Coppery **⊠** Gold ☐ Reddish ☐ Pinkish ☐ Mixed ☐ Other Coloration Notes ☐ Surface Enrichment ☐ Polished ☐ None Finishina ☐ Other **Finishing Notes** Shiny on both sides ☐ All cast ☐ Embossed ☐ Incised ☐ Chased ☐ Filigree ☐ Granulation ☒ Punched ☐ Other... Decorative details Decorative detail notes ☐ All cast ☐ Mechanical ☐ Solder ☐ Other/Unknown Joinery Joinery Notes ☑ Abrasion ☐ Rubbed ☑ Scratches ☐ Burr(s) ☐ Cracking ☐ Incised ☐ Core/Investment Usewear/toolmarks Usewear/toolmarks Notes Pseudomorphs ☐ Pseudomorph ☐ Organics ☒ None ☐ Other Notes Analysis rec's

XRF

X-ray radiograph

ESEM-EDS

PIXE

LA-ICPMS

Metallography

Other Analysis Rec Notes ☐ Special ☒ Followup □ Re-do □ Conservation required □ Re-packaging required □ Other... Analysis #1 Analysis Date 12/3/2009 Reliability Type XRF Analysis Operator ACH good Location of analysis Opposite of # ,Center Analysis location notes Sound metal Element Cu Fe Sn Trace Removed 1.8 6.5 (%) P, Pd Results

Analysis Operator

Sn

Sb

Fe

Analysis Date

Analysis location notes

Reliability

Results

Removed

Trace



Museum/Object					
Object/Catalogue#	A438144-b Owner NMNH Count 3 Curation Location MSC				
Object Class	Ornament Object Sub-Class Disk				
Country	Panama Province Herrera Area				
Site	El Hatillo, Site He-4 Geographic Zone Azuero Peninsula-Parita Style				
Provenience	☑ Field Notes ☐ Accession docs/letters ☐ Stylistic ☐ Other				
Documentation	☑ Publication ☐ Inferred ☐ None				
Accession#	219603 Name in Records Gold Ornaments: 2 Circular, 1				
Collector	BAE, Stirling and Willey Date Collected 1948				
Donor	Bureau Of American Date Accessioned				
Cultural ID	Prehistoric Period Site extends from Late Cocle phase				
	Panama, Herrera Province, El Hatillo, Site He-4 Accession Info Found accession docs in NMNH Hardcopy files				
Catalogue Info	Pallatha, Herrera Province, Errhaulio, oite ne-4				
Research Notes	Find 381: Mound VII, Trench 7, depth 4.7-5m. north 2.7m, East profile. The unit contained a few fragments References Site Report: Ladd (1968) Archaeological investigations into the Parita and Santa Maria Zones.				
Technical Exami	ination Examination ☑ Visual ☑ Microscopy ☐ MicroPhoto ☐ Other Exam Operator ACH				
	tion Round hammered disk with two punched holes at the top. Punched from front (numbered side) to back with large burrs still remaining				
Descrip	ition pround nammered disk with two punched noies at the top. Punched from front (numbered side) to back with large burns still remaining on back. No other obvious decoration.				
Measureme	ents				
	Length: Width: Height: Diam.: Thickness: Weight:				
Condition/Treatment No	Good condition. Scratches and abrasion on surface. There is a brown waxy accretion present in several locations and specifically on				
	the front (numbered) side corresponding to at least 10 circular depressions. There is a hard white accretion on the back, especially				
	around the punched holes.				
Corros					
Corrosion no	tes				
Primary Fabrica	tion ☐ Cast- Open Back ☐ Cast- Solid ☐ Hammered-Sheathing ☐ Other/Unknown ☐ Cast- Closed Core ☑ Hammered-Sheet ☐ Wire/Rod				
Fabrication No					
. abridation in	corrosion				
Mat	erial Copper 🗷 Gold Alloy Coganic Resin Stone Shell Composite Unknown Not present Other				
Material No	otes Likely high purity gold				
Surface Colors	tion Coppery Gold Reddish Pinkish Mixed Other				
Coloration No					
Finis					
Finishing No	otes relatively shiny on both sides				
Decorative de	tails All cast Embossed Incised Chased Filigree Granulation Punched Other				
Decorative detail no					
	nery All cast Mechanical Solder Other/Unknown				
Joinery No					
Usewear/toolm					
Usewear/toolmarks No					
Pseudomor					
Analysis r	ec's ☑ XRF ☐ X-ray radiograph ☑ ESEM-EDS ☐ PIXE ☐ LA-ICPMS ☐ Metallography ☐ Other				
Analysis Rec N	otes				
	☐ Special ☒ Followup ☒ Re-do ☐ Conservation required ☐ Re-packaging required ☐ Other				
Analysis #1	Type XRF Analysis Operator ACH Analysis Date 12/3/2009 IIII Reliability Good				
Spenish and American	sis Opposite of # ,Center Analysis location notes Sound metal				
Element Cu	Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed				
(%) 1.8	91.7 6.5 P, Pd Results				
Analysis #2	Type Analysis Operator Analysis Date Reliability				
Location of analy					
Element Cu (%)	Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed Results				
A. C. C. C.					



Pre-Columbian Gold in the Smithsonian Collections

Museum Conservation Institute

Museum/Object Info

Object/Catalogue #	A438144-c Owner NMNH Count 3 Curation Location MSC				
Object Class	Ornament Object Sub-Class Disk				
Country	Panama Province Herrera Area				
Site	El Hatillo, Site He-4 Geographic Zone Azuero Peninsula-Parita Style				
Provenience	☑ Field Notes ☐ Accession docs/letters ☐ Stylistic ☐ Other				
Documentation	☑ Publication ☐ Inferred ☐ None				
Accession #	219603 Name in Records Gold Ornaments: 2 Circular, 1				
Collector	BAE, Stirling and Willey Date Collected 1948				
Donor	Bureau Of American Date Accessioned				
Cultural ID	Prehistoric Period Site extends from Late Cocle phase				
Catalogue Info	Panama, Herrera Province, El Hatillo, Site He-4 Accession Info Found accession docs in NMNH Hardcopy files				
	Find 381: Mound VII, Trench 7, depth 4.7-5m. north 2.7m. East profile. The unit contained a few fragments References Site Report: Ladd (1968) Archaeological investigations into the Parita and Santa Maria Zones.				
	ination Examination ☑ Visual ☑ Microscopy ☐ MicroPhoto ☐ Other Exam Operator ACH				
Descrip					
	large burrs still remaining on back (numbered side). No other decoration.				
200					
Measureme					
12X 100101 1021 1101 111010	Length: Width: Height: Diam.: Thickness: Weight:				
Condition/Treatment No	otes Good condition. There are a couple very small waxy brown accretions on the surface.				
Corros	ion ☑ None ☐ Green-Surface ☐ Green-Core ☐ Black-Surface ☐ Black-Core ☐ Red-Surface ☐ Red-Core ☐ Other				
Corrosion no	tes				
Primary Fabrica	tion Cast- Open Back Cast- Solid Hammered-Sheathing Other/Unknown				
	☐ Cast- Closed Core ☑ Hammered-Sheet ☐ Wire/Rod				
Fabrication No	The state of the s				
Met	corrosion				
	erial Copper Gold Alloy Organic Resin Stone Shell Composite Unknown Not present Other				
Material No	otes Cikely high punky gold				
Surface Colora	tion ☐ Coppery ☑ Gold ☐ Reddish ☐ Pinkish ☐ Mixed ☐ Other				
Coloration No					
Finish	hing Surface Enrichment Polished None Other				
Finishing No	otes relatively shiny on both sides				
Decorative de	tails All cast Embossed Incised Chased Filigree Granulation Punched Other				
Decorative detail no					
	nery All cast Mechanical Solder Other/Unknown				
Joinery No					
5.3					
Usewear/toolma Usewear/toolmarks No					
Pseudomor	The state of the s				
Analysis re					
Analysis Rec No					
	☐ Special ☒ Followup ☒ Re-do ☐ Conservation required ☐ Re-packaging required ☐ Other				
Analysis #1					
	Type XRF Analysis Operator ACH Analysis Date 12/3/2009 EE Reliability Good sis Opposite of # ,Center Analysis location notes Sound metal				
Element Cu	Arranysis location notes Sound metal				
(%) 1.8	91.7 6.5 P, Pd Results				
Analysis #2	Type Analysis Operator Analysis Date Reliability				
Location of analy	sis Analysis location notes				
Element Cu	Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed				
(%)	Results				



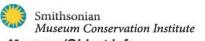
Museum/Object I	Info								mmmomm	m concentrals
Object/Catalogue #	A74673-0	Owner NMI			Curation Locat	ion MS	SC	35461		
Object Class	Pendant	ndant Object Sub-Class Zoo-Bird								
		Province Chiriqu		Are						
Site Provenience	No info		ic Zone VGC			yle			₩ ■	
Documentation	☐ Field Notes ☑ Publication			☐ Non					1	
Accession #	013654		Name in Re		Gold Ornament, B	ird		Distriction of the last of the		272712727
Collector	J.A.Mcniel		Date Col							
Donor	Mcniel, J. A.; t	through Agents J	7		1883			in this	Laboration com	Translation in the
Cultural ID	Danama Ohio	levi Objetevi		Period	Accession Info	Callag	cted by McNiel	hu 1002		
Catalogue Info	Panama, Chir									6-4-1 Ab-
Research Notes		on McNiel excava example shown			References			of Chiriqui" Bure		letals among the an Ethnology
Technical Exami					☐ MicroPhoto [erator ACH		11/21/2008
Descrip	Small ope	en back cast bird either side of hea	pendant with sid, fleshy protru	single s	suspension loop in om top of beak, ar	back of	f neck, hemisp ed hooked beak	herical body with	n projecting fe d tail are thin	et, ball in ring and flat.
Measureme										
Measureme	Length:	T Iw	idth:	Heig	aht:	Diam.:	Тн	nickness:	Weight:	
Condition/Treatment No					black interior, but	_				n PL side of tail.
	Most of g	old surface is sti	Il present but a	ppears	to have undergon	e interd	dendritic corros	ion as a dendriti	c pattern is pr	resent over all
Corros					Light brown and o					
Corrosion no		Green-Sun	ace 🔲 Green	i-core	□ Black-Sulface		iack-cole 🔟	Neu-Surface L	1 Ked-Cole	Other
Primary Fabrica	ation 🛛 Cast-		Cast- Solid		☐ Hammered-Sh	eathing	☐ Other/Un	known		
Fabrication N		Closed Core					itted from cost	in m		
Fabrication No			800 I I M. 1.777 1		or of open back ap					
	erial Coppe	er 🛛 Gold Allo	y Organic	□ Re	esin LI Stone L	Shell	☐ Composit	te 🗌 Unknown	☐ Not pres	sent Other
Material No	1000000	FI	1 🗖							
Surface Colora		ery 🛛 Gold 🗆	Reddish	Pinkis	h Mixed	Other				
Coloration No		ce Enrichment	□ Polished □	7 None	e 🛛 Other	-				
					ss section and a g	old surf	face laver how	ever the surface	e laver has ex	tensive
	interdend	Iritic corrosion ar	nd dendrites vis	sible- w	hich could indicate ased Filigree	that th	ere was no ext	ensive finishina	Could be nat	ural segregation
Decorative detail no			u 🗀 moiseu		ased Eligico		andiation 🗀	Tunonea 🗀 o	alor	
		st Mechanic	al D Solder	По	her/Unknown					
Joinery No										
Usewear/toolm			□ Scratches	s П ғ	Burr(s)	па П	Incised Co	ore/Investment	Other	
Usewear/toolmarks No										
Pseudomor		udomorph 🗆 C	rganics 🛛 N	one [Other Notes					
Analysis r					PIXE LA	-ICPMS	S Metallog	graphy Othe	r	
Analysis Rec No	otes Dendrites	s are clear all ove	er surface. Tak	ke micr	ophotographs					
	Speci	al 🛛 Followup	⊠ Re-do □	Cons	servation required	☐ Re-	-packaging req	uired		
Analysis #1	Туре	XRF	Analysi	is Oper	ator ACH Ar	nalysi s [Date 12/4/200	9 IIII Reliabili	ty Good	
Location of analy	sis Reverse ,P	'R wing tip			Ana	lysis loc	cation notes So	ound metal		
Element Cu (%) 13.5	Au Ag 82.6 3.9	Zn Cd A	s Ni Fe	Sn	Sb Hg	Pb	Bi Trace	Removed Zr, Pd, Res	ults	
Analysis #2	Тур	e XRF	Analys	sis Ope			Date 12/4/200		lity	
Location of analy	100 Village 100 100 100 100 100 100 100 100 100 10	and the second of the second	ped waste cold	-Co - Manual Pri			cation notes S			
Element Cu (%) 14.7	Au Ag 81.2 3.8	Zn Cd A	s Ni Fe		Sb Hg	Pb	Bi Trace	Removed Res	ults	



Pre-Columbian Gold in the Smithsonian Collections

Museum/Object Info

museum/Object							
Object/Catalogue #	A74673-1 Owner NMNH Count 1 Curation Location MSC	(P40)					
Object Class	Pendant Object Sub-Class Zoo-Bird						
Country	Panama Province Chiriqui Area						
Site	No info Geographic Zone VGC Style	-1-2					
Provenience Documentation	Field Notes Accession docs/letters Stylistic Other Publication Inferred None						
Accession #	013654 Name in Records Gold Ornament, Frog						
Collector	J.A.Mcniel Date Collected	2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1					
Donor	Mcniel, J. A.; through Agents J. Date Accessioned 1883	<u> </u>					
Cultural ID	Period	N 1986 1983 1861 1813 1					
Catalogue Info	Panama, Chiriqui, Chiriqui Accession Info Collected by McNiel	by 1883					
Research Notes	Find info on McNiel excavations References						
Technical Exami	ination Examination ☒ Visual ☒ Microscopy ☐ MicroPhoto ☐ Other Exam Op	perator ACH Exam date 11/25/2008					
Descrip	otion Small solid cast bird pendant with single suspension loop on back, large flat headdress,	closed hooked beak, and ball eyes.					
Measureme	ents						
	Length: Width: Height: Diam.: Th	nickness: Weight:					
Condition/Treatment No		ples as the break edges are fairly regular and					
	straight. There is also a small amount of loss at the PR tip of headdress and PR tail wh	ich are smaller and less regular. There is a					
Corros	small gouge in the front of the PL shoulder that has developed some black corrosion. A sion □ None □ Green-Surface □ Green-Core □ Black-Surface ☑ Black-Core □						
Corrosion no							
Primary Fabrica							
, many rability	Cast- Closed Core Hammered-Sheet Wire/Rod	KIIOWII					
Fabrication No	Dendrites visible on all surfaces, indicating casting with no further working						
Mate	erial Copper Gold Alloy Corganic Resin Stone Shell Composit	te 🗌 Unknown 🔲 Not present 🔲 Other					
Material No	There is both coppery and gold colored areas as well as some black corrosion.						
Surface Colora	ition ☑ Coppery ☐ Gold ☐ Reddish ☑ Pinkish ☐ Mixed ☐ Other						
Coloration No							
Finisl	hing Surface Enrichment Polished None Other						
Finishing No	otes No surface finishing as there are dendrites visible on all surfaces and no evidence of a	deteriorated surface layer.					
Decorative de	tails All cast	The state of the s					
Decorative detail no	otes All done in wax model						
	nery All cast Mechanical Solder Other/Unknown						
Joinery No	otes All done in wax model						
Usewear/toolmarks Abrasion Rubbed Scratches Burr(s) Cracking Incised Core/Investment Other		ore/Investment					
Usewear/toolmarks No							
Pseudomor	2 reduction 2 organice 2 reduct reduct						
Analysis rec No							
7 that your New York	otes Definitely analyze by ESEM as it is small enough to fit in chamber, there are excellent c ☑ Special ☐ Followup ☐ Re-do ☐ Conservation required ☐ Re-packaging req						
Analysis #1							
	Type XRF Analysis Operator ACH Analysis Date 12/4/200 sis Reverse ,PR end of tail Analysis location notes Significant Analysis location notes Significant Analysis Increase An						
Element Cu		Removed					
(%) 17.7	77.9 4.4	Results					
Analysis #2	Type ESEM-EDS Analysis Operator ACH Analysis Date 5/29/200	9 IIII Reliability					
Location of analy		ome dirt present on surface					
Element Cu	Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace	Removed Some imaging of					
(%)		Results dendrites at crevice					



Museum/Object								
Object/Catalogue#	A74674-0 Owner NMNH Count 1 Curation Location MSC							
Object Class	Pendant Object Sub-Class Zoo-Frog							
Country	Panama Province Chiriqui Area							
Site Provenience	No info Geographic Zone VGC Style							
Documentation	☐ Field Notes ☑ Accession docs/letters ☐ Stylistic ☐ Other ☐ Publication ☐ Inferred ☐ None							
Accession #	013654 Name in Records Gold Ornament - Frog							
Collector	J.A.Mcniel Date Collected							
Donor	Mcniel, J. A.; through Agents J. Date Accessioned 1883							
Cultural ID	Period Period Published Pu							
Catalogue Info	Panama, Chiriqui, Chiriqui Accession Info Collected by McNiel by 1883							
Research Notes	Find info on McNiel excavations References							
Technical Exami	ination Examination ☑ Visual ☑ Microscopy ☐ MicroPhoto ☐ Other Exam Operator ☐ CH							
Descrip	Cast frog pendant with flat body, head, legs, and feet. Has cast wire double tongue with four double scrolls decorating the corners. Legs are diagonal points at top of feet. Feet are thin and flat. Single suspension loop at back top of head. Flattened ball eyes.							
Measureme	ents ents							
	Length: Width: Height: Diam.: Thickness: Weight:							
Condition/Treatment No								
	darkened substrate and bright copper in some areas of deeper scratches. The edges of the feet appear chipped and much of the PR foot is missing. Patches of brown accretion and green corrosion on surface. A star symbol is painted on back in white and red							
Corros								
Corrosion no	There are patches of light green to medium green corrosion on the surface and the break edges appear very dark							
Primary Fabrica								
Fabrication No	otes There is a slight depression in the back of the body, but it is not a typical open back casting as it is too flat. There is some evidence							
	of interdendritic corrosion at very corroded areas, and globs that could be casting flaws on the suspension loop.							
Mat	erial Copper Sold Alloy Organic Resin Stone Shell Composite Unknown Not present Other							
Material No	otes Green corrosion, traces of gold surface, shiny coppery metal visible in deep scratches							
Surface Colora	tion ☐ Coppery ☑ Gold ☐ Reddish ☐ Pinkish ☐ Mixed ☐ Other							
Coloration No								
Finis								
Finishing N	otes							
Decorative de	tails All cast Embossed Incised Chased Filigree Granulation Punched Other							
Decorative detail n	otes All done in wax model							
Join	nery All cast Mechanical Solder Other/Unknown							
Joinery No	otes All done in wax model							
Usewear/toolm Usewear/toolmarks No								
Pseudomoi	rphs ☐ Pseudomorph ☐ Organics ☒ None ☐ Other Notes ☐							
Analysis r								
Analysis Rec N	otes Very mineralized and overcleaning has removed surface layer							
5-	☐ Special ☐ Followup ☐ Re-do ☐ Conservation required ☐ Re-packaging required ☐ Other							
Analysis #1	Type XRF Analysis Operator ACH Analysis Date 12/4/2009 Reliability questionable accuracy							
Location of analy	sis Obverse ,Back, center Analysis location notes Black corrosion, surface worn							
Element Cu (%) 71.0	Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed V, Zn Results							
Analysis #2	Type Analysis Operator Analysis Date Reliability							
Location of analy	· · · · · · · · · · · · · · · · · · ·							
Element Cu (%)	Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed Results							



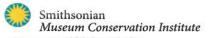
wuseum/Object						
Object/Catalogue #	A74675-0 Owner NMNH Count 1 Curation Location MSC					
Object Class	endant Object Sub-Class Zoo-crustacean					
Country	anama Province Chiriqui Area					
Site Provenience	No info Geographic Zone VGC Style					
Documentation	☐ Field Notes ☐ Accession docs/letters ☐ Stylistic ☐ Other ☐ Publication ☐ Inferred ☐ None					
Accession #	013654 Name in Records Gold Ornament - Frog					
Collector	J.A.Mcniel Date Collected					
Donor	Mcniel, J. A.; through Agents J. Date Accessioned 1883					
Cultural ID	Period					
Catalogue Info	Panama, Chiriqui, Chiriqui Accession Info Collected by McNiel by 1883					
Research Notes	Find info on McNiel excavations. Illustrated in Holmes 1887. Reference to Ancient Inhabitants of Chiriqui" Bureau of American Ethnology					
Technical Exami	ination Examination ☑ Visual ☑ Microscopy ☐ MicroPhoto ☐ Other Exam Operator ☐ CH ☐ Exam date ☐ 11/25/2008 ☐ ☐					
Descrip	open back zoomorphic pendant with curly double snout, double tongue of three wires and six decorative spirals on tongue. Ball in					
	ring eyes, double wire and ball decoration down back. No arms, two thin, flat wings and a thin flat tail (?) that extends out of the back/bottom of the body. A single suspension loop at top back of head.					
Measureme						
mododiom	Length: Width: Height: Diam.: Thickness: Weight:					
Condition/Treatment No						
	There are brown and black accretions on the surface and in the porous underside of the body. Light scratching of surface. Abrasion					
Corros	of some high points (eyes, balls on back, snout, suspension loop) has rubbed away gold surface revealing dark surface underneath					
Corrosion no	The second secon					
	There is a small amount of green contosion in patches on the surface and black accretions on the surface as well. The interior looks					
Primary Fabrica	ttion					
Fabrication No	otes Casting flaws and pitted porous surface underneath indicate casting. Thin wings and tail may have been hammered					
Mat	erial Copper Gold Alloy Organic Resin Stone Shell Composite Unknown Not present Other					
Material No	otes					
Surface Colora	tion ☐ Coppery ☑ Gold ☐ Reddish ☐ Pinkish ☐ Mixed ☐ Other					
Coloration No	otes					
Finis	hing Surface Enrichment Polished None Other					
Finishing N	otes high points, such as eyes, have worn away revealing black underneath					
	tails All cast Embossed Incised Chased Filigree Granulation Punched Other					
	otes All in wax model					
	nery All cast Mechanical Solder Other/Unknown					
Joinery No	otes All in wax model					
Usewear/toolm						
Usewear/toolmarks No						
Pseudomoi	2 restate in pin 2 organice 2 rene 2 other reces					
Analysis r Analysis Rec N						
Allalysis Rec N						
Analysis #4	☐ Special ☐ Followup ☐ Re-do ☐ Conservation required ☐ Re-packaging required ☐ Other					
Analysis #1	Type XRF Analysis Operator ACH Analysis Date 12/4/2009 Reliability Good sis Reverse ,PR wing, middle Analysis location notes Sound metal					
30						
Element Cu (%) 39.0	Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed 56.6 4.4 Results					
Analysis #2	Type Analysis Operator Analysis Date Reliability					
Location of analy						
Element Cu	Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed					
(%)	Results					



Museum/Object							
Object/Catalogue #	A74677-0 Owner NMNH Count 1 Curation Location MSC						
Object Class	Pendant Object Sub-Class Zoo-Frog						
Country	anama Province Chiriqui Area						
Site Provenience	No info						
Documentation	☐ Field Notes ☐ Accession docs/letters ☐ Stylistic ☐ Other ☐ Publication ☐ Inferred ☐ None						
Accession #	013654 Name in Records Small Gold Frog.						
Collector	J.A.Mcniel Date Collected						
Donor	Mcniel, J. A.; through Agents J. Date Accessioned 1883						
Cultural ID	Period						
Catalogue Info	Panama, Chiriqui, Chiriqui Accession Info Collected by McNiel by 1883						
Research Notes	Illustrated in Holmes 1887. "The body and limbs are concave beneath, the metal being about one sixteenth Ancient Inhabitants of Chiriqui" Bureau of American Ethnology						
Technical Exami	nation Examination ☑ Visual ☑ Microscopy ☐ MicroPhoto ☐ Other Exam Operator ☐ CH ☐ Exam date ☐ 11/25/2008 ☐ ☐						
Descrip	tion Large open back cast frog pendant with bells for eyes, open mouth with cast wire teeth, Arms with suspension loops under hands bent legs above feet, and two large flat feet.						
Measureme	note .						
Weasurern	Length: Width: Height: Diam.: Thickness: Weight:						
Condition/Treatment No							
	off. There are light brown to dark brown accretions covering the surface. The PL foot has broken off and is retained separately. The						
Corros	PL foot is also broken in two and appears to be held together on a vellowed adhesive label with the object number written in black ink ion None Green-Surface Green-Core Black-Surface Black-Core Red-Core Other						
Corrosion no							
Primary Fabrica	tion 🛮 Cast- Open Back 🗎 Cast- Solid 🔝 Hammered-Sheathing 🔲 Other/Unknown						
Fabrication N	☐ Cast- Closed Core ☐ Hammered-Sheet ☐ Wire/Rod						
Fabrication No	otes						
Mat	erial Copper Gold Alloy Organic Resin Stone Shell Composite Unknown Not present Other						
Material No	otes Gold layer at surface but extensive copper corrosion						
Surface Colora	tion Coppery Gold Reddish Pinkish Mixed Other						
Coloration No	otes Where surface is visible, it appears gold						
Finis	ning Surface Enrichment ☐ Polished ☐ None ☐ Other						
Finishing N	otes						
Decorative de	☑ All cast ☐ Embossed ☐ Incised ☐ Chased ☐ Filigree ☐ Granulation ☐ Punched ☐ Other						
	otes All in wax model						
Join	nery 🛮 All cast 🔲 Mechanical 🔲 Solder 🔲 Other/Unknown						
Joinery N	otes All in wax model						
Usewear/toolm	arks Abrasion Rubbed Scratches Burr(s) Cracking Incised Core/Investment Other						
Usewear/toolmarks No							
Pseudomoi	phs Pseudomorph Organics None Other Notes						
Analysis r							
Analysis Rec N							
	☐ Special ☐ Followup ☐ Re-do ☒ Conservation required ☐ Re-packaging required ☒ Other						
Analysis #1	Type XRF Analysis Operator ACH Analysis Date 12/4/2009 EE Reliability questionable accuracy						
	sis Reverse ,PR foot, bottom center Analysis location notes Heavily corroded interior, surface enrichment						
Element Cu (%) 61.3	Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed 35.7 3.0 V, Zn, Results						
Analysis #2	Type Analysis Operator Analysis Date Reliability						
Location of analy							
Element Cu (%)	Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed Results						



museum/Object i	mo					
Object/Catalogue #	A74678-0 Owner NMNH Count 2 Curation Location MSC					
Object Class	endant Object Sub-Class Zoo-Frog					
Country	nama Province Chiriqui Area					
Site Provenience	No info Geographic Zone VGC Style					
Documentation	Field Notes ☒ Accession docs/letters ☐ Stylistic ☐ Other Publication ☐ Inferred ☐ None					
Accession #	013654 Name in Records Small Gold Frog					
Collector	J.A.Mcniel Date Collected					
Donor	Mcniel, J. A.; through Agents J. Date Accessioned 1883					
Cultural ID	Period null in line in					
Catalogue Info	Panama, Chiriqui, Chiriqui Accession Info Collected by McNiel by 1883					
Research Notes	"Mr. McNiel acknowledges that no single piece has been taken from the ground with his own hands" References Holmes 1887					
Technical Exami	nation Examination ☑ Visual ☑ Microscopy ☐ MicroPhoto ☐ Other Exam Operator ACH					
Descrip	tion Open back cast frog pendant with suspension loops for arms, cast wire lip, flat thin feet, and ovoid eyes (elongated balls)					
Measureme	nate .					
Weasureme	Length: Width: Height: Diam.: Thickness: Weight:					
Condition/Treatment No						
	, so so so so so so so so					
Corros						
Corrosion no	2 Note 2 decirocità di dicentocità di biackounte di Ned-Outage di Ned-Outage					
Primary Fabrica	tion					
Fabrication No	ctes Casting flaws and pits visible on interior of body					
Mate	erial Copper Gold Alloy Organic Resin Stone Shell Composite Unknown Not present Other					
Material No						
Surface Colora	tion Coppery Gold Reddish Pinkish Mixed Other					
Coloration No	otes					
Finisl	ning ☑ Surface Enrichment ☑ Polished ☐ None ☐ Other					
Finishing No	exterior is shiny gold while interior is more coppery					
Decorative de	tails All cast					
	otes All in wax model					
Joir	nery ☑ All cast ☐ Mechanical ☐ Solder ☐ Other/Unknown					
Joinery No	., -, -, -, -, -, -, -, -, -, -, -, -, -,					
Usewear/toolmarks No						
Pseudomor						
Analysis r						
Analysis Rec No						
	☐ Special ☐ Followup ☐ Re-do ☐ Conservation required ☐ Re-packaging required ☐ Other					
Analysis #1	Type XRF Analysis Operator ACH Analysis Date 12/4/2009 Acliability Good					
	sis Obverse ,Back (at butt) Analysis Operator Analysis Date 12/4/2009 [13:3] Reliability Good G					
Element Cu	Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed					
(%) 11.6	83.9 4.6 Results					
Analysis #2	Type ESEM-EDS Analysis Operator ACH Analysis Date 5/27/2009 ESEM Reliability					
Location of analy	sis Top edge of broken off foot Analysis location notes Coated in organic material so difficult to					
Element Cu	Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed Imaging shows					
(%)	Results surface porosity.					



Museum/Object I	
Object/Catalogue#	A74679-0 Owner NMNH Count 1 Curation Location MSC
Object Class	Pendant Object Sub-Class Zoo-Frog
Country	Panama Province Chiriqui Area
Site Provenience	No info Geographic Zone VGC Style
Documentation	☐ Field Notes ☑ Accession docs/letters ☐ Stylistic ☐ Other ☐ Publication ☐ Inferred ☐ None
Accession #	013654 Name in Records Small Gold Frog
Collector	J.A.Mcniel Date Collected
Donor	Mcniel, J. A.; through Agents J. Date Accessioned 1883
Cultural ID	Period Pe
Catalogue Info	Panama, Chiriqui, Chiriqui Accession Info Collected by McNiel by 1883
Research Notes	"Mr. McNiel acknowledges that no single piece has been taken from the ground with his own hands" References Holmes 1887
Technical Exami	ination Examination ☑ Visual ☑ Microscopy ☐ MicroPhoto ☐ Other Exam Operator ☐ CH ☐ Exam date 11/25/2008 []
Descrip	stion Small open back cast frog pendant with suspension loops for arms, large thin flat feet, elongated ball eyes (ovoid), and thin pointy legs above the feet.
Measureme	ents
modelini	Length: Width: Height: Diam.: Thickness: Weight:
Condition/Treatment No	
0	surface
Corros Corrosion no	
	Closs section shows black core. Our lace is covered in large parents of green corrosion
Filliary Fabrica	tition ☑ Cast- Open Back ☐ Cast- Solid ☐ Hammered-Sheathing ☐ Other/Unknown ☐ Cast- Closed Core ☐ Hammered-Sheet ☐ Wire/Rod
Fabrication No	otes
Mate	erial Copper Gold Alloy Organic Resin Stone Shell Composite Unknown Not present Other
Material No	Surface is gold, copper corrosion present
Surface Colora	tion 🗵 Coppery 🗵 Gold 🗌 Reddish 🔲 Pinkish 🔲 Mixed 🔲 Other
Coloration No	otes
Finish	hing Surface Enrichment Polished None Other
Finishing No	otes There is an enriched gold layer on the surface that is flaking off
	tails All cast Embossed Incised Chased Filigree Granulation Punched Other
	otes all in wax model
	nery All cast Mechanical Solder Other/Unknown
Joinery No	otes all in wax model
Usewear/toolmarks No	
Pseudomor	
Analysis r	
	otes Heavily mineralized
	☐ Special ☐ Followup ☐ Re-do ☐ Conservation required ☐ Re-packaging required ☐ Other
Analysis #1	Type XRF Analysis Operator ACH Analysis Date 12/4/2009 EEE Reliability
Location of analy	sis Reverse ,PR foot, center Analysis location notes Area of surface enrichment where green
Element Cu (%) 53.9	Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed 43.3 2.7 V, Os Results
Analysis #2	Type Analysis Operator Analysis Date Reliability
Location of analy	
Element Cu (%)	Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed Results



Museum/Object I	into
Object/Catalogue #	A74680-0 Owner NMNH Count 1 Curation Location MSC
Object Class	Pendant Object Sub-Class Zoo-Frog
Country	Panama Province Chiriqui Area
Site	No info Geographic Zone VGC Style
Provenience Documentation	☐ Field Notes ☑ Accession docs/letters ☐ Stylistic ☐ Other
Documentation	□ Publication □ Inferred □ None
Accession #	013654 Name in Records Small Gold Frog
Collector	J.A.Mcniel Date Collected
Donor	Mcniel, J. A.; through Agents J. Date Accessioned 1883
Cultural ID	Period In this little with the second control of the second contro
Catalogue Info	Panama, Chiriqui, Chiriqui Accession Info Collected by McNiel by 1883
Danasah Natas	"Mr. McNiel acknowledges that no single piece has References Holmes 1887
Research Notes	been taken from the ground with his own hands"
Technical Exami	ination Examination Visual Microscopy MicroPhoto Other Exam Operator ACH Exam date 11/25/2008
Descrip	otion Open back cast frog pendant with ovoid eyes (elongated balls), cast wire lip, suspension loops for arms, pointed diagonal legs above
	feet, and large thin flat feet.
Measureme	
O diki /T t t NI	Length: Width: Height: Diam.: Thickness: Weight:
Condition/Treatment No	otes Missing PR foot, PL suspension loop, and tip of PR leg. PL foot is broken with three loose pieces currently joined by an adhesive label backing. There is also adhesive residue present on the break edges. There is deep scratching of the surface, especially along
	the back where the surface has been scratched off revealing a black substrate.
Corros	2 Note 2 Green Currace 2 Green Core 2 Black-Currace 2 Black-Core 1 New-Currace 2 Cities
Corrosion no	tes There is green corrosion over most of the surface and the break edges reveal a black corroded core
Primary Fabrica	
	☐ Cast- Closed Core ☐ Hammered-Sheet ☐ Wire/Rod
Fabrication No	otes
Mat	erial ☐ Copper ☒ Gold Alloy ☐ Organic ☐ Resin ☐ Stone ☐ Shell ☐ Composite ☐ Unknown ☐ Not present ☐ Other
Material No	otes The same appears emerica while the interior is black
Surface Colora	Zeepper, Zeete Zeetette Zeetette
Coloration No	
Finisl	
Finishing No	otes
Decorative de	tails 🛮 All cast 🔻 Embossed 🗬 Incised 🗬 Chased 🖨 Filigree 🗬 Granulation 🗬 Punched 🖨 Other
	otes all in wax model
	nery 🛮 All cast 🔲 Mechanical 🔲 Solder 🔲 Other/Unknown
Joinery No	
Usewear/toolm	
Usewear/toolmarks No	
Pseudomor	
Analysis r	
Analysis Rec No	
	☐ Special ☐ Followup ☐ Re-do ☐ Conservation required ☐ Re-packaging required ☐ Other
Analysis #1	Type XRF Analysis Operator ACH Analysis Date 12/4/2009 EIII Reliability questionable accuracy
	sis Gold side ,Loose frag, center Analysis Date 12/4/2009 1 Reliability Iquestionable accuracy Analysis location notes Corroded interior, surface enrichment
Element Cu	Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed
(%) 54.8	42.7 2.6 Rb, Zr, Results
Analysis #2	Type Analysis Operator Analysis Date Reliability
Location of analy	
Element Cu	Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed
(%)	Results



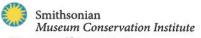
Museum/Object	Info		· 1	31	munsonu	in Confections
Object/Catalogue #	A7	4681-0 Owner NMNH Count 1 Curation Location	I SC	APRIL APRIL		
Object Class	Pend					
Country	Pana	ma Province Chiriqui Area			4	
Site	No ii	fo Geographic Zone VGC Style		_ f 80		
Provenience Documentation		leld Notes Accession docs/letters Stylistic Other Uniformed None		4		
Accession#	0136	54 Name in Records Small Gold Frog		1101110		*13******
Collector		Acniel Date Collected				
Donor	Mcn	el, J. A.; through Agents J. Date Accessioned 1883		manimi mi m	dud n no	The state of the s
Cultural ID		Period			111111	
Catalogue Info	Pana	ma, Chiriqui, Chiriqui Accession Info Colle	ected by McNiel I	oy 1883		
Research Notes		McNiel acknowledges that no single piece has taken from the ground with his own hands" References Holn	mes 1887			
Technical Exam	inati	on Examination ☑ Visual ☑ Microscopy ☐ MicroPhoto ☐ Oth	ner Exam Ope	erator ACH	Exam date	11/25/2008
Descrip	ption	Open back cast frog pendant with bent legs and large flat feet				
Measurem	ents					
		Length: Width: Height: Diam.	. Th	ickness:	Weight:	
Condition/Treatment N	lotes	Fragmentary.The whole front portion of the pendant is missing. PR leg attached to the body by two yellowed adhesive label backings. 3 frags of yellowed adhesive along break edges and on the adhesive label.Gold s	of foot and the leg surface is scratch	g are packaged s ed and complete	rous fragme eparately in ly abraded o	bag. There is n part of back
Corros	ce construe 1	□ None ☑ Green-Surface □ Green-Core □ Black-Surface ☒			Red-Core	Other
Corrosion no	otes	The interior appears black and completely mineralized. There is green	corrosion over th	ne surface.		
Primary Fabrica	ation	Zast- Open Back	ng Other/Unk	known		
Fabrication N	lotes					
Material N		☐ Copper ☑ Gold Alloy ☐ Organic ☐ Resin ☐ Stone ☐ She The surface appears gold while the interior is black and completely min		e Unknown	☐ Not pre	sent Other
Surface Colora		□ Coppery ☑ Gold □ Reddish □ Pinkish □ Mixed □ Other				
Coloration N	lotes	Where the surface is still present, it appears gold				
Finis	shing	Surface Enrichment ☐ Polished ☐ None ☐ Other				
Finishing N						
Decorative de	etails		Granulation	Punched Ott	her	
Decorative detail n						
Joi		☑ All cast ☐ Mechanical ☐ Solder ☐ Other/Unknown				
Joinery N	lotes	all in wax model				
Usewear/toolm Usewear/toolmarks N		☐ Abrasion ☐ Rubbed ☐ Scratches ☐ Burr(s) ☐ Cracking ☐	☐ Incised ☐ Co	ore/Investment	Other	1
Pseudomo	orphs	☐ Pseudomorph ☐ Organics ☒ None ☐ Other Notes ☐		74 1 1		
Analysis i	rec's	XRF	MS Metallog	raphy Other		
Analysis Rec N		Almost entirely mineralized except for surface enrichment				
		☐ Special ☐ Followup ☐ Re-do ☐ Conservation required ☐ R	Re-packaging req	uired 🔲 Other		
Analysis #1		Type XRF Analysis Operator ACH Analysis	s Date 12/4/2009	Reliability	, [
Location of analy	ysis C		location notes Co			hment
Element Cu (%) 45.3	Au	Ag Zn Cd As Ni Fe Sn Sb Hg Pb	Bi Trace F	Removed Resu	Its	
Analysis #2	_	Type Analysis Operator Analysis		Reliabili	ty	
Location of analy			location notes	Domoura d		
Element Cu	ار Au	Ag Zn Cd As Ni Fe Sn Sb Hg Pb	Bi Trace F	Removed Resu	lts	

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Museum/Object	
Object/Catalogue #	A138484-0 Owner NMNH Count 1 Curation Location MSC
Object Class	Pendant Object Sub-Class Anthro
Country	Panama Province Chiriqui Area
Site	North Granada, Geographic Zone VGC Style
Provenience Documentation	☐ Field Notes ☐ Accession docs/letters ☐ Stylistic ☐ Other ☐ Publication ☐ Inferred ☐ None
Accession #	
Collector	Name in Records Galvano-Plastic Cast Of Gold Image. Rau, C Date Collected
Donor	Rau, Charles; 1887-Dec-10; Date Accessioned 1887
Cultural ID	Period Period
Catalogue Info	Panama, Chiriqui, North Granada, Huaca Accession Info Found on one of the "Huacas" of Chiriqui, N. Granada, panama.
Research Notes	Brought to New York in 1859 References
Technical Exami	ination Examination ☑ Visual ☑ Microscopy ☐ MicroPhoto ☐ Other Exam Operator ACH
	otion Glavano-plastic cast of pendant with anthropomorphic figure represented. Reproduction of original from Chiriqui. Open back cast
2000p	Service process sack of portional warrant in process from the process from the finite and the process of the pr
22	
Measureme	
Condition/Treatment No	Length: Width: Height: Diam.: Thickness: Weight: otes Good condition - Reproduction
Condition/Treatment No	Jes Good Condition - Reproduction
Corros Corrosion no	2 Hollo 2 doctributado 2 dicerrodo 2 black durido 2 black doctributado 2 hod doctributado 2 hod doctributado 2
Primary Fabrica	ation
Fabrication No	
	erial Copper Gold Alloy Organic Resin Stone Shell Composite Unknown Not present Other
Material No	
Surface Colora	
Coloration No	
Finish Finish	
Finishing No	
	etails All cast Embossed Incised Chased Filigree Granulation Punched Other
Decorative detail no	
	nery All cast Mechanical Solder Other/Unknown
Joinery No	
Usewear/toolm	
Usewear/toolmarks No Pseudomor	SEC. 1992
Analysis r	
Analysis Rec N	
,	☐ Special ☐ Followup ☐ Re-do ☐ Conservation required ☐ Re-packaging required ☐ Other
Analysis #1	Type XRF Analysis Operator ACH Analysis Date 12/2/2009 EIII Reliability
Proposition and Community	rsis Obverse ,Face Analysis Operator Analysis Date 12/2/2009 [132] Reliability Analysis location notes Reliability Analysis location notes
Element Cu	Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed
(%) 78.7	20.8 0.5 Results
Analysis #2	Type XRF Analysis Operator ACH Analysis Date 12/2/2008 E Reliability
Location of analy	rsis Obverse, PL plume on head Analysis location notes Electroplated surface (fake)
Element Cu	Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed
(%) 16.1	4.6 0.3 Ca Results Ca. 3.1% detected



Museum/Object	Info	
Object/Catalogue #	A287171-0 Owner NMNH Count 1 Curation Location MSC	13/7177
Object Class	Pendant Object Sub-Class Zoo-Bird	
Country	Panama Province Chiriqui Area South Of Boundary Of Costa Rica	
Site Provenience	Geographic Zone VGC-Pacific Style	
Documentation	☐ Field Notes ☐ Accession docs/letters ☐ Stylistic ☐ Other ☐ Publication ☐ Inferred ☐ None	
Accession #	058333 Name in Records Gold Bird Image.	Production of the State of the
Collector	C.H.Soar Date Collected	
Donor	Soar, Charles Henry; 1915; Date Accessioned 1915	tomorphism of a studential and a second
Cultural ID	Period	
Catalogue Info	Costa Rica. province of Panama,	of gold and two of copper gilt) from Chiriqui, South of boundary of Costa Rica. Purchased
Research Notes	Museum purchased from Henry Soar in 1915. No reference to who excavated them. Cannot yet find	74
Technical Exam		erator ACH Exam date 10/31/2008
Descrip		
Measurem	ents Dimensions: 1 3/8" length, 2 3/8" width of wings	
	Length: 1 3/8" Width: 2 3/8" Height: Diam.: Th	nickness: Weight:
Condition/Treatment N	otes Small section missing from back suspension loop. Appears to have been sectioned/san	npled. No corrosion.
Corros	sion ☑ None ☐ Green-Surface ☐ Green-Core ☐ Black-Surface ☐ Black-Core ☐	Red-Surface Red-Core Other
Corrosion no	No corrosion	
Primary Fabrica	ation	known
Fabrication N	otes The back is not completely open, but has small indentations. Porous surface from casti Asymmetrical- may be casting flaw	ing and general distribution of pits.
Mat	terial Copper Gold Alloy Organic Resin Stone Shell Composit	e 🔲 Unknown 🔲 Not present 🔲 Other
Material N		
Surface Colora		
Coloration N		exterior.
	thing ☐ Surface Enrichment ☒ Polished ☐ None ☐ Other	
	Shiny, compact surface	
	etails All cast Embossed Incised Chased Filigree Granulation	Punched Other
Decorative detail n	20050800	
	nery 🗵 All cast 🗌 Mechanical 🔲 Solder 🔲 Other/Unknown	
Joinery N	The state of the s	
Usewear/toolm		ore/Investment Other
Usewear/toolmarks N		
Pseudomo		Поч
Analysis I		graphy Dther
Allalysis Nec N	Cross section revealed at back would be ideal for analysis by SEM. ☐ Special ☐ Followup ☐ Re-do ☐ Conservation required ☐ Re-packaging req	usired
Amelyaia #4		
Analysis #1	Type XRF Analysis Operator ACH Analysis Date 12/2/2009 Analysis Reverse ,PR wing tip Analysis location notes So	
		Removed
(%) 20.6		Results
Analysis #2	Type XRF Analysis Operator ACH Analysis Date 12/2/2009	9 IIII Reliability
Location of analy	ysis Reverse ,Suspension loop/nub Analysis location notes S	ound metal
Element Cu	Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace 1	Removed Results
(%) [21.9	100.0 17.0 1	11 1.000.00



Museum/	Object	Info
MINGOCHIII	001000	

museum/Object	lite at
Object/Catalogue #	A287172-0 Owner NMNH Count 1 Curation Location MSC
Object Class	Pendant Object Sub-Class Anthro
Country	Panama Province Chiriqui Area South Of Boundary Of Costa Rica
Site Provenience	Geographic Zone VGC-Pacific Style
Documentation	☐ Field Notes ☑ Accession docs/letters ☐ Stylistic ☐ Other ☐ Publication ☐ Inferred ☐ None
Accession #	058333 Name in Records Gold Plated Copper Images. Two
Collector	C.H.Soar Date Collected
Donor	Soar, Charles Henry; 1915; Date Accessioned 1915
Cultural ID	Period Pe
Catalogue Info	Panama, Chiriqui, South Of Boundary Of Costa Rica. Accession Info Accession Info Accession Info But Info Accession Info But Info B
Research Notes	Museum purchased from Henry Soar in 1915. No reference to who excavated them. Cannot yet find
Technical Exami	ination Examination Visual Microscopy MicroPhoto Other Exam Operator ACH Exam date 11/10/2008
Descrip	open back cast anthropomorphic pendant with 2 anthropomorphic figures with cast wire/scroll work decoration. 2 suspension rings on back
Measureme	ents
	Length: 3" Width: 2 1/2" Height: Diam.: Thickness: Weight:
Condition/Treatment No	many areas broken off. Fragile. Medium green to emerald green corrosion. Interior metal appears mineralized in places (bottom proper right corner has black interior). Appears to have been cleaned and the corrosion removed in the past as there are holes where heavy mineralization may have been removed.
Corros	
Corrosion no	
Primary Fabrica	ttion
Fabrication No	Open back cast. Porous, pitted surface on back from casting. Some facets visible on the flat section at the bottom could possibly be from hammering (see photo)
Mate	erial Copper Gold Alloy Organic Resin Stone Shell Composite Unknown Not present Other
Material No	Coppery interior and gold exterior with small amount of green corrosion present. Some abrasion on the gold surface reveals more
Surface Colora	coppery surface underneath. tion
Coloration No	
	hing Surface Enrichment Polished None Other
	otes The front surface appears burnished and has some regular, unidirectional striations. The back is less compact. Some abrasion on the gold surface reveals more coppery surface underneath and break edges show mineralization at core but not surface.
Decorative de	tails All cast Embossed Incised Chased Filigree Granulation Punched Other
Decorative detail no	otes
Joir	nery All cast Mechanical Solder Other/Unknown
Joinery No	otes No evidence of joinery outside of wax model
Usewear/toolm	arks ☐ Abrasion ☐ Rubbed ☒ Scratches ☐ Burr(s) ☐ Cracking ☐ Incised ☐ Core/Investment ☐ Other
Usewear/toolmarks No	
Pseudomor	- Later and the control of the contr
Analysis r	
Analysis Rec No	The date of the desired of the desir
A 1 1 . #4	☐ Special ☐ Followup ☐ Re-do ☐ Conservation required ☐ Re-packaging required ☐ Other
Analysis #1	Type XRF Analysis Operator ACH Analysis Date 12/2/2009 Reliability good
The property of the property o	sis Reverse ,PR side of bottom band Analysis location notes Gold surface Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed
Element Cu (%) 20.4	Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed 74.1 5.5 Os Results
Analysis #2	Type XRF Analysis Operator ACH Analysis Date 12/2/2009 IIII Reliability
Location of analy	sis Obverse ,Top PR loop Analysis location notes Coppery colored surface (enriched layer
Element Cu	Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed
(%) 19.0	75.5 5.4 Results



wuseum/Object	
Object/Catalogue #	A287173-0 Owner NMNH Count 1 Curation Location MSC
Object Class	Pendant Object Sub-Class Anthro
Country	Panama Province Chiriqui Area South Of Boundary Of Costa Rica
Site	Geographic Zone VGC-Pacific Style
Provenience Documentation	☐ Field Notes ☑ Accession docs/letters ☐ Stylistic ☐ Other ☐ Publication ☐ Inferred ☐ None
Documentation	<u> </u>
Accession #	058333 Name in Records Gold Plated Copper Image.
Collector	C.H.Soar Date Collected
Donor	Soar, Charles Henry; 1915; Date Accessioned 1915
Cultural ID	Period
Catalogue Info	Panama, Chiriqui, South Of Boundary Of Costa Rica. Accession Info 3 metal objects (one of gold and two of copper gilt) from Chiriqui, Winged figure with wire scroll work. L: 3 3/8" Width: 4
122 0 000000	
Research Notes	Museum purchased from Henry Soar in 1915. No reference to who excavated them. Cannot yet find
Technical Exami	ination Examination ☑ Visual ☑ Microscopy ☐ MicroPhoto ☐ Other Exam Operator ACH
Descrip	
	is coppery. There is some visible porosity and pits from casting. A suspension loop is present in the open back and there is a lump
	that may be a casting flaw
Measureme	
	Length: 3 3/8" Width: 4 1/2" Height: Diam.: Thickness: Weight:
Condition/Treatment No	Object is whole but there is evidence of cracking and corrosion in several locations. A large crack is visible through the "wings" near the head of the pendant. Surfaces are heavily scratched, revealing in some areas the copper colored alloy below. Adhesive-like
	material visible at attachment of elbows to body and in crack of headress at back
Corros	
Corrosion no	
Primary Fahrica	ation ☑ Cast- Open Back ☐ Cast- Solid ☐ Hammered-Sheathing ☐ Other/Unknown
1 mary 1 donoc	☐ Cast- Closed Core ☐ Hammered-Sheet ☐ Wire/Rod
Fabrication No	otes Open back cast. All details done in mold. porosity and pitting from casting is visible on surface. Casting flaw in back and at bottom,
	perhaps due to pour from top. The thin band at the top may be hammered but there are not obvious marks
Mat	erial Copper Gold Alloy Organic Resin Stone Shell Composite Unknown Not present Other
Material No	
Surface Colora	corrosion Coppery
Coloration N	
Finis	
Finishing N	otes Gold surface appears compact and shiny, likely burnished.
\(\text{\tint{\text{\tint{\text{\tin}\text{\text{\text{\text{\text{\text{\text{\text{\text{\ti}\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\tin\text{\texi}\tin}\tint{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\ti}\text{\text{\text{\text{\text{\texi}\text{\text{\text{\text{\text{\text{\text{\text{\texi}\text{\text{\texi}\text{\text{\text{\text{\text{\text{\text{\texi}\text{\texit{\text{\tex{	
Decorative de	tails All cast Embossed Incised Chased Filigree Granulation Punched Other
Decorative detail n	
Joi	nery All cast Mechanical Solder Other/Unknown
Joinery N	otes No evidence of joinery outside of wax model
Usewear/toolm	arks Abrasion Rubbed Scratches Burr(s) Cracking Incised Core/Investment Other
Usewear/toolmarks No	otes Heavily scratched, perhaps from past polishing or cleaning. The raised surfaces appear more polished and rounded, likely from wear
Pseudomo	rphs Pseudomorph Organics None Other Notes
Analysis r	ec's XRF X-ray radiograph ☐ ESEM-EDS ☐ PIXE ☐ LA-ICPMS ☐ Metallography ☐ Other
Analysis Rec N	otes XRF: Analyze the sides of the wings, body, and suspension ring. Possible candidate for X-radiography as the flat headress/wings
	☐ Special ☐ Followup ☐ Re-do ☐ Conservation required ☐ Re-packaging required ☐ Other
Analysis #1	Type XRF Analysis Operator ACH Analysis Date 12/2/2009 EEE Reliability good
Location of analy	sis Reverse ,PR end of top band Analysis location notes Gold surface
Element Cu	Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed
(%) 33.6	60.0 6.4 Ar, Rb, Results
Analysis #2	Type XRF Analysis Operator ACH Analysis Date 12/2/2009 E Reliability good
Location of analy	rsis Reverse ,PL end of top band Analysis location notes Gold surface
Element Cu	Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed
	56.4 6.9 Ar, Rb, Results



Museum/0	Object Info
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museum/Object	
Object/Catalogue #	A382232-0 Owner NMNH Count 1 Curation Location MSC
Object Class	Pendant Object Sub-Class Zoo-Bird
Country	Panama Province Veraguas Area
Site Provenience	No info Geographic Zone VGC Style
Documentation	☐ Field Notes ☑ Accession docs/letters ☐ Stylistic ☐ Other ☐ Publication ☐ Inferred ☐ None
Accession #	159473 Name in Records Ornament - Eagle
Collector	Sr. Juan Gratacos Date Collected
Donor	Mason, J Alden; 1941-Mar-29; Date Accessioned 1941
Cultural ID	Period
Catalogue Info	Panama, Veraguas Province. Sheet metal, gold Accession Info Gold plated figurine ornaments from Prov. of Veraguas, Panama,
	Dlated. Eagle with outspread wings; round legs looped Collected y Sr. Juan Gratacos, Panama, and from him purchased Accession records specify "no info on site." Juan References Photo neg. no.34637 B
Research Notes	Accession records specify "no info on site." Juan Gratacos, however, did send Lothrop site info on References Photo neg. no.34637 B
Technical Exam	nation Examination ☑ Visual ☑ Microscopy ☐ MicroPhoto ☐ Other Exam Operator ACH
Descrip	
	likely from depletion gilding. Only the flat and raised surfaces appear burnished. Areas in depressions retain a porous, pitted quality
	from casting.
Measurem	
O	Length: 3 7/8" Width: 4 5/16" Height: Diam.: Thickness: Weight:
Condition/Treatment No	the depletion gilded surface is fragile and flaking severely. There are losses of the gold surface over most of the lower portion of the pendant. There are raised warts of green corrosion and the depressions on the reverse of the wing are full of green corrosion
	product. The metal revealed underneath the flaking surface appears heavily mineralized (dark red/black).
Corros	The District Control of District Control of Control
Corrosion no	There are raised warts of green corrosion and the depressions on the reverse of the wing are full of green corrosion product. The
Primary Fabrica	tion
Fabrication No	Open back casting. The depressions on the reverse of the pendant include the belly of the bird, head, and the small raised circles along the edges of the wings. A suspension loop is present in the depression on the back.
Mat	erial Copper Gold Alloy Organic Resin Stone Shell Composite Unknown Not present Other
Material No	The enriched surface appears gold.
Surface Colora	tion Coppery Gold Reddish Pinkish Mixed Other
Coloration N	tes The gold surface layer is flaking off, revealing a mineralized coppery substrate
Finis	ning Surface Enrichment Polished None Other
Finishing N	The outer surface is compact likely due to burnishing. Raised areas appear shiny/polished. The enriched gold surface is flaking of the black mineralized core
Decorative de	tails All cast Embossed Incised Chased Filigree Granulation Punched Other
Decorative detail n	The decoration may all have been done in the wax model (raised circles?).
Joi	nery 🛮 All cast 🔲 Mechanical 🔲 Solder 🔲 Other/Unknown
Joinery N	otes No evidence for joinery outside of casting
Usewear/toolm	arks Abrasion Rubbed Scratches Burr(s) Cracking Incised Core/Investment Other
Usewear/toolmarks N	otes Raised areas appear shiny/polished
Pseudomo	phs Pseudomorph Organics None Other Notes
	ec's XRF X-ray radiograph ESEM-EDS PIXE LA-ICPMS Metallography Other
Analysis Rec N	The surface is flaking and sampling of the gold layer for trace element analysis would be easy
0.	☐ Special ☐ Followup ☐ Re-do ☐ Conservation required ☐ Re-packaging required ☐ Other
Analysis #1	Type XRF Analysis Operator ACH Analysis Date 12/2/2009 E Reliability questionable accuracy
Location of analy	sis Reverse ,Body, narrowest point, center Analysis location notes Enriched layer with black interior showing
Element Cu (%) 42.3	Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed 54.3 3.4 Results
Analysis #2	Type XRF Analysis Operator ACH Analysis Date 12/2/2009 IIII Reliability
Location of analy	sis Obverse ,Tail at bottom edge (less Au) Analysis location notes Black surface
Element Cu	Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed
(%) 57.2	



Museum/Object l	Info Smithsonian Collections
Object/Catalogue #	A382233-0 Owner NMNH Count 1 Curation Location MSC
Object Class	Pendant Object Sub-Class Zoo-Bird
Country	Panama Province Veraguas Area
Site	No info Geographic Zone VGC Style Style
Provenience Documentation	☐ Field Notes ☑ Accession docs/letters ☐ Stylistic ☐ Other ☐ Publication ☐ Inferred ☐ None
Accession #	159473 Name in Records Ornament - Double Eagle
Collector	Sr. Juan Gratacos Date Collected
Donor	Mason, J Alden; 1941-Mar-29; Date Accessioned 1941
Cultural ID	Period
Catalogue Info	Panama, Veraguas Province. Upright on base bar; joined at shoulder. Protuberant eyes; wings probably Accession Info Gold plated figurine ornaments from Prov. of Veraguas, Panama, collected y Sr. Juan Gratacos, Panama, and from him purchased
Research Notes	Accession records specify "no info on site." Juan Gratacos, however, did send Lothrop site info on References Photo neg no. 34637B
Technical Exami	ination Examination ☑ Visual ☑ Microscopy ☐ MicroPhoto ☐ Other Exam Operator ACH
Descrip	
117	bars across open backs. Hooked, open beak. Globular pellet eyes with surrounding ring. Bodies are pyramidal shaped. Birds are
	joined by plain band where central wing would be. The combined tail is thin and flat.
Measureme	
	Length: Width: 2 3/4" Height: 2 1/8" Diam.: Thickness: Weight: Weight: Length: Thickness: Weight: Weight: Weight: Diam.: Thickness: Weight: Weight: Weight: Weight: Diam.: Diam.: Thickness: Weight: Weight: Diam.:
Condition/Treatment No	wings, and section of PR tail. Depletion gilding still intact except for small loss on PL body and tail that shows black substrate.
	Surface partially covered in green corrosion and powdery pink accretion. Appears brittle. Vertical crack through PL side of tail.
Corros	
Corrosion no	Also closs sections show himeralized black core. Surface partially covered in green corresion and powdery plint according
Primary Fabrica	tion ☑ Cast- Open Back ☐ Cast- Solid ☐ Hammered-Sheathing ☐ Other/Unknown ☐ Cast- Closed Core ☑ Hammered-Sheet ☐ Wire/Rod
Fabrication No	Open back cast. The thin band at the bottom may be hammered as the edges appear sharper and irregular
Mate	erial Copper Gold Alloy Corganic Resin Stone Shell Composite Unknown Not present Other
Material No	Surface is shiny gold while broken edges reveal mineralized interior. Green corrosion present indicating Cu alloy.
Surface Colora	tion Coppery Gold Reddish Pinkish Mixed Other
Coloration No	otes Surface appears gold with some green corrosion. Black is visible underneath surface and at broken edges
	ning Surface Enrichment Polished None Other
8	otes Surface appears polished/burnished as the front is shiny and smooth while the interior of the heads and bodies appear somewhat pitted and rough. Many small scratches in surface under corrosion may be result of polishing/burnishing.
Decorative de	tails All cast Embossed Incised Chased Filigree Granulation Punched Other
Decorative detail no	
	nery All cast Mechanical Solder Other/Unknown
Joinery No	
Usewear/toolm	
Usewear/toolmarks No	
Pseudomor	
Analysis r	
Analysis Rec No	That I fill also would all the con-
	☐ Special ☐ Followup ☐ Re-do ☐ Conservation required ☐ Re-packaging required ☐ Other
Analysis #1	Type XRF Analysis Operator ACH Analysis Date 12/1/2009 EE Reliability
	sis Reverse ,PR tail, far right end Analysis location notes Gold surface
Element Cu (%) 34.3	Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed 59.5 5.6
Analysis #2	Type XRF Analysis Operator ACH Analysis Date 12/1/2009 IIII Reliability
Location of analy	sis Obverse ,Center top of head fragment Analysis location notes Gold surface, some green
Element Cu (%) 19.5	Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed 71.7 8.5



Pre-Columbian Gold in the Smithsonian Collections

Museum Conservation Institute

Museum/Object Info

Object/Catalogue #	A382234-0 Owner NMNH Count 1 Curation Location MSC	
Object/Catalogue #	A382234-0 Owner NMNH Count 1 Curation Location MSC Pendant Object Sub-Class Zoo-Saurian-Alligator	
Object Class Country	Panama Province Veraguas Area	
Site	No info Geographic Zone VGC Style	
Provenience	☐ Field Notes ☒ Accession docs/letters ☐ Stylistic ☐ Other	
Documentation	□ Publication □ Inferred □ None	
Accession #	159473 Name in Records Ornament - Alligator	
Collector	Sr.Juan Gratacos Date Collected	
Donor	Mason, J Alden; 1941-Mar-29; Date Accessioned 1941	117
Cultural ID	Period	
Catalogue Info		rnaments from Prov. of Veraguas, Panama, iratacos, Panama, and from him purchased
Research Notes	Accession records specify "no info on site." Juan Gratacos, however, did send Lothrop site info on	
Technical Exam		rator ACH Exam date 11/5/2008
Descri	Open back cast crocodile pendant with upturned tube snout and scroll work dorsal spines and cast whole. Suspension loops at two front feet. The surface appears enriched as it	
	visible at the broken edges is highly mineralized or gone, leaving small hollow pockets (m	
Measurem	nents L: 3 5/8" W: 2 7/16"	
	Length: 3 5/8" Width: 2 7/16" Height: Diam.: Thick	ckness: Weight:
Condition/Treatment N	intact. Interior alloy is severely corroded, exhibiting black corrosion on interior. Some cr red/black surrounding corrosion and enriched gold layer on surface. Several large cracks	ross sections reveal bright green center with - esp. at proper left back foot (very fragile)
Corro	The desired and de	
Corrosion no	Some cross sections reveal bright green center with red/black surrounding corrosion and	enriched gold layer on surface.
Primary Fabric	ation ☑ Cast- Open Back ☐ Cast- Solid ☐ Hammered-Sheathing ☐ Other/Unk ☐ Cast- Closed Core ☐ Hammered-Sheet ☐ Wire/Rod	nown
Fabrication N	Open back cast. Casting flaws present in head. Dendritic structure visible at interior of he	ead???
Ma	terial ☐ Copper ☑ Gold Alloy ☐ Organic ☐ Resin ☐ Stone ☐ Shell ☐ Composite	☐ Unknown ☐ Not present ☐ Other
Material N	lotes Surface is shiny gold with green corrosion present on top and mineralized alloy undernea	th (visible at cross sections) indicating Cu-
Surface Color	<u>alloy., likely depletion gilded tumbaga</u> ation ☐ Coppery ☑ Gold ☐ Reddish ☐ Pinkish ☐ Mixed ☐ Other	
Coloration N		t amount of shininess and coppery color in
	shing Surface Enrichment Polished None Other	t amount or oriminoss and coppery color in
Finishing N		lishing/burnishing. Scratches at surface
	underneath corrosion	
	etails All cast Embossed Incised Chased Filigree Granulation F	Punched 🛛 Other
Decorative detail r		
	inery All cast Mechanical Solder Other/Unknown	
Joinery N	lotes All in Cast	
Usewear/toolm	narks Abrasion Rubbed Scratches Burr(s) Cracking Incised Co	re/Investment
Usewear/toolmarks N	lotes Scratches at surface. Corrosion appears to have been reduced in past	
Pseudomo		
	rec's ☑ XRF ☐ X-ray radiograph ☐ ESEM-EDS ☐ PIXE ☐ LA-ICPMS ☐ Metallogr	
Analysis Rec N	Trime a very small place to present (good for sampling) the interior alley to extremely con	
	☐ Special ☐ Followup ☐ Re-do ☐ Conservation required ☐ Re-packaging requ	ired Other
Analysis #1	Type XRF Analysis Operator ACH Analysis Date 12/1/2009	Reliability questionable accuracy
Location of analy	ysis Reverse ,PL fore foot Analysis location notes Go	ld colored, some loss of surface
Element Cu (%) 23.3	Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace R 70.3 5.9 0.4 <td< td=""><td>Os, Zn, Results</td></td<>	Os, Zn, Results
Analysis #2	Type XRF Analysis Operator ACH Analysis Date 12/1/2009	Reliability
Location of anal	ysis Obverse ,Top of head between scrolls Analysis location notes Go	
Element Cu	Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace R	



Museum/Object	t Info	ithsonian Collections
Object/Catalogue #		
Object Class Country		
Site	No info Geographic Zone VGC Style	
Provenience	☐ Field Notes ☒ Accession docs/letters ☐ Stylistic ☐ Other	
Documentation	□ Publication □ Inferred □ None	
Accession#	159473 Name in Records Ornament - Alligator	THE PARTY OF THE PARTY OF
Collector	Sr.Juan Gratacos Date Collected	
Donor		
Cultural ID		
Catalogue Info	nostrils; no lower jaw; tail curves right; attachment collected y Sr. Juan Gratacos, Panama,	
Research Notes		
Technical Fyami	Gratacos, however, did send Lothrop site info on mination Examination ☑ Visual ☑ Microscopy ☐ MicroPhoto ☐ Other Exam Operator ☐ ☐ ☐	xam date 11/17/2008
Descrip		
200011	ring eyes and globular nostrils. Feet are rows of 4 connected wires.	
Measureme	ments 2 13/16" x 1 3/8"	TO ALTERNATION IN
	Length: 2 13/16" Width: Height: 1 3/8" Diam.: Thickness:	Weight:
Condition/Treatment No	perhaps from past cleaning of corrosion that has also removed much of the gold surface. All in one piece.	Appears mostly dark
Corros	where gold is abraded or flaked away. Some green corrosion on surface. Broken areas appear black unde osion ☐ None ☐ Green-Surface ☐ Green-Core ☐ Black-Surface ☒ Black-Core ☐ Red-Surface ☐ F	
Corrosion no		Cu-cole
Primary Fahrica	cation 🗵 Cast- Open Back 🔲 Cast- Solid 🔲 Hammered-Sheathing 🔲 Other/Unknown	
	☐ Cast- Closed Core ☐ Hammered-Sheet ☐ Wire/Rod	
Fabrication No	Notes Open back cast. There is a small globular casting flaw on PL top of head and next to PL eye. Interior of baperhaps from casting.	ack has odd ridges,
Mat	aterial ☐ Copper ☑ Gold Alloy ☐ Organic ☐ Resin ☐ Stone ☐ Shell ☐ Composite ☐ Unknown ☐	
Material No	Notes Surface appears gold except where abraded or flaked away, showing coppery color underneath on back, o Green corrosion present, indicating Cu alloy	r areas of black substrate.
Surface Colora	oration 🗵 Coppery 🗵 Gold 🗌 Reddish 🔲 Pinkish 🔲 Mixed 🔲 Other	
Coloration N		
	ishing Surface Enrichment Polished None Other	
Finishing N	Notes	
Decorative de	details ☑ All cast ☐ Embossed ☐ Incised ☐ Chased ☐ Filigree ☐ Granulation ☐ Punched ☐ Othe	ır
Decorative detail n	September 1990	
Join	oinery All cast Mechanical Solder Other/Unknown	
Joinery N	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	
Usewear/toolm		Other
Usewear/toolmarks No		
Pseudomoi		
Analysis r Analysis Rec N		
Allalysis Room	☐ Special ☐ Followup ☐ Re-do ☐ Conservation required ☐ Re-packaging required ☐ Other	
Analysis #1	Type XRF Analysis Operator ACH Analysis Date 12/1/2009 IIII Reliability	questionable accuracy
	Alysis Obverse ,1/2 down tail Analysis Date [12/1/2009] Reliability Analysis location notes Some gold remaining	
Element Cu		on surface
(%) 76.0		
Analysis #2	Type XRF Analysis Operator ACH Analysis Date 12/1/2009 Reliability	
	Analysis Obverse ,Center of head Analysis location notes Gold enrichment gon	e, black surface
Element Cu	Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed	



Museum/	Ohiert	Info	

Museum/Object	Info
Object/Catalogue #	A382236-0 Owner NMNH Count 1 Curation Location MSC
Object Class	Pendant Object Sub-Class Zoo-Saurian-Alligator
Country	Panama Province Veraguas Area
Site	No info Geographic Zone VGC Style
Provenience Documentation	☐ Field Notes Accession docs/letters ☐ Stylistic ☐ Other ☐ Publication ☐ Inferred ☐ None
Accession #	159473 Name in Records Ornament - Alligator
Collector	Sr. Juan Gratacos Date Collected
Donor	Mason, J Alden; 1941-Mar-29; Date Accessioned 1941
Cultural ID	Period and and and and and and and and and an
Catalogue Info	Panama, Veraguas Province. Single knob on each nose; tail loops on back with hook at end; connecting Accession Info Gold plated figurine ornaments from Prov. of Veraguas, Panama, collected y Sr. Juan Gratacos, Panama, and from him purchased
	Accession records specify "no info on site." Juan Gratacos, however, did send Lothrop site info on
	ination Examination ☑ Visual ☑ Microscopy ☐ MicroPhoto ☐ Other Exam Operator ACH
Descrip	
	central notch (coffee bean eyes). 2 suspension loops at front and two small bands join the bodies at front and back. Coppery gold
	(red gold) color throughout cross section on broken proper left supsension loop
Measureme	ents 1 7/16" x 1 1/16"
	Length: 1 7/16" Width: Height: 1 1/16" Diam.: Thickness: Weight:
Condition/Treatment No	otes Good condition. Some green corrosion on surface but the weight implies solid metal. Small loss at PL suspension loop and both back feet are slightly broken/abraded, revealing cross section.
Corros	ion None Green-Surface Green-Core Black-Surface Black-Core Red-Surface Red-Core Other
Corrosion no	
Primary Fabrica	ttion ☑ Cast- Open Back ☐ Cast- Solid ☐ Hammered-Sheathing ☐ Other/Unknown ☐ Cast- Closed Core ☐ Hammered-Sheet ☐ Wire/Rod
Fabrication No	
Mate	erial ☐ Copper ☒ Gold Alloy ☐ Organic ☐ Resin ☐ Stone ☐ Shell ☐ Composite ☐ Unknown ☐ Not present ☐ Other
Material No	
Surface Colora	tion ☑ Coppery ☑ Gold ☐ Reddish ☐ Pinkish ☐ Mixed ☐ Other
Coloration No	The gold appears coppery, however there are patches of more gold color and other patches that appear more coppery on the
	hing Surface Enrichment Polished None Other
Finishing No	otes Surface appears shiny and compact. May have surface enrichment
Decorative de	tails All cast Embossed Incised Chased Filigree Granulation Punched Other
Decorative detail no	otes
Joir	nery 🛮 All cast 🗎 Mechanical 🗎 Solder 🗎 Other/Unknown
Joinery No	otes
Usewear/toolma	arks Abrasion Rubbed Scratches Burr(s) Cracking Incised Core/Investment Other
Usewear/toolmarks No	otes
Pseudomor	rphs ☐ Pseudomorph ☐ Organics ☒ None ☐ Other Notes ☐
Analysis re	_ interpretation in the control of t
Analysis Rec No	exposed cross-section on the suspension loop on the PR side would be ideal for in-situ ESEM-EDS.
Paris - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -	☐ Special ☐ Followup ☐ Re-do ☐ Conservation required ☐ Re-packaging required ☐ Other
Analysis #1	Type XRF Analysis Operator ACH Analysis Date 12/1/2009 E Reliability questionable accuracy
Location of analy	sis Obverse ,PL animal, center head Analysis location notes Gold, some green corrosion
Element Cu (%) 16.3	Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed 77.5 5.9 Results
Analysis #2	Type Analysis Operator Analysis Date Reliability
Location of analy	
Element Cu	Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed
(%)	Results



Pre-Columbian Gold in the Smithsonian Collections

Museum/Object Info A382237-0 Owner NMNH Curation Location MSC Object/Catalogue # Count 1 Object Sub-Class Zoo-anteater **Object Class** 700 Province Veraguas Area Country Panama Geographic Zone VGC Style Site No info Provenience ☐ Field Notes Accession docs/letters ☐ Stylistic ☐ Other... Documentation Publication ☐ Inferred □ None Name in Records Ornament - Eagle-'Gator? Accession# 159473 **Date Collected** Collector Sr.Juan Gratacos Date Accessioned 1941 Donor Mason, J Alden; 1941-Mar-29; Cultural ID Period Accession Info Gold plated figurine ornaments from Prov. of Veraguas, Panama, Panama, Veraguas Province. Down-curved eagle Catalogue Info collected y Sr. Juan Gratacos, Panama, and from him purchased beak; 3 double scrolls on head; eyes protrude at Described as an "anteater pendant" pg.62 of Lothrops References Photo neg no. 34637a Research Notes Veraguas volume similar to curly tailed pendants in Lothrop, Samuel K. The Archaeology of Southern Veraguas, pg.62 Exam date |11/7/2008 Exam Operator ACH Open back cast pendant of hybrid bird/saurian curly tailed creature described as an anteater in Lothrop (1950). Surface is covered in green corrosion with only small traces of a gold layer visible under corrosion (mainly on the head). 3 spiral decorations on head and 2 suspension loops at front feet. Under the tail on the back there is a protrusion of metal that may be a vent or from the pour spout. Measurements Thickness: Length: Width: Height: Diam .: The entire surface is covered in green corrosion and there is also a powdery light brown/pink soil covering the surface and in the Condition/Treatment Notes crevices. The pendant is whole, however, only traces of gilding remain. □ None ☑ Green-Surface □ Green-Core □ Black-Surface □ Black-Core □ Red-Surface □ Red-Core □ Other... Corrosion Corrosion notes Primary Fabrication ☐ Cast- Solid ☐ Hammered-Sheathing ☐ Other/Unknown ☐ Cast- Closed Core ☐ Hammered-Sheet ☐ Wire/Rod Open back cast. There is a small protrusion of metal from just under the tail. **Fabrication Notes** Material ☐ Copper ☒ Gold Alloy ☐ Organic ☐ Resin ☐ Stone ☐ Shell ☐ Composite ☐ Unknown ☐ Not present ☒ Other.. The green corrosion indicates a copper rich alloy while the small traces of gilding may indicate a layer of surface enrichment or Material Notes 'depletion gilding" Surface Coloration ☐ Coppery ☐ Gold ☐ Reddish ☐ Pinkish ☐ Mixed ☐ Other Coloration Notes completely covered in green corrosion Surface Enrichment □ Polished □ None Finishing ☐ Other **Finishing Notes** ☐ Chased ☐ Filigree ☐ Granulation ☐ Punched ☒ Other... Decorative details All cast Embossed ☐ Incised Decorative detail notes Joinery Notes Suspension loop, feet, and scrollwork all done in wax model □ Abrasion □ Rubbed □ Scratches □ Burr(s) □ Cracking □ Incised □ Core/Investment ☐ Other Usewear/toolmarks Usewear/toolmarks Notes Pseudomorphs ☐ Pseudomorph ☐ Organics ☒ None ☐ Other Notes Analysis rec's ☒ XRF ☐ X-ray radiograph ☐ ESEM-EDS ☐ PIXE ☐ LA-ICPMS ☐ Metallography Analysis Rec Notes Highly mineralized, so may not give much useful information on original metal. ☐ Special ☐ Followup ☐ Re-do ☐ Conservation required ☐ Re-packaging required ☐ Other... Analysis Date 12/2/2009 E Reliability Analysis #1 Analysis Operator ACH Not Accurate Type XRF Location of analysis Obverse ,PL side of tail Analysis location notes Green corroded surface Fe Sn Sb Trace Removed Cu Element 1.3 0.7 Zn, Rb, Results 80.8 (%) Analysis #2 Type XRF Analysis Operator ACH Analysis Date 12/2/2009 E Reliability Analysis location notes Green corroded surface Location of analysis Obverse ,Top of beak/nose Trace Removed Fe Sn Sb Element 0.3 19.6 1.6 V, Rb, Results 78.5 (%)



Pre-Columbian Gold in the Smithsonian Collections

Museum Conservation Institute

Museum/Object Info

Museum/OL	oject i	
Object/Catalog	gue#	A382238-0 Owner NMNH Count 1 Curation Location MSC
Object C	Class	Pendant Object Sub-Class Zoo-Felid-Jaguar
Cor	untry	Panama Province Veraguas Area
		No info Geographic Zone VGC Style
Proveni Document		☐ Field Notes ☐ Accession docs/letters ☐ Stylistic ☐ Other ☐ Publication ☐ Inferred ☐ None
Access	sion#	159473 Name in Records Pendant-Zoomorphic Figure, Tumbaga
Coll	ector	Sr.Juan Gratacos Date Collected
		Mason, J Alden; 1941-Mar-29; Date Accessioned 1941
Cultur	ral ID	Chiriqui Style (A. D. 1200 To Period 1200-1400AD
Catalogue		Panama, Veraguas Province. Whiskers at each side Accession Info Gold plated figurine ornaments from Prov. of Veraguas, Panama,
Danner h		nostrils; front paws looped for attachment rings; up- Accession records specify "no info on site." Juan References References References References References
Research N		Gratacos, however, did send Lothrop site info on
Technical E	Exami	nation Examination 🗵 Visual 🖾 Microscopy 🗆 MicroPhoto 🗀 Other Exam Operator ACH Exam date 11/7/2008 🟢
ı	Descrip	Open back cast Jaguar pendant with whiskers, coffee bean eyes, raised ears, and a long tail that curls slightly at the end. 2 front
		paws are suspension loops. There is a split in the metal at the bottom of the head that looks as though it may have been repaired. There is a metal projection at the end of the tail that may also be from casting. The surface is gold, likely enriched through depletion
Mea	sureme	
		Length: Width: Height: Diam.: Thickness: Weight:
Condition/Treatn	nent No	tes Green corrosion is present in patches over the surface of the pendant. Broken surfaces reveal a black, partially mineralized
		substrate. The entire surface is covered in small scratches and there are a few areas of deeper scratches.
	Corrosi	on ☐ None ☒ Green-Surface ☐ Green-Core ☐ Black-Surface ☒ Black-Core ☐ Red-Surface ☐ Red-Core ☐ Other
Corro	sion not	
Primary I	Fabricat	
· ·		☐ Cast- Closed Core ☐ Hammered-Sheet ☐ Wire/Rod
Fabrica	ation No	The state of the s
	Moto	a projection of metal at the end of the tail that could be a vent or channel. Small square loss in the metal at the end of the tail,
	Mate	The state of the s
	erial No	
		ion Coppery Gold Reddish Pinkish Mixed Other
Colora	ation No	32/2015
Finio		ing Surface Enrichment Polished None Other
rinis	ning ivo	tes small scratches in surface may be from burnishing or polishing. Surface appears gold but interior is black
		ails All cast Embossed Incised Chased Filigree Granulation Punched Other
Decorative of		
		ery All cast Mechanical Solder Other/Unknown
Joi	nery No	On the underside of the head, there appear to be some agglomerations of metal.
Usewear		The state of the s
		Scratches possibly from modern mechanical cleaning. Perhaps some investment material still left in head
	udomor	_ restauration _ rest
	alysis re	
Analysis	Rec No	
Anglysia	44	☐ Special ☐ Followup ☐ Re-do ☐ Conservation required ☐ Re-packaging required ☐ Other
Analysis		Type XRF Analysis Operator ACH Analysis Date 12/2/2009 III Reliability
Element		is Obverse ,Highest point of back Analysis location notes Gold surface Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed
(%)	15.4	78.3 6.3 Results
Analysis		Type XRF Analysis Operator ACH Analysis Date 12/2/2009 III Reliability
a south the season and processing		Analysis location notes Gold surface
Element (%)		Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed 79.2 5.6 Results
(70)		Tresuita I Tresuita



Museum/Object I	
Object/Catalogue #	A382239-0 Owner NMNH Count 1 Curation Location MSC
Object Class	Pendant Object Sub-Class Zoo-Felid-Cougar
Country	Panama Province Veraguas Area
Site	No info Geographic Zone VGC Style Style
Provenience Documentation	☐ Field Notes ☑ Accession docs/letters ☐ Stylistic ☐ Other ☐ Publication ☐ Inferred ☐ None
Accession #	159473 Name in Records Ornament - Couger
Collector	Sr. Juan Gratacos Date Collected
Donor	Mason, J Alden; 1941-Mar-29; Date Accessioned 1941
Cultural ID	Period
Catalogue Info	Panama, Veraguas Province, Veraguas Accession Info Gold plated figurine ornaments from Prov. of Veraguas, Panama, collected y Sr. Juan Gratacos, Panama, and from him purchased
Research Notes	Accession records specify "no info on site." Juan Gratacos, however, did send Lothrop site info on
Technical Exami	nation Examination ☑ Visual ☑ Microscopy ☐ MicroPhoto ☐ Other Exam Operator ☐ CH ☐ Exam date ☐ 11/7/2008 ☐ ☐
Descrip	Open back cast pendant of felid with curled snout and long tail that curls slightly at the end. The surface is enriched, likely by depletion gilding as it appears shiny and gold. The base metal is a Cu alloy and has been severely corroded
Measureme	ants
ividasuidilik	Length: Width: Height: Diam.: Thickness: Weight:
Condition/Treatment No	
Corros	ion ☐ None ☒ Green-Surface ☐ Green-Core ☐ Black-Surface ☒ Black-Core ☐ Red-Surface ☐ Red-Core ☐ Other
Corrosion no	
Primary Fabrica	tion Cast- Open Back Cast- Solid Hammered-Sheathing Other/Unknown Cast- Closed Core Hammered-Sheet Wire/Rod
Fabrication No	
Mate	erial Copper 🗵 Gold Alloy Corganic Resin Constant Composite Unknown Not present Other
Material No	Much of the surface appears shiny gold, however, there is green corrosion present on the surface
Surface Colora	tion Coppery Gold Reddish Pinkish Mixed Other
Coloration No	otes
	ning Surface Enrichment Polished None Other
Finishing No	Much of the surface appears shiny gold, however, there is green corrosion present on the surface
	tails All cast Embossed Incised Chased Filigree Granulation Punched Other
Decorative detail no	NOTE: 1
	nery 🗵 All cast 🗌 Mechanical 🗎 Solder 🗎 Other/Unknown
Joinery No	
Usewear/toolmarks No	
Pseudomor	phs Pseudomorph Organics None Other Notes
Analysis re	ec's XRF ☐ X-ray radiograph ☐ ESEM-EDS ☐ PIXE ☐ LA-ICPMS ☐ Metallography ☐ Other
Analysis Rec No	highly mineralized so would provide little information on metal structure (except gold layer thickness). The two small fragments have
	☐ Special ☐ Followup ☐ Re-do ☐ Conservation required ☐ Re-packaging required ☐ Other
Analysis #1	Type XRF Analysis Operator ACH Analysis Date 12/2/2009 E Reliability questionable accuracy
Location of analy	sis Obverse ,PR back leg Analysis location notes Gold surface with some green corrosion
Element Cu (%) 42.0	Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed 53.5 4.5 At, Rb Results
Analysis #2	Type Analysis Operator Analysis Date Reliability
Location of analy	
Element Cu (%)	Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed Results



Location of analysis

Element Cu

(%)

Smithsonian Museum Conserv Museum/Object In		Pre-Columbian Gold in the Smithsonian Collections
Object/Catalogue # Object Class Country	A382240-0 Owner NMNH Count 1 Curation Location MSC endant Object Sub-Class Zoo-Felid-Cougar anama Province Veraguas Area lo info Geographic Zone VGC Style Field Notes Accession docs/letters Stylistic Other Publication Inferred None	
Collector Solution Donor Cultural ID	Name in Records Ornament - Couger Date Collected Date Accessioned 1941 Period Period	t minum to data mana da da
Research Notes	ccession records specify "no info on site." Juan Fratacos, however, did send Lothrop site info on Fratacos.	ed figurine ornaments from Prov. of Veraguas, Panama, y Sr. Juan Gratacos, Panama, and from him purchased
	ation Examination ☑ Visual ☑ Microscopy ☐ MicroPhoto ☐ Other Open back cast pendant of a cougar with dot in ring eyes, raised ears, open loops are present on the front two paws. The surface was likely enriched three and black mineralized interior.	Exam Operator ACH Exam date 11/7/2008 Exam date on the suspension ough depletion gilding as it appears gold with a coppery
Condition/Treatment Note	Length: Width: Height: Diam.: Two pieces. The body is mostly intact except for a loss in the back PR foot a green corrosion and underneath the gold surface layer there appears to be be	Thickness: Weight: and the tail is separate. The surface is largely covered in lack corrosion.
Corrosio Corrosion note Primary Fabricatio	The surface is largely covered in green corrosion and underneath the gold such a Cast- Open Back	urface layer there appears to be black corrosion.
Fabrication Note		
Material Note	al ☐ Copper ☒ Gold Alloy ☐ Organic ☐ Resin ☐ Stone ☐ Shell ☐ Gold surface with coppery surfaces visible in some areas. Green corrosion i On ☒ Coppery ☒ Gold ☐ Reddish ☐ Pinkish ☐ Mixed ☐ Other	
	Mostly gold with green corrosion and some darker areas and areas that appears Surface Enrichment ☑ Polished ☐ None ☐ Other Sold surface with coppery surfaces visible in some areas. Green corrosion i	
Decorative detail note	lls ☑ All cast ☐ Embossed ☐ Incised ☐ Chased ☐ Filigree ☐ Granu	
Joinery Note Usewear/toolman	Abrasion □ Rubbed □ Scratches □ Burr(s) □ Cracking □ Inci	A STATE OF THE STA
Usewear/toolmarks Note Pseudomorph Analysis rec Analysis Rec Note	ns Pseudomorph Organics None Other Notes	stal structure is still intact (may be too mineralized)
Element Cu	Type XRF Analysis Operator ACH Analysis Date	n notes Gold surface with some green corrosion Trace Removed V, Zn, Results

Analysis location notes

Bi

Trace Removed

Results

Ni

Fe

Sn

Sb

Hg

Pb

Cd

As

Zn



Museum/Object	nto
Object/Catalogue #	A382241-0 Owner NMNH Count 1 Curation Location MSC
Object Class	Pendant Object Sub-Class Zoo-Felid-Cougar
Country	Panama Province Veraguas Area
Site	No info Geographic Zone VGC Style Style
Provenience	☐ Field Notes ☐ Accession docs/letters ☐ Stylistic ☐ Other
Documentation	□ Publication □ Inferred □ None
Accession #	159473 Name in Records Ornament - Couger
Collector	Sr. Juan Gratacos Date Collected
Donor	Mason, J Alden; 1941-Mar-29; Date Accessioned 1941
Cultural ID	Period
Catalogue Info	Panama, Veraguas Province, Veraguas Accession Info Gold plated figurine ornaments from Prov. of Veraguas, Panama,
	collected y Sr. Juan Gratacos, Panama, and from him purchased
Research Notes	Accession records specify "no info on site." Juan Gratacos, however, did send Lothrop site info on
Technical Exam	ination Examination ☑ Visual ☑ Microscopy ☐ MicroPhoto ☐ Other Exam Operator ACH
	Open back cast pendant of a cougar with thick burnished gold layer on surface and copper alloy underneath.
- 333.17	
Measurem	
	Length: Width: Height: Diam.: Thickness: Weight:
Condition/Treatment N	btes Fragmentary- Loss of both front feet, parts of ears and backfeet. The tail and two other small sections are present as separate fragments. losses in the gold surface. Pockets of bronze disease are visible in the base alloy where the gold has flaked off the
	surface and the Cu-allov appears very porous in areas. A large patch of dirt is present on the underside near the break in the tail
Corros	
Corrosion no	corrosion underneath surface has caused the gold to begin flaking and there are several losses in the gold.Pockets of bronze disease
Primary Fabrica	
	☐ Cast- Closed Core ☐ Hammered-Sheet ☐ Wire/Rod
Fabrication N	
8.4-4	(dendritic structure?)
	erial Copper Gold Alloy Organic Resin Stone Shell Composite Unknown Not present Other Cu alloy underneath (porous and coppery with pockets of bronze disease) with a thick layer of gold at the surface.
Material N	otes of alloy underneam (porous and copper) with pockets of bronze disease) with a thick layer of gold at the surface.
Surface Colora	ation Coppery Gold Reddish Pinkish Mixed Other
Coloration N	
Finis	hing Surface Enrichment Polished None Other
Finishing N	otes Most surfaces appear compact and shiny with very small repetitive micro scratches in the gold surface likely burnished
Decorative de	tails All cast Embossed Incised Chased Filigree Granulation Punched Other
Decorative detail n	
	nery All cast Mechanical Solder Other/Unknown
Joinery N	
140000 AVA - 27	
Usewear/toolm Usewear/toolmarks N	
Pseudomo	
Analysis	
	otes The cross section of the small fragments would be ideal for ESEM-EDS It appears to be a thick layer of gold at the surface. Would
	☐ Special ☐ Followup ☐ Re-do ☐ Conservation required ☐ Re-packaging required ☐ Other
Analysis #1	Type XRF Analysis Operator ACH Analysis Date 12/2/2009 EEE Reliability not accurate
V41	rype Arraysis Operator Arraysis Date
Element Cu	Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed
(%) 16.9	78.5 4.6 Results
Analysis #2	Type XRF Analysis Operator ACH Analysis Date 12/2/2009 EE Reliability
Location of analy	rsis Obverse ,Highest point of back, Au loss Analysis location notes Gold surface, corroded interior
Element Cu	Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed
(%) 15.7	79.3 4.9 Results



n Gold in the n Collections

Museum Conservation Institute	Object Report	Pre-Columbian	
Museum/Object Info		Smithsoniai	
Object/Catalogue # A292242 0 O AIMANU		2 200	

Object/0	Catalogue #	A382242-0 Owner NMNH Count 1 Curation Location MSC
0	bject Class	Pendant Object Sub-Class Zoo-Felid-Cougar
	Country	Panama Province Veraguas Area
	Site	No info Geographic Zone VGC Style
	Provenience cumentation	☐ Field Notes ☑ Accession docs/letters ☐ Stylistic ☐ Other ☐ Publication ☐ Inferred ☐ None
1	Accession #	159473 Name in Records Ornament - Couger
	Collector	Sr. Juan Gratacos Date Collected
	Donor Cultural ID	Mason, J Alden; 1941-Mar-29; Date Accessioned 1941
0-		Panama, Veraguas Province, Veraguas Accession Info Gold plated figurine ornaments from Prov. of Veraguas, Panama.
Cai	talogue Info	Panama, Veraguas Province, Veraguas Accession Info Gold plated figurine ornaments from Prov. of Veraguas, Panama, collected y Sr. Juan Gratacos, Panama, and from him purchased
Rese	earch Notes	Accession records specify "no info on site." Juan Gratacos, however, did send Lothrop site info on
Techn	ical Exami	nation Examination ☑ Visual ☑ Microscopy ☐ MicroPhoto ☐ Other Exam Operator ☐ CH ☐ Exam date 11/7/2008 []
	Descrip	tion Open back cast cougar pendant with suspension loops on front paws, coffee bean eyes, raised ears, and wire-work teeth all done in wax model. Surface enrichment likely through depletion gilding.
	Measureme	ents
		Length: Width: Height: Diam.: Thickness: Weight:
Condition/	/Treatment No	Good condition except that the base alloy is slightly corroded, causing the surface layer of gold to flake off in some areas. There is a very slight amount of green corrosion on the surface. No losses
	Corros	ion ☐ None ☒ Green-Surface ☐ Green-Core ☐ Black-Surface ☒ Black-Core ☐ Red-Surface ☐ Red-Core ☐ Other
	Corrosion no	tes
Pr	rimary Fabrica	tion Cast- Open Back Cast- Solid Hammered-Sheathing Other/Unknown Cast- Closed Core Hammered-Sheet Wire/Rod
F	Fabrication No	Open back cast with all details done in cast
	Mate	erial Copper Gold Alloy Organic Resin Stone Shell Composite Unknown Not present Other
	Material No	otes In areas where the gold has flaked off the surface, the underlying alloy appears dark brown/coppery and slightly porous.
S	Surface Colora	tion Coppery Gold Reddish Pinkish Mixed Other
	Coloration No	otes The top layer appears gold. In areas where this layer has flaked off, the darker substrate is visible. A very small amount of green
	Finisl	ning Surface Enrichment Polished None Other
	J	otes Appears burnished
		tails All cast Embossed Incised Chased Filigree Granulation Punched Other
Decor	rative detail no	
		nery All cast Mechanical Solder Other/Unknown
	Joinery No	
	sewear/toolmar/toolmar/toolmarks No	
	Pseudomor	
	Analysis r	
An	nalysis Rec No	
	alicale #4	☐ Special ☐ Followup ☐ Re-do ☐ Conservation required ☐ Re-packaging required ☐ Other
- 1	alysis #1	Type XRF Analysis Operator ACH Analysis Date 12/2/2009 IIII Reliability
- 1		sis Obverse ,Tip of nose, above lip Analysis location notes Gold surface Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed
	lement Cu (%) 29.9	Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed 64.9 4.9 D Pb, Zr, Results
Ana	alysis #2	Type Analysis Operator Analysis Date Reliability
Loc	ation of analy	
Ele		

Country Coun	Museum/Object	into
Country Pantama Province Versquas Alea	Object/Catalogue#	A382243-0 Owner NMNH Count 1 Curation Location MSC
Site Provincing Felet Notes Accession of Felet Notes F	Object Class	
Private in the publication Publication Inferred Notes Accession # Publication Inferred Notes N	Country	
Documentation Publication Inferred Robert Robert		
Collector St. Juan Gratacos Date Collected Date Da		
Date	Accession #	159473 Name in Records Ornament - 2-Headed Human
Calitaral ID Catalogue Info Panama, Veraguas Province, Veraguas Research Notes Accession records specify "no info on site." Juan Brainance Technical Examination Examination Examination Description D	Collector	Sr. Juan Gratacos Date Collected
Catalogue Info Research Notes Research Notes Accession records specify "no info on site." Juan Grafacos, however, did send Lohinos alte info on Description Open back cast double anthropomorphic pendant with single suspension loop on underside. Fragmentary, Figures have coffee bean eyes, spiral ear ornaments, large noses, and mouths with seth all done in wax model. The figures share a single body with hamispherical body. phalus, and a single part of lose is light green corresion loop on underside. Fragmentary, Figures have coffee bean eyes, spiral ear ornaments, large noses, and mouths with seth all done in wax model. The figures share a single body with hamispherical body. phalus, and a single part of loses. Measurements Length: Width: Height Diam: Thickness. Weight Length: Weight Length: Weight Interest in the surface of the object and a light brown/pink cowdend acception. The old laver acception of the old laver acception. The old laver acception of the old laver acception. The		
Research Notes Cacession records specify 'no info on site." Juan Gratacos, however, did send Lothtoo site info on References Caramination Examination Examinat	Cultural ID	
Technical Examination Exam	Catalogue Info	collected y Sr. Juan Gratacos, Panama, and from him purchased
Description	Research Notes	Gratacos, however, did send Lothrop site info on
eyes, spiral ear ornaments, large noses, and mouths with teeth all done in wax model. The figures share a single body with hemispherical body, phalus, and a single pair of less. Length: Width: Width: Diam.: Thickness: Weight	Technical Exam	
Length: Width: Height: Diam. Thickness: Weight Weight Diam. Thickness: Weight Diam.	Descrip	eyes, spiral ear ornaments, large noses, and mouths with teeth all done in wax model. The figures share a single body with
Length: Width: Height: Diam: Thickness: Weight: Diam: Thickness: Weight: Diam: Thickness: Very fragmentary. The interior is black, mineralized, and friable. The figure is missing parts of the legs, wings, and headreadress. There are multiple small fragments. There is light green corrosion present on the surface of the object and a light brown/pink loowdery accretion. The gold laver appears to be in good condition. But is flaking where the core has corroded. Corrosion notes The interior is black, mineralized, and friable. There is light green corrosion present on the surface of the object and a light brown Diams	Moasurom	
Very fragmentary: The interior is black, mineralized, and friable. The figure is missing parts of the legs, wings, and head/headress. There are multiple small fragments. There is light green corrosion present on the surface of the object and a light brown/pink loowdery accretion. The earlies will place and surface of the object and a light brown/pink loowdery accretion. The old lever appears to be in oood condition. Usin fishking where the core has corroded. Corrosion None Screen-Surface Green-Core Black-Core Red-Surface Gred-Core Other	Measurem	
There are multiple small fragments. There is light green corrosion present on the surface of the object and a light brown/pink nowder accretion. The gold lawer appears to be in good condition, but is flaking but is corrected. Corrosion notes The interior is black, mineralized, and friable. There is light green corrosion present on the surface of the object and a light brown Primary Fabrication Cast- Closed Core Hammered-Sheathing Other/Unknown Cast- Closed Core Hammered-Sheathing Other/Unknown Fabrication Notes Open back cast Material Copper Gold Alloy Organic Resin Stone Shell Composite Unknown Not present Other Material Notes Surface Coloration Coppery Gold Reddish Pinkish Mixed Other Coloration Notes Finishing Notes Decorative details All cast Embossed Incised Chased Filigree Granulation Punched Other Decorative detail notes Joinery Notes Usewear/toolmarks Notes Pseudomorph Organics Shore Other/Unknown Other Analysis rec's XFF X-ray radiograph ESEM-EDS PIXE LA-ICPMS Metallography Other Analysis rec's XFF X-ray radiograph ESEM-EDS PIXE LA-ICPMS Metallography Other Analysis rec's XFF X-ray radiograph ESEM-EDS PIXE LA-ICPMS Metallography Other Analysis #1 Type XFF Analysis Dorentor Acid Analysis Date Iz1/IZ009 Trace Reiability Questionable accuracy Analysis #2 Type XFF Analysis Operator ACId Analysis Date Iz1/IZ009 Trace Reiability Reiability Location of analysis Clean side Center of fragment Analysis Docation notes Gold surface Gold surface Location of analysis Clean side Center of fragment Analysis Docation notes Gold surface Location of analysis Clean side Center of fragment Analysis Docation notes Gold surface Location of analysis Clean side Center of fragment Analysis Docation notes Gold surface Location of analysis Clean side Center of fragment Analysis Docation notes	Condition/Treatment No	25/194/11
Corrosion notes The interior is black, mineralized, and friable. There is light green corrosion present on the surface of the object and a light brown Primary Fabrication Cast- Closed Core Hammered-Sheet Wire/Rod Fabrication Notes Open back cast Material Copper Gold Cost- Solid Hammered-Sheeth Wire/Rod Fabrication Notes Copper Gold Cost- Solid Cost- So		There are multiple small fragments. There is light green corrosion present on the surface of the object and a light brown/pink
Corrosion notes	Corros	
Primary Fabrication Cast- Closed Core Hammered-Sheet Wire/Rod Cast- Closed Composite Unknown Not present Other Material Copper Gold Reddish Pinkish Mixed Other Coloration Notes Coloration Notes Coloration Notes Coloration Coppery Gold Reddish Pinkish Mixed Other Coloration Notes Coloration Notes Colorative details Mali Cast Embossed Incised Chased Filigree Granulation Punched Other Decorative detail notes Joinery All cast Mechanical Solder Other/Unknown Other Other/Unknown Other	0.000.00.000.00	
Cast- Closed Core Hammered-Sheet Wire/Rod		The litterior is black, fillineralized, and mable. There is light green condition present on the surface of the object and a light stown
Material Copper	Primary Fabrica	
Surface Coloration	Fabrication N	otes Open back cast
Surface Coloration	Mat	erial Copper S Gold Alloy Organic Resin Stone Shell Composite Unknown Not present Other
Coloration Notes Finishing Notes Decorative details Decorative d	Material N	
Finishing Notes Decorative details All cast Embossed	Surface Colora	ation Coppery Gold Reddish Pinkish Mixed Other
Decorative details All cast Embossed Incised Chased Filigree Granulation Punched Other		Parties to the second s
Decorative details Decorative details Decorative details Decorative detail notes Joinery Joinery Notes Usewear/toolmarks Notes Pseudomorph Organics None Other Notes Analysis rec's Analysis rec's Analysis Rec Notes Special Followup Re-do Conservation required Re-packaging required Other Analysis #1 Type XRF Analysis Operator ACH Analysis location notes Gold surface, corroded interior Element Cu Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed Element Cu Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed Element Cu Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed Element Cu Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed Element Cu Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed Element Cu Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed Element Cu Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed Element Cu Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed Element Cu Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed Element Cu Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed Element Cu Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed Element Cu Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed Element Cu Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed Element Cu Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed Element Cu Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed Element Cu Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed Element Cu Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed Element Cu		
Decorative detail notes Joinery Mall cast Mechanical Solder Other/Unknown Joinery Notes Usewear/toolmarks Notes Pseudomorphs Pseudomorph Organics Mone Other Notes Analysis rec's Mark Aray radiograph ESEM-EDS PIXE LA-ICPMS Metallography Other Analysis Rec Notes Special Followup Re-do Conservation required Re-packaging required Other Analysis #1 Type XRF Analysis Operator ACH Analysis Date 12/1/2009 Reliability Questionable accuracy Location of analysis Obverse Center of belly Conservation required Re-packaging required Results Analysis #2 Type XRF Analysis Operator ACH Analysis Date 12/1/2009 Reliability Location of analysis Clean side Center of fragment Cu Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed Location of analysis Clean side Center of fragment Analysis location notes Cold surface Location of analysis Clean side Center of fragment Analysis location notes Cold surface Location of analysis Clean side Center of fragment Analysis location notes Cold surface Location of analysis Clean side Center of fragment Analysis location notes Cold surface Location of analysis Clean side Center of fragment Analysis location notes Cold surface Location of analysis Clean side Center of fragment Analysis location notes Cold surface Location Cu Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed Location Reliability Location Reliability Location Location Reliability Reliability Location Reliability R	Finishing N	otes
Joinery Notes Usewear/toolmarks Usewear/toolmarks Pseudomorphs Pseudomorph Organics None Other Notes Analysis rec's XRF X-ray radiograph ESEM-EDS PIXE LA-ICPMS Metallography Other Analysis Rec Notes Special Followup Re-do Conservation required Re-packaging required Other Analysis #1 Type XRF Analysis Operator ACH Analysis location notes Gold surface Analysis #2 Type XRF Analysis Operator ACH Analysis Date 12/1/2009 Reliability Analysis Clean side , Center of fragment Analysis Conter Canter	Decorative de	tails All cast Embossed Incised Chased Filigree Granulation Punched Other
Usewear/toolmarks		
Usewear/toolmarks Usewear/toolmarks Notes Pseudomorphs Analysis rec's Analysis Rec Notes Pseudomorph Organics None Other Notes	Joi	nery All cast Mechanical Solder Other/Unknown
Usewear/toolmarks Notes Pseudomorphs	Joinery N	otes
Pseudomorphs		and
Analysis rec's XRF X-ray radiograph	Usewear/toolmarks N	
Analysis Rec Notes Too heavily mineralized for analysis by most methods. Special Followup Re-do Conservation required Re-packaging required Other Analysis #1 Type XRF Analysis Operator ACH Analysis Date 12/1/2009 Reliability Questionable accuracy		
Special Followup Re-do Conservation required Re-packaging required Other Analysis #1 Type XRF Analysis Operator ACH Analysis Date 12/1/2009 Reliability Questionable accuracy Location of analysis Obverse ,Center of belly Analysis location notes Gold surface, corroded interior Element Cu Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed (%) 23.1 68.8 5.9 Results Analysis #2 Type XRF Analysis Operator ACH Analysis Date 12/1/2009 Reliability Location of analysis Clean side ,Center of fragment Analysis location notes Gold surface Element Cu Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed Element Cu Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed	100	
Analysis #1 Type XRF Analysis Operator ACH Analysis Date 12/1/2009 Reliability questionable accuracy Location of analysis Obverse , Center of belly Element Cu Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed (%) 23.1 68.8 5.9 Analysis Operator ACH Analysis Date 12/1/2009 Reliability Analysis Date 12/1/2009 Reliability Location of analysis Clean side , Center of fragment Element Cu Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed Analysis Date 12/1/2009 Reliability Analysis Date 12/1/2009 Reliability Element Cu Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed Element Cu Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed	Analysis Rec N	
Location of analysis Obverse ,Center of belly Element Cu Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed (%) 23.1 68.8 5.9		
Element Cu Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed (%) 23.1 68.8 5.9		
(%) 23.1 68.8 5.9		
Location of analysis Clean side ,Center of fragment Element Cu Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed		
Element Cu Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed	1350	
	Location of analy	
	Lionione	7



Museum/Object	Info Smithsonian Conections
Object/Catalogue #	A382244-0 Owner NMNH Count 1 Curation Location MSC
Object Class	Bell Object Sub-Class
Country	Panama Province Veraguas Area
Site Provenience	No info Geographic Zone VGC Style
Documentation	☐ Field Notes ☑ Accession docs/letters ☐ Stylistic ☐ Other ☐ Publication ☐ Inferred ☐ None
Accession #	159473 Name in Records Ornament - Bell
Collector	Sr. Juan Gratacos Date Collected
Donor	Mason, J Alden; 1941-Mar-29; Date Accessioned 1941
Cultural ID	Period Pe
Catalogue Info	Panama, Veraguas Province, Veraguas Accession Info Gold plated figurine ornaments from Prov. of Veraguas, Panama, collected y Sr. Juan Gratacos, Panama, and from him purchased
Research Notes	Accession records specify "no info on site." Juan Gratacos, however, did send Lothrop site info on
Technical Exami	nation Examination ☑ Visual ☑ Microscopy ☐ MicroPhoto ☐ Other Exam Operator ACH
Descrip	tion Cast Cu-Au alloy bell with suspension loop at top and clapper inside
Measureme	
	Length: Width: Height: Diam.: Thickness: Weight:
Condition/Treatment No	Some of the gold surface is flaking, revealing a dark copper colored substrate. There is dense green corrosion on some of the surface.
Corros	ion ☐ None ☒ Green-Surface ☐ Green-Core ☐ Black-Surface ☐ Black-Core ☐ Red-Core ☐ Red-Core ☐ Other
Corrosion no	
Primary Fabrica	tion Cast- Open Back Cast- Solid Hammered-Sheathing Other/Unknown Cast- Closed Core Hammered-Sheet Wire/Rod
Fabrication No	
Mate	2 support 2 state in the state in the state in the state in the present in other in
Material No	The surface appears to be flaking off in areas, revealing a darker substrate
Surface Colora	tion Coppery Gold Reddish Pinkish Mixed Other
Coloration No	otes
Finish	
Finishing No	otes
Decorative de	tails All cast □ Embossed □ Incised □ Chased □ Filigree □ Granulation □ Punched ☑ Other
Decorative detail no	
	ery All cast Mechanical Solder Other/Unknown
Joinery No	00000
Usewear/toolmarks No	
Pseudomor	phs Pseudomorph Organics None Other Notes
Analysis re	ec's 🛮 XRF 🗎 X-ray radiograph 🗎 ESEM-EDS 🗎 PIXE 🗀 LA-ICPMS 🗀 Metallography 🗀 Other
Analysis Rec No	otes
	☐ Special ☐ Followup ☐ Re-do ☐ Conservation required ☐ Re-packaging required ☐ Other
Analysis #1	Type XRF Analysis Operator ACH Analysis Date 12/1/2009 E Reliability questionable accuracy
Location of analys	sis Opposite of # ,Center opposite catalogue # Analysis location notes Flaking gold surface, corroded core
Element Cu (%) 44.8	Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed 51.4 3.2 Results
Analysis #2	Type Analysis Operator Analysis Date Reliability
Location of analys	Analysis location notes
Element Cu (%)	Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed Results

Museum/Object l									
Object/Catalogue #	A382245-0 Owner NMNH Count 1 Curation Location MSC								
	Bell Object Sub-Class								
Country	Panama Province Veraguas Area								
Site Provenience	No info Geographic Zone VGC Style Style								
Documentation	☐ Field Notes ☐ Accession docs/letters ☐ Stylistic ☐ Other ☐ Publication ☐ Inferred ☐ None ☐ Non								
Accession #	159473 Name in Records Ornament - Bell Effigy								
Collector	Sr. Juan Gratacos Date Collected								
Donor	Mason, J Alden; 1941-Mar-29; Date Accessioned 1941								
Cultural ID	Period Pe								
Catalogue Info	Panama, Veraguas Province, Veraguas Accession Info Gold plated figurine ornaments from Prov. of Veraguas, Panama, collected y Sr. Juan Gratacos, Panama, and from him purchased								
Research Notes	Accession records specify "no info on site." Juan Gratacos, however, did send Lothrop site info on								
	mination Examination ☑ Visual ☑ Microscopy ☐ MicroPhoto ☐ Other Exam Operator ACH								
Description Cast Cu-Au alloy bell with bird effigy standing on top and clapper still present inside. A number of random blobs on the exterior of the bell body may be casting flaws									
••									
Measureme	Length: Width: Height: Diam.: Thickness: Weight:								
Condition/Treatment No									
Condition/Treatment No	very porous where the gold layer has flaked off.								
Corros									
Corrosion no	tes								
Primary Fabrica	tion 🛮 Cast- Open Back 🗎 Cast- Solid 🗎 Hammered-Sheathing 🗖 Other/Unknown 🖂 Cast- Closed Core 🗎 Hammered-Sheet 🗎 Wire/Rod								
Fabrication No	tes The bell appears to be cast in one piece with no interior core present								
	erial Copper S Gold Alloy Organic Resin Stone Shell Composite Unknown Not present Other Green corrosion in a dark metal substrate with gold colored surface that is flaking								
Material No	stes Green corrosion in a dark metal substrate with gold colored surface that is flaking								
Surface Colora	tion Coppery Gold Reddish Pinkish Mixed Other								
Coloration No									
	ning Surface Enrichment ☑ Polished ☐ None ☐ Other								
Finishing No	otes Burnished?								
Decorative de	ails 🛮 All cast 🗆 Embossed 🔲 Incised 🔲 Chased 🗀 Filigree 🔲 Granulation 🔲 Punched 🖾 Other								
Decorative detail no	otes								
Joir	nery All cast Mechanical Solder Other/Unknown								
Joinery No	otes								
Usewear/toolma	Abrasion Rubbed Scratches Burr(s) Cracking Incised Core/Investment Other								
Usewear/toolmarks No	otes								
Pseudomor									
Analysis re									
Analysis Rec Notes Areas where surface has flaked off may provide a good cross section for ESEM-EDS									
	☐ Special ☐ Followup ☐ Re-do ☐ Conservation required ☐ Re-packaging required ☐ Other								
Analysis #1	Type XRF Analysis Operator ACH Analysis Date 12/1/2009 E Reliability questionable accuracy								
	Analysis location notes Flaking gold surface, corroded core								
Element Cu Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed (%) 30.5 65.0 4.2									
Analysis #2	Type Analysis Operator Analysis Date Reliability								
Location of analy									
Element Cu (%)	Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed Results								



Smithsonian Museum Conservation Institute Pre-Columbian Gold in the **Object Report** Smithsonian Collections Museum/Object Info Object/Catalogue # A392246 0

Object/Catalogue #	A382246-	Owner NMN	H Count 1		Curation Location	on MS	SC		All Parks			
Object Class	Pendant		Object Sub-Class	Zo	o-Frog							
Country	Panama								of little			
Site	No info	info Geographic Zone VGC Style										
Provenience		Field Notes 🖾 Accession docs/letters 🗆 Stylistic 🗆 Other										
Documentation	☐ Publicati	Publication										
Accession #	159473	473 Name in Records Ornament - Toad Effigy							تيملي			-
Collector	Sr.Juan Gra	tacos						in table by	in a su	Truste or		
Donor	Mason, J Ale	den; 1941-Mar-29;	19	941					-			
Cultural ID			Period									
Catalogue Info	Panama, Ve	Accession Info Gold plated figurine ornaments from Prov. of Veraguas, Pana collected y Sr. Juan Gratacos, Panama, and from him purchase										
Research Notes		ession records specify "no info on site." Juan References tacos, however, did send Lothrop site info on										
Technical Exami	ination E	tion Examination Visual Microscopy MicroPhoto Other Exam Operator ACH Exam date 11/10/2008									8	
Descrip	tion Open b	ack cast frog penda	int in Au-Cu alloy wi	ith	enriched surface	layer.	The frog has	s thin flat ban	ds for feet ar	nd exter	nding from	the
	mouth a	are spiral decoration										
2105		wax model.										_
Measureme						- 1		Г				_
1200 BOOK 2429 NO 90000	Lengt					iam.:		Thickness:		eight:		_
Condition/Treatment No	otes The per	ndant is broken in th se alloy is heavily m	ree pieces, which in	ncl	udes a main body s dark brown to b	/ fragn	nent, a broke	n off suspens	sion loop and	a brok	en PL foot	i. areas
		in the enriched gold									ly. Large	aicas
Corros	ion 🔲 Non	e 🛛 Green-Surfac	ce Green-Core	[☐ Black-Surface	⊠в	Black-Core [☐ Red-Surfa	ce 🗆 Red-	Core	Other	
Corrosion no	tes interior	is heavily mineralize	ed and appears dar	k b	rown/black where	the s	urface gold h	as flaked aw	ay. Extensiv	e greer	corrosion	1
Primary Fabrica	_	t- Open Back t- Closed Core	Cast- Solid		Hammered-She	athing	Other/U	Jnknown				
Fabrication No		ack cast. No hamm		_		e feet	are irregular	shaped and	may have be	en ham	mered.	
Mate	erial Cop	☐ Copper ☑ Gold Alloy ☐ Organic ☐ Resin ☐ Stone ☐ Shell ☐ Composite ☐ Unknown ☐ Not present ☐ Other										
Material No	otes The bas	The base alloy is heavily mineralized (black) with extensive green corrosion over the surface of the gold exterior layer indicating the										
Surface Colora		presence of a Cu-alloy with Au enriched surface layer ☐ Coppery ☑ Gold ☐ Reddish ☐ Pinkish ☐ Mixed ☐ Other										
		There is a thin layer of shiny gold at the surface, under which is a dark substrate that ranges from porous and friable to compact.										
Finish	(6/4)					iain si	ubstrate triat	ranges nom	porous and n	lable to	Compact	
		☑ Surface Enrichment ☑ Polished ☐ None ☐ Other The gold surface appears compact and shiny, indicating that it may have been burnished										
Decorative detail no		ast 🔲 Ellibossed	Linesed Lie	IIas	sed 🗀 i iligiee		ianulation L	_ runched	Other			
		ast Mechanical	□ Solder □ O	the	ar/I Inknown							
Joinery No		ast 🔲 Wechanica	30ider 🗆 O	tile	SI/OTIKITOWIT							
	2010		D	_								
Usewear/toolma Usewear/toolmarks No		asion Rubbed		Bu	rr(s) Li Crackin	g⊔	Incised L	Core/Investr	nent LI Oth	er		
Pseudomor		es likely from clean		_	F							
		eudomorph Org	-			10011			0.11			
Analysis Rec No		X-ray radiogra			LI PIXE LI LA	ICPM	S LI Metal	ograpny 🗀	Other			\neg
Analysis Rec Notes Too heavily mineralized to produce good results Special Followup Re-do Conservation required Re-packaging required Other												
Analysis #4				_								
Analysis #1		De XRF	Analysis Ope	rat		(5)	Date 12/1/20					=
	2	, Foot fragment, cer	DATE: 150	_	TOTAL CONTRACTOR OF THE PARTY O		cation notes					_
Element Cu (%) 70.3	Au Ag 28.1 1.6	Zn Cd As	Ni Fe Si		Sb Hg F	<u></u>	Bi Trace	Removed V, Zr	Results			7
Analysis #2	Ту	pe XRF	Analysis Ope	era	tor ACH Ana	alysis I	Date 12/1/20	009 📖 R	eliability			=
Location of analysis Obverse ,Middle top of back Analysis location notes black surface, enriched layer gone												
Element Cu	Au Ag	Zn Cd As	Ni Fe S	n	5233	b		Removed	Alextra less			\neg
(%) 60.1	37.4 2.6	_الـــالـــالـــ	_					V, Os	Results			

Museum/Object	Info	Similar Concerns	
Object/Catalogue#	A391968-0 Owner NMNH Count 1 Curation Location MSC	5.8-136	
Object Class	Pendant Object Sub-Class Zoo-Felid-Jaguar		
Country			
Site Provenience	From vicinity of Geographic Zone VGC-Pacific Style		
Documentation	☐ Field Notes	KADA	
Accession#	181391 Name in Records Ornament, Jaguar-God	en al antique de la constitución	
Collector	Sr.Juan Gratacos Date Collected		
Donor	Curtis, Karl P; 1948-Dec-30; Date Accessioned	into traffic to the incoming of the latest	
Cultural ID	"Veraguas" Period Accession Info Two part gold ornamer	nts of Veraguas culture from Panama; no	
Catalogue Info		ved with the specimen	
Research Notes	Accession records: purchased from Karl P. Curtis. Not other information received with specimens"	Charles and the control of the contr	
Technical Exami	nation Examination ☑ Visual ☑ Microscopy ☐ MicroPhoto ☐ Other Exam Oper		
Descrip	areas between the darker gold and pinkish copper, particularly at decorative indentations.		
Magazzan	foot and break in thin PR wire connecting hand and headdress.		
Measureme		kness: Weight:	
Condition/Treatment No			
	where some black corrosion is visible under magnification under the surface. There is a t	oreak in the wire above the PL arm that is	
Corros	out of plane and there is a small amount of clear adhesive residue on surface. Clear coal ion ☐ None ☒ Green-Surface ☐ Green-Core ☐ Black-Surface ☒ Black-Core ☐ R	The state of the s	
Corrosion no			
	tition ⊠ Cast- Open Back ☐ Cast- Solid ☐ Hammered-Sheathing ☐ Other/Unkr		
Filliary Fabrica	☐ Cast- Closed Core ☐ Hammered-Sheet ☐ Wire/Rod	IOWII	
Fabrication No	Open back cast with extensive wire-like decoration in the wax model. Dendritic structure include missing PL foot (with dendritic structure extending over stump) and break in wire		
Mate	erial Copper S Gold Alloy Organic Resin Stone Shell Composite		
Material No	Describing attractives assessed		
Surface Colora	tion 🛮 Coppery 🔻 Gold 🔲 Reddish 🔲 Pinkish 🔻 Mixed 🔲 Other		
Coloration No		phases in dendritic structure) and also	
Finis	ning Surface Enrichment Polished None Other		
Finishing No	otes		
Decorative de	tails ☑ All cast ☐ Embossed ☐ Incised ☐ Chased ☐ Filigree ☐ Granulation ☐ P	unched Other	
Decorative detail ne	otes		
Join	nery 🛮 All cast 🔲 Mechanical 🔲 Solder 🔲 Other/Unknown		
Joinery No	otes Possible later additions on flanges but may be in wax model		
Usewear/toolm	arks Abrasion Rubbed Scratches Burr(s) Cracking Incised Cor	e/Investment	
Usewear/toolmarks No			
Pseudomor			
Analysis n			
Analysis Rec N	Dites General XRF. ESEM-EDS in areas of different colors and in different phases of dendritic ☐ Special ☐ Followup ☐ Re-do ☐ Conservation required ☐ Re-packaging required		
Analysis #1			
	Type XRF Analysis Operator ACH Analysis Date 12/1/2009 sis Reverse ,PR leg at bend Analysis location notes Odd		
Element Cu	Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Ro		
(%) 30.0		Zr, Os Results	
Analysis #2	Type XRF Analysis Operator ACH Analysis Date 12/1/2009	Reliability	
Location of analy	하는 사람들이 보고 있다면 보다 되었다면 보다 되었다면 보고 보고 있다면 보고 있다면 보고 있다면 보고 있다면 보다 있다면 보고 있다면 보다 되었다면 보다 되었다면 보다 되었다면 보다 없다면 보다 다른 사람들이 되었다면 보다	erdendritic corrosion, sound metal	
Element Cu (%) 29.7	Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Ro	emoved Zr, Os Results	



1	Museum Conservation Institute	Ob
VIII	seum/Ohiect Info	

wuseum/Object	mo			
Object/Catalogue #	A391969-0 Owner NMNH Count 1 Curation Location MSC			
Object Class	Pendant Object Sub-Class Zoo-Felid-Jaguar			
Country	Panama Province Veraguas (?) Area			
Site	From vicinity of Geographic Zone VGC-Pacific Style			
Provenience Documentation	☐ Field Notes ☑ Accession docs/letters ☐ Stylistic ☑ Other ☐ Publication ☐ Inferred ☐ None			
Accession #	181391 Name in Records Ornament, Jaguar-God			
Collector	Sr.Juan Gratacos Date Collected			
Donor	Curtis, Karl P; 1948-Dec-30; Date Accessioned			
Cultural ID	"Veraguas" Period			
Catalogue Info	Panama, Panama Accession Info Two part gold ornaments of Veraguas culture from Panama; no other information received with the specimen			
Research Notes	Accession records: purchased from Karl P. Curtis. Not other information received with specimens" References Holmes, W.H., 1887 "The Use of Gold and Other Metals among the Ancient Inhabitants of Chiriqui, Isthmus of Darien," Bureau of			
Technical Exami	nation Examination ☑ Visual ☑ Microscopy ☐ MicroPhoto ☐ Other Exam Operator ACH			
Descrip	tion Open back cast pendant with Cu-Au alloy and enriched gold surface. Jaguar god pendant decorated all in wax model with gold wire, scrolls, back suspension loop, snake anklets, scrolls, ball eyes, phalus, and balls at armpits may be nipples/breasts? Heavily			
	corroded			
Measureme				
	Length: Width: Height: Diam.: Thickness: Weight:			
Condition/Treatment No	Heavily corroded and fragmentary (PL arm missing). Covered in brown accretions. Interior appears mostly mineralized with a thick black layer under the gold surface and a coppery colored center in some cross sections. Object in 3 frags, 2 frags appear to have			
	been adhered in past. Object is brittle and a large crack extends through torso just over proper left leg, revealing black interior			
Corros	There is discretified in the control			
Corrosion no	Covered in brown accretions and green corrosion. Interior appears mostly mineralized with a thick black layer under the gold surface			
Primary Fabrica	tion			
Fabrication No	otes Open back cast			
Mate	erial Copper S Gold Alloy Organic Resin Stone Shell Composite Unknown Not present Other			
Material No	0.44			
Surface Colora	tion Coppery Gold Reddish Pinkish Mixed Other			
Coloration No	otes Gold surface visible in some areas, black center, green corrosion on top			
Finisi	ning ☑ Surface Enrichment ☑ Polished ☐ None ☐ Other			
Finishing No	Where visible, the gold surface is compact and shiny			
Decorative de	tails All cast Embossed Incised Chased Filigree Granulation Punched Other			
Decorative detail no	otes			
Joir	nery ☑ All cast ☐ Mechanical ☐ Solder ☐ Other/Unknown			
Joinery No	otes			
Usewear/toolma Usewear/toolmarks No				
Pseudomor				
Analysis r	2 - soudemorphi 2 significe 2 from 2 cutof from			
Analysis Rec No				
	☐ Special ☐ Followup ☐ Re-do ☐ Conservation required ☐ Re-packaging required ☐ Other			
Analysis #1	Type XRF Analysis Operator ACH Analysis Date 12/2/2009 Reliability			
Location of analy	sis Obverse ,PR leg at knee Analysis location notes gold surface with pinkish accretion			
Element Cu (%) 23.5	Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed 71.1 3.9 Rb, Os Results			
Analysis #2				
	Type XRF Analysis Operator ACH Analysis Date 12/2/2009 III Reliability			
Element Cu	sis Obverse ,PR leg at knee Analysis location notes gold surface with pinkish accretion Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed			
(%) 23.6	71.0 3.9 1.6 Rb, Os Results			

Pre-Columbian Gold in the Smithsonian Collections

Smithsonian Collections Museum/Object Info Owner NMNH Object/Catalogue # A391970-0 Count 1 Curation Location MSC Object Sub-Class Zoo-Bird Object Class Pendant Province Veraguas Panama Country Sona, Shaft Tombs Geographic Zone VGC-Pacific Style Site Provenience ☐ Field Notes Accession docs/letters ☐ Stylistic ☐ Other... Documentation Publication ☐ Inferred ■ None Name in Records Gold-Plated Ornament - King Vulture Accession # 181570 **Date Collected** Collector Sr.Juan Gratacos (?) Date Accessioned Donor Curtis, Karl P; 1949-Jan-13; Cultural ID Period Catalogue Info Panama, Veraguas Province, Sona, Shaft Tombs In Accession Info Gold-plated ornaments from shaft tombs in vicinity of Sona, Veraguas Panama. presented to the US national Museum by Mr. Vicinity Of Similar example in Lothrop "Veraguas" pg.56, fig.72b References Research Notes Exam date 11/10/2008 Exam Operator ACH Description Open back cast bird pendant with rattle bell eyes with clappers and large rattle bell with working clapper as body. W shaped object in beak. Head has open back, but back of body is in same plane as wings and tail. Au-Cu alloy with surface enrichment Measurements Width: Height: Diam .: Thickness: Length: Fragmentary. Left wing tip missing, L wing and right base end recently broken and present as fragments. Highly mineralized core Condition/Treatment Notes metal. Past mechanical cleaning evident as extensive scratch marks. Pinkish powdery accretion over surface. Corrosion □ None ☑ Green-Surface □ Green-Core □ Black-Surface ☑ Black-Core □ Red-Surface □ Red-Core □ Other... Corrosion notes Green corrosion present on surface. Black mineralized material at interior. Primary Fabrication ☐ Cast- Solid ☐ Hammered-Sheathing ☐ Other/Unknown ☑ Cast- Open Back ☐ Cast- Closed Core ☐ Hammered-Sheet ☐ Wire/Rod Fabrication Notes Open back cast for head. Eyes and body bells cast all together. Flat tail and wings may be hammered ☐ Copper ☑ Gold Alloy ☐ Organic ☐ Resin ☐ Stone ☐ Shell ☐ Composite ☐ Unknown Other... Material ■ Not present Gold surface visible under corrosion and accretions. **Material Notes** Surface Coloration Coppery Gold Reddish Pinkish Mixed Other Covered in brown burial dirt (?) or surface accretions and green corrosion. Under corrosion and accretions is a gold layer visible in Coloration Notes Surface Enrichment □ Polished □ None □ Other Finishing Finishing Notes Decorative details ☒ All cast ☐ Embossed ☐ Incised ☐ Chased ☐ Filigree ☐ Granulation ☐ Punched ☒ Other... Decorative detail notes Presumed that all done in casting however object is covered in corrosion and accretions so cannot be confirmed visually Joinery ☒ All cast ☐ Mechanical ☐ Solder ☒ Other/Unknown Joinery Notes Presumed that all done in casting however object is covered in corrosion and accretions so cannot be confirmed visually ☐ Abrasion ☐ Rubbed ☒ Scratches ☐ Burr(s) ☒ Cracking ☐ Incised ☐ Core/Investment Usewear/toolmarks Usewear/toolmarks Notes ☐ Pseudomorph ☐ Organics ☒ None ☐ Other Notes Pseudomorphs Analysis rec's

XRF

X-ray radiograph □ ESEM-EDS □ PIXE □ LA-ICPMS □ Metallography □ Other Analysis Rec Notes Too mineralized for useful analysis except for thickness of gold layer. Low priority X-radiography- presumed all cast but can be ☐ Special ☐ Followup ☐ Re-do ☐ Conservation required ☐ Re-packaging required ☐ Other... Analysis #1 Analysis Date 12/2/2009 E Reliability Type XRF Analysis Operator ACH questionable accuracy Location of analysis Reverse ,bottom of tail at center (gold) Analysis location notes mottled gold surface, green corrosion Sb Trace Removed Zn Cd Fe Sn Ag 0.2 At, Rb Results (%) 57.6 40.0 2.1 Analysis #2 Type XRF Analysis Operator ACH Analysis Date 12/2/2008 E Reliability Analysis location notes Accretion present over surface Location of analysis Reverse, PL edge of tail (accreted) Trace Removed Fe Sn Sb Element 0.7% Ti detected Results 5.3 Ti 85.1 7.9 0.9 (%)



Museum Conservation Institute	Opjedite
Museum/Object Info	

Object/Catalogue #	A391971-0 Owner NMNH Count 1 Curation Location MSC		
Object Class	endant Object Sub-Class Zoo-Bird		
Country	Panama Province Veraguas Area		
Site	na, Shaft Tombs Geographic Zone VGC-Pacific Style		
Provenience Documentation	☐ Field Notes ☐ Accession docs/letters ☐ Stylistic ☐ Other ☐ Publication ☐ Inferred ☐ None		
Accession#	181570 Name in Records Gold-Plated Ornament - King Vulture		
Collector	Sr. Juan Gratacos (?) Date Collected		
Donor	Curtis, Karl P; 1949-Jan-13; Date Accessioned		
Cultural ID	Period		
Catalogue Info	Panama, Veraguas Province, Sona, Shaft Tombs In Vicinity Of Accession Info Gold-plated ornaments from shaft tombs in vicinity of Sona, Veraguas Panama. presented to teh US national Museum by Mr.		
Research Notes	References		
Technical Exam			
Descri	Open back cast bird pendant with small hemispherical body and projecting legs, ball in ring eyes, open curved beak, 5 small hemispherical projections on either wing, and flat, thin tail. Au-Cu alloy with surface enrichment. One suspension loop at center back.		
Measurem	ents		
	Length: Width: Height: Diam.: Thickness: Weight:		
Condition/Treatment N	otes Almost entirely mineralized and very fragile. Past restoration of PL wing evident from break and yellowed adhesive. Entire core appears black and mineralized and there is extensive loss of metal substrate, leaving gold layer suspended over surface and flaking off.		
Corro	sion None Green-Surface Green-Core Black-Surface Black-Core Red-Surface Red-Core Other		
Corrosion no	Some green corrosion and brown accretions on surface, but mostly cleaned revealing gold. Some broken areas also reveal pockets		
Primary Fabric	ation Cast- Open Back Cast- Solid Hammered-Sheathing Other/Unknown Cast- Closed Core Hammered-Sheet Wire/Rod		
Fabrication N	otes open back cast. Slightly irregular edges of tail may indicate hammering		
Ma	erial ☐ Copper ☒ Gold Alloy ☐ Organic ☐ Resin ☐ Stone ☐ Shell ☐ Composite ☐ Unknown ☐ Not present ☒ Other		
Material N			
Surface Colors	ation Coppery Gold Reddish Pinkish Mixed Other		
Coloration N	otes Shiny gold surface with green corrosion on top and black mineralized material underneath		
Finis	hing Surface Enrichment Polished None Other		
	otes Small hemispherical projections on wings those on the PL wing exhibit preferential corrosion at their centers		
	etails All cast Embossed Incised Chased Filigree Granulation Punched Other		
Decorative detail r			
	nery All cast Mechanical Solder Other/Unknown		
Joinery N	50 Miles 10 miles		
Usewear/toolm			
Usewear/toolmarks N	many containing containing		
Pseudomo	The state of the s		
	ec's XRF X-ray radiograph ESEM-EDS PIXE LA-ICPMS Metallography Other		
Analysis Rec N	otes Too mineralized to produce relevant results (except thickness of gold layer		
	□ Special □ Followup □ Re-do □ Conservation required □ Re-packaging required □ Other		
Analysis #1	Type XRF Analysis Operator ACH Analysis Date 12/2/2009 EEE Reliability		
	rsis Reverse ,PR side of tail just below wing (gold) Analysis location notes Gold surface		
Element <u>Cu</u> (%) 46.7	Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed 50.8 2.2 Pb, Os, Results		
Analysis #2	Type XRF Analysis Operator ACH Analysis Date 12/2/2009 IIII Reliability		
Location of analy	rsis Obverse ,Beak, corroded area Analysis location notes Pink accretion on surface Analysis location notes Pink accretion on surface		
Element Cu	Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed		
(%) 33.0			

Pre-Columbian Gold in the Smithsonian Collections

Museum/Object Info A391972-0 Owner NMNH Object/Catalogue # Count 1 Curation Location MSC Object Sub-Class Zoo-Bird Object Class Pendant Province Veraguas Panama Country Sona, Shaft Tombs Geographic Zone VGC-Pacific Style Site Provenience ☐ Field Notes ★ Accession docs/letters ☐ Stylistic Documentation Publication ☐ Inferred ☐ None Name in Records Gold-Plated Ornament - King Vulture Accession # 181570 **Date Collected** Collector Sr.Juan Gratacos (?) **Date Accessioned** Donor Curtis, Karl P; 1949-Jan-13; Period Cultural ID Panama, Veraguas Province, Sona, Shaft Tombs In Accession Info Gold-plated ornaments from shaft tombs in vicinity of Sona, Catalogue Info Veraguas Panama. presented to teh US national Museum by Mr. Vicinity Of References Research Notes Exam Operator ACH Exam date | 11/17/2008 | Description Open back cast bird pendant with small hemispherical body, small suspension loop in back, two projecting feet in front, ball in ring eyes on sides of head, open, hooked beak. Measurements Width: Height: Diam .: Thickness: Length: Broken in 2 pieces with some small losses around edges of wings and tail. A large crack/loss is present just above the PR wing, Condition/Treatment Notes extending into the body. Covered in pinkish/light brown accretion (burial soil?) and light green corrosion over surface. Core appears black Corrosion □ None ☑ Green-Surface □ Green-Core □ Black-Surface ☑ Black-Core □ Red-Surface □ Red-Core □ Other... Corrosion notes Under gold surface layer, completely black in cross section. Light powdery green corrosion on surface and glassy emerald green Primary Fabrication Cast- Solid ☐ Hammered-Sheathing ☐ Other/Unknown ☐ Cast- Closed Core ☐ Hammered-Sheet ☐ Wire/Rod Fabrication Notes Open back cast with small indentation for body and open backed head. The rest of the body (wings and tail) is thin and flat □ Copper ☑ Gold Alloy □ Organic □ Resin □ Stone □ Shell □ Composite □ Unknown □ Not present □ Other... Material Green corrosion and black mineralized core Material Notes Surface Coloration Coppery Gold Reddish Pinkish Mixed Other Coloration Notes Exterior layer appears shiny gold Gold layer on exterior is flaking off revealing black interior Finishing Notes ☑ All cast ☐ Embossed ☐ Incised ☐ Chased ☐ Filigree ☐ Granulation ☐ Punched ☐ Other... Decorative details Decorative detail notes □ All cast □ Mechanical □ Solder ☐ Other/Unknown Joinery Joinery Notes ☐ Scratches ☐ Burr(s) ☐ Cracking ☐ Incised ☐ Core/Investment ☐ Other ☐ Abrasion ☐ Rubbed Usewear/toolmarks Usewear/toolmarks Notes ☐ Pseudomorph ☐ Organics ☒ None ☐ Other Notes Pseudomorphs Analysis rec's ☒ XRF ☒ X-ray radiograph ☐ ESEM-EDS ☐ PIXE ☐ LA-ICPMS ☐ Metallography ☐ Other Analysis Rec Notes Appears almost completely mineralized. Not useful for further study ☐ Special ☐ Followup ☐ Re-do ☐ Conservation required ☐ Re-packaging required ☐ Other... Analysis #1 Analysis Operator ACH Analysis Date 12/2/2009 Reliability Type XRF Location of analysis Reverse ,Lowest point on break edge of body piece Analysis location notes Gold surface Sb Trace Removed Cd Fe Element 1.7 Results 43.8 3.2 (%)51.3 Analysis #2 Analysis Date Reliability Analysis Operator Type Analysis location notes Location of analysis Removed Ag Zn Cd As Ni Fe Sn Sb Hg Trace Element Results (%)



Museum	Obiect/	Info	

maccanii object				
Object/Catalogue #	A391973-0 Owner NMNH Count 1 Curation Location MSC			
Object Class	Pendant Object Sub-Class Zoo-Bird			
Country	Panama Province Veraguas Area			
Site	Sona, Shaft Tombs Geographic Zone VGC-Pacific Style			
Provenience Documentation	☐ Field Notes ☐ Accession docs/letters ☐ Stylistic ☐ Other ☐ Publication ☐ Inferred ☐ None			
Accession#	181570 Name in Records Pendand, Bird, Tumbaga Gold			
Collector	Sr. Juan Gratacos (?) Date Collected			
Donor	Curtis, Karl P; 1949-Jan-13; Date Accessioned			
Cultural ID	"Classic Veraguas Culture Period Peri			
Catalogue Info	Panama, Veraguas Province, Sona, Shaft Tombs In Vicinity Of Veraguas Panama. presented to teh US national Museum by Mr.			
Research Notes	Analyzed (Cal #0001) found to be 8 carat References			
Technical Exami	nation Examination ☑ Visual ☑ Microscopy ☐ MicroPhoto ☐ Other Exam Operator ☐ CH ☐ Exam date ☐ 11/17/2008 ☐ ☐			
Descrip	tion Open back cast bird pendant with spiral earrings, large curved "ears", single suspension loop, no body but two projecting feet, ball in ring eyes, straight open beak.			
Measureme	ents			
	Length: Width: Height: Diam.: Thickness: Weight:			
Condition/Treatment No	Tips of wings are broken off and the pendant is covered in green corrosion and brown accretions. There is heavy abrasion of the surface in some areas which appears to have scratched and removed some of the gold surface, likely due to over cleaning.			
Corros	ion ☐ None ☒ Green-Surface ☐ Green-Core ☐ Black-Surface ☒ Black-Core ☐ Red-Surface ☐ Red-Core ☐ Other			
Corrosion no	Break edges show black interior with some coppery metal at core. Surface is mottled with dark green corrosion			
Primary Fabrica	Primary Fabrication			
Fabrication No	The state of the s			
Mate	Material ☐ Copper ☒ Gold Alloy ☐ Organic ☐ Resin ☐ Stone ☐ Shell ☐ Composite ☐ Unknown ☐ Not present ☐ Other			
Material No	gold surface with green corrosion present			
Surface Colora	tion Coppery Gold Reddish Pinkish Mixed Other			
Coloration No	otes Surface appears gold but in areas of abrasion there is some coppery color showing through			
Finisl	ning Surface Enrichment Polished None Other			
Finishing No	otes			
	tails All cast Embossed Incised Chased Filigree Granulation Punched Other			
Decorative detail no				
	nery All cast Mechanical Solder Other/Unknown			
Joinery No				
Usewear/toolm				
Usewear/toolmarks No	- I and the state of the state			
Pseudomor				
	ec's XXF XXF X-ray radiograph XESEM-EDS PIXE LA-ICPMS X Metallography Other			
Analysis Rec Notes Was previously analyzed and there is a metallographic cross section for this sample (N-17?)				
	☐ Special ☐ Followup ☐ Re-do ☐ Conservation required ☐ Re-packaging required ☐ Other			
Analysis #1	Type XRF Analysis Operator ACH Analysis Date 12/2/2009 Reliability questionable accuracy sis Reverse ,PL side of tail Analysis location notes Mottled green corrosion and white accretion			
3.22	AND DESCRIPTION OF THE PROPERTY OF THE PROPERT			
Element Cu Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed (%) 54.5 42.4 2.4 0.7 0.7 Results				
Analysis #2	Type Analysis Operator Analysis Date Reliability			
Location of analysis Analysis location notes				
Element Cu	Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed			
(%)	Results			



Museum/Object Info			
Object/Catalogue # A	391974-0 Owner NMNH Count 1 Curation Location MSC		
Object Class Per	endant Object Sub-Class Zoo-Bird		
	nama Province Veraguas Area		
	na, Shaft Tombs Geographic Zone VGC-Pacific Style		
D	Field Notes Accession docs/letters Stylistic Other Publication Inferred None		
Accession # 181	570 Name in Records Gold-Plated Ornament Fgt King		
Collector Sr.	Juan Gratacos (?) Date Collected		
	rtis, Karl P; 1949-Jan-13; Date Accessioned		
Cultural ID	Period Pe		
	nama, Veraguas Province, Sona, Shaft Tombs In Accession Info Gold-plated ornaments from shaft tombs in vicinity of Sona, Veraguas Panama. presented to teh US national Museum by Mr.		
Research Notes	References		
Technical Examina	tion Examination ☑ Visual ☑ Microscopy ☐ MicroPhoto ☐ Other Exam Operator ACH		
Description	Open back cast bird pendant. Suspension loop in form of slightly curved bar across back of neck. Body is hemispherical with two projecting feet. Bead eyes and large flat ears. Wide open hooked beak.		
Measurements			
Wedstrements	Length: Width: Height: Diam.: Thickness: Weight:		
Condition/Treatment Notes	Fragmentary. All of tail is missing and parts of both wings. Covered in brown accretions especially on back (burial soil?). The Au		
	surface is abraded and flaking off to reveal a black layer underneath. Green corrosion over surface appears to have been cleaned mechanically in some areas as there is heavy abrasion/scratching of surface gold. Odd surface at PR ear may be from corrosion		
Corrosion			
Corrosion notes	Light green corrosion over surface with black layer underneath gold. Not completely mineralized, however, as there is a coppery		
Primary Fabrication	☑ Cast- Open Back ☐ Cast- Solid ☐ Hammered-Sheathing ☐ Other/Unknown		
Fabrication Notes	Cast- Closed Core Hammered-Sheet Wire/Rod Pitted gold surface at interior of head, likely casting remnants. Odd surface morphology at PR ear may be from corrosion or casting		
Materia	☐ Copper ☑ Gold Alloy ☐ Organic ☐ Resin ☐ Stone ☐ Shell ☐ Composite ☐ Unknown ☐ Not present ☐ Other		
Material Notes	Coppery interior with gold surface enrichment		
Surface Coloration	☐ Coppery ☑ Gold ☐ Reddish ☐ Pinkish ☐ Mixed ☐ Other		
	Compact, shiny gold layer on surface with some coppery hue in abraded areas		
	☑ Surface Enrichment ☑ Polished ☐ None ☐ Other		
Finishing Notes			
Deparative details	□		
Decorative detail notes			
	☑ All cast ☐ Mechanical ☐ Solder ☐ Other/Unknown		
Joinery Notes			
Usewear/toolmarks Usewear/toolmarks Notes			
Pseudomorphs			
Analysis rec's			
Analysis Rec Notes	Break edges at wing and tail reveal coppery core metal- may be good for ESEM EDS if not too large		
	☐ Special ☐ Followup ☐ Re-do ☐ Conservation required ☐ Re-packaging required ☐ Other		
Analysis #1	Type XRF Analysis Operator ACH Analysis Date 12/2/2009 E Reliability questionable accuracy		
Location of analysis	Reverse ,PR wing, Near bottom corner (cleaned, slightly Analysis location notes small patch of gold		
Element Cu A (%) 52.0 44			
Analysis #2	Type XRF Analysis Operator ACH Analysis Date 12/2/2009 IIII Reliability		
Location of analysis	Reverse ,Body, lowest point near break edge (corroded and Analysis location notes surface covered in pinkish accretion and		
Element Cu A (%) 96.4 1	u Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed 7 0.8 Results		



	MINICHIII	Constitution Institute	
Mus	seum/Ob	biect Info	

Object/Catalogue #	A391975-0 Owner NMNH Count 1 Curation Location MSC		
Object Class	ndant Object Sub-Class Zoo-Simian		
Country	nama Province Veraguas Area		
Site	Sona, Shaft Tombs Geographic Zone VGC-Pacific Style		
Provenience Documentation	☐ Field Notes ☑ Accession docs/letters ☐ Stylistic ☐ Other ☐ Publication ☐ Inferred ☐ None		
Accession #	181570 Name in Records Gold-Plated Ornaments - 2-Headed		
Collector	Sr. Juan Gratacos (?) Date Collected		
Donor	Curtis, Karl P; 1949-Jan-13; Date Accessioned		
Cultural ID	Period		
Catalogue Info	Panama, Veraguas Province, Sona, Shaft Tombs In Vicinity Of Accession Info Veraguas Panama. presented to teh US national Museum by Mr.		
Research Notes	References		
Technical Exam	ination Examination 🛮 Visual 🖾 Microscopy 🗆 MicroPhoto 🗀 Other Exam Operator ACH Exam date 11/17/2008 🏢		
Descrip	Open back cast double headed monkey pendant holding double wire tail around head with seven S scroll decorative elements. Single body, pair of arms, phallus, and pair of legs. Arms have high, pointed elbows and wire hands. Legs have snake anklets with wire decoration. Feet are broad, flat, and toeless. Single suspension loop in open back. Noses are large and bulbous, wire mouths,		
Measurem			
	Length: Width: Height: Diam.: Thickness: Weight:		
Condition/Treatment No.	backed with some bakelite-type material. Several holes, including in PR hip, and PL forehead may be from casting or from corrosion and dissolution. Edges of some of the S scrolls are broken revealing black core under surface. Gold surface almost entirely intact.		
Corros	Trong 2 decir curiace 2 decir curiace 2 black-curiace 2 black-curiace 1 ked-curiace 1 ked-curiace 1 curion		
	At bloken 3 sciolis, black militeralized interior visible. Green boltroital clusters of green corrosion overs one areas of the surface.		
Primary Fabrica	ttion ☐ Cast- Open Back ☐ Cast- Solid ☐ Hammered-Sheathing ☐ Other/Unknown ☐ Cast- Closed Core ☐ Hammered-Sheet ☐ Wire/Rod		
Fabrication N	otes Molding of elements appears similar to wax model. Back appears rough inside heads. Suspension loop is warped, either from casting or use. Hammered feet?		
Mat	erial Copper Gold Alloy Corganic Resin Stone Shell Composite Unknown Not present Other		
Material N			
Surface Colora	tion ☐ Coppery ☒ Gold ☐ Reddish ☐ Pinkish ☐ Mixed ☐ Other		
Coloration N			
Finis	hing Surface Enrichment Polished None Other		
Finishing N	otes		
Decorative de	tails All cast Embossed Incised Chased Filigree Granulation Punched Other		
Decorative detail n	otes All wire and scrolls appear to have been made in wax model		
Join	nery All cast Mechanical Solder Other/Unknown		
Joinery N	otes Many lines at the joins, most likely retained from wax model. Joins appear 'smeared' in areas from the joining of two wax elements		
Usewear/toolm Usewear/toolmarks No			
Pseudomo	phs		
Analysis r	ec's X XRF X X-ray radiograph ☐ ESEM-EDS ☐ PIXE ☐ LA-ICPMS ☐ Metallography ☐ Other		
Analysis Rec N			
	☐ Special ☒ Followup ☐ Re-do ☐ Conservation required ☐ Re-packaging required ☐ Other		
Analysis #1	Type XRF Analysis Operator ACH Analysis Date 12/2/2009 E Reliability		
Location of analy	sis Obverse ,PL animal, face Analysis location notes gold surface		
Element Cu (%) 31.7	Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed 61.4 6.5		
Analysis #2	Type XRF Analysis Operator ACH Analysis Date 12/2/2009 E Reliability		
Location of analy	sis Obverse ,PR leg, knee (some green corrosion) Analysis location notes green corrosion on gold surface		
Element Cu	Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed		
(%) 47.9	48.2 3.4 0.5 Results		

Museum/Object I				
Object/Catalogue #	A391976-0 Owner NMNH Count 1 Curation Location MSC			
Object Class	Pendant Object Sub-Class Zoo-Felid-Jaguar			
	Panama Province Veraguas Area			
Site Provenience	Sona, Shaft Tombs Geographic Zone VGC-Pacific Style			
Documentation	☐ Field Notes ☐ Accession docs/letters ☐ Stylistic ☐ Other ☐ Publication ☐ Inferred ☐ None			
Accession#	181570 Name in Records Gold-Plated Ornaments Fgt Jaguar			
Collector	Sr.Juan Gratacos (?) Date Collected			
	Curtis, Karl P; 1949-Jan-13; Date Accessioned			
Cultural ID	Period			
	Panama, Veraguas Province, Sona, Shaft Tombs In Vicinity Of Accession Info Gold-plated ornaments from shaft tombs in vicinity of Sona, Veraguas Panama. presented to teh US national Museum by Mr.			
Research Notes	References			
Technical Exami	nation Examination ☑ Visual ☑ Microscopy ☐ MicroPhoto ☐ Other Exam Operator ☐ CH			
Descrip	Open back jaguar pendent with head turned to side, open mouth, double wire teeth, bead eyes, indented nostrils, and two suspension loops on front feet.			
Measureme	ante			
Measureme	Length: Width: Height: Diam.: Thickness: Weight:			
Condition/Treatment No				
	appears very porous and deteriorated. Broken feet reveal black interior with coppery inclusions and inclusions of green corrosion.			
Corros	Gray to black porous interior in other exposed areas. Covered on interior with pink accretion (burial soil or investment?). Cracks ion ☐ None ☐ Green-Surface ☒ Green-Core ☐ Black-Surface ☒ Black-Core ☐ Red-Surface ☐ Red-Core ☐ Other			
Corrosion no	AND THE PARTY OF T			
Primary Fabrica	tion 🗵 Cast- Open Back 🗎 Cast- Solid 💢 Hammered-Sheathing 🔯 Other/Unknown			
Timaly Fabrica	☐ Cast- Closed Core ☐ Hammered-Sheet ☐ Wire/Rod			
Fabrication No	Fabrication Notes Casting marks on interior include ridge that extends length of body. Hole at PL side of head may be casting flaw as well.			
Mate				
Material No	Surface appears gold but interior is black and green corrosion			
Surface Colora	tion Coppery Gold Reddish Pinkish Mixed Other			
	otes Surface appears gold			
Finish	ning Surface Enrichment Polished None Other			
Finishing No	otes Surface appears shiny and gold while interior is black and heavily mineralized			
	tails All cast Embossed Incised Chased Filigree Granulation Punched Other			
	otes All in wax model			
	nery All cast Mechanical Solder Other/Unknown			
Joinery No	otes All in was model			
Usewear/toolma				
Usewear/toolmarks No Pseudomor				
	ec's 🛮 XRF 🔲 X-ray radiograph 🔲 ESEM-EDS 🔲 PIXE 🔲 LA-ICPMS 🔲 Metallography 🔲 Other			
	tes Interior appears mostly mineralized with only inclusions of metal. May skew results			
	☐ Special ☐ Followup ☐ Re-do ☐ Conservation required ☐ Re-packaging required ☐ Other			
Analysis #1	Type XRF Analysis Operator ACH Analysis Date 12/2/2009 E Reliability			
Location of analy	sis Obverse ,Top of head Analysis location notes gold surface enrichment			
Element Cu (%) 22.9	Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed 69.6 6.7 Results			
Analysis #2	Type Analysis Operator Analysis Date Reliability			
Location of analy				
Element Cu	Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed			
(%)	Results			



Pre-Columbian Gold in the 115

Smithsonian	Object Report	Pre-Columbian Gold in th
Museum Conservation Institute	Object Keport	Smithsonian Collection
Museum/Object Info		Smithsonian Conection
01: 1/0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		DATE:

Object/Catalogue #	A391977-0 Owner NMNH Count 1 Curation Location MSC
Object Class	Pendant Object Sub-Class Zoo-Saurian-Crocodile
Country	Panama Province Veraguas Area
Site	Sona, Shaft Tombs Geographic Zone VGC-Pacific Style
Provenience Documentation	☐ Field Notes Accession docs/letters ☐ Stylistic ☐ Other ☐ Publication ☐ Inferred ☐ None
Accession#	181570 Name in Records Gold-Plated Ornament - 2-Headed
Collector	Sr.Juan Gratacos (?) Date Collected
Donor	Curtis, Karl P; 1949-Jan-13; Date Accessioned
Cultural ID	Period
Catalogue Info	Panama, Veraguas Province, Sona, Shaft Tombs In Vicinity Of Accession Info Gold-plated ornaments from shaft tombs in vicinity of Sona, Veraguas Panama. presented to teh US national Museum by Mr.
Research Notes	References
Technical Exami	nation Examination ☑ Visual ☑ Microscopy ☐ MicroPhoto ☐ Other Exam Operator ☐ CH
Descrip	Open back cast double headed crocodile pendant with bell ears with working clappers on both heads, coffee bean eyes, U-shaped multi-wire snouts and feet, wrapped wires extend from all four feet to mouths, 2 suspension loops on front feet of one side. Partially open mouths with wire lips
Measureme	ents
	Length: Width: Height: Diam.: Thickness: Weight:
Condition/Treatment No	loops). Loss on top PL bell/earThe break edges show black interior. Extensive scratching, especially at underside, likely from attempts at mechanical cleaning.
Corros	There is a second the individual
Corrosion no	Green corrosion distributed over surface and black interior visible at cross sections
Primary Fabrica	tion 🛮 Cast- Open Back 🗎 Cast- Solid 💢 Hammered-Sheathing 🗎 Other/Unknown 🗎 Cast- Closed Core 🗎 Hammered-Sheet 🔲 Wire/Rod
Fabrication No	strange projections from both ends of snouts broken off. interior of heads appears irregular and pitted
Mate	erial Copper S Gold Alloy C Organic Resin Stone Shell Composite Unknown Not present Other
Material No	5505
Surface Colora	2 opport 2 on 2 reader 2 reader
Coloration No	1, 5
Finisl	ning Surface Enrichment Polished None Other
Finishing No	, , , , , , , , , , , , , , , , , , , ,
	tails All cast Embossed Incised Chased Filigree Granulation Punched Other
	otes Wire decoration all appears to have been made in the wax model and cast whole
	nery All cast Mechanical Solder Other/Unknown
Joinery No	otes no joinery outside of cast visible
Usewear/toolmarks No	
Pseudomor	phs ☐ Pseudomorph ☐ Organics ☒ None ☐ Other Notes
Analysis r	
Analysis Rec No	otes Visible cross sections look heavily mineralized
	☑ Special ☐ Followup ☐ Re-do ☐ Conservation required ☐ Re-packaging required ☐ Other
Analysis #1	Type XRF Analysis Operator ACH Analysis Date 12/2/2009 IIII Reliability questionable accuracy
Location of analy	sis Obverse ,Bell ear on head with missing spiral wire Analysis location notes A little green corrosion
Element Cu (%) 53.3	Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed 41.7 3.3 Results
Analysis #2	Type XRF Analysis Operator ACH Analysis Date 12/2/2009 IIII Reliability
Location of analy	sis Reverse ,PL suspension loop Analysis location notes metal
Element Cu	Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed
(%) 36.8	56.8 4.6 Results

Museum/Object i		
Object/Catalogue #	A391978-0 Owner NMNH Count 1 Curation Location MSC	
Object Class	Pendant Object Sub-Class Anthro	
Country	Panama Province Veraguas Area	
Site		
Provenience Documentation	☐ Field Notes ☐ Accession docs/letters ☐ Stylistic ☐ Other ☐ Publication ☐ Inferred ☐ None	
Accession #	181570 Name in Records Gold-Plated Ornament - Man Or	
Collector	Sr. Juan Gratacos (?) Date Collected	
Donor	Curtis, Karl P; 1949-Jan-13; Date Accessioned	
Cultural ID	Period	
Catalogue Info	Panama, Veraguas Province, Sona, Shaft Tombs In Vicinity Of Accession Info Veraguas Panama. presented to teh US national Museum by Mr.	
Research Notes	References	
Technical Exami	ination Examination Visual Microscopy MicroPhoto Other Exam Operator ACH Exam date 11/18/2008	
Descrip	stion Small open back cast anthropomorphic pendant with breasts, phallus, ears/headdress and spiral wire earrings, large nose, bead eyes, and pointed suspension loop across back.	
Measureme	ents	
Woddardii	Length: Width: Height: Diam.: Thickness: Weight:	
Condition/Treatment No		
Corros		
Corrosion no	And the state of t	
Primary Fabrica	Some green control on surface, break edges appear dark with some black and merspersed dopper, nocks	
Fabrication No	btes Back is irregular with many ridges and pits. PL eye has extra glob and PL shoulder also has an extra glob on surface, possibly from	
Mat	casting flaws erial ☐ Copper ☒ Gold Alloy ☐ Organic ☐ Resin ☐ Stone ☐ Shell ☐ Composite ☐ Unknown ☐ Not present ☐ Other	
Material No	C. f	
Surface Colora	ition ☐ Coppery ☑ Gold ☐ Reddish ☐ Pinkish ☐ Mixed ☐ Other	
Coloration No	otes gold colored	
Finis	hing Surface Enrichment Polished None Other	
Finishing N	otes Gold color only at surface. Only raised areas appear polished	
Decorative de	tails All cast Embossed Incised Chased Filigree Granulation Punched Other	
Decorative detail n		
Join	nery All cast Mechanical Solder Other/Unknown	
Joinery No	otes	
Usewear/toolm		
Usewear/toolmarks No	Raised surfaces, like the nose, mouth, and breasts appear shiny	
Pseudomoi		
	Analysis rec's	
Analysis Rec N	Troub hard to former boating for Louis Lou	
	☐ Special ☐ Followup ☐ Re-do ☐ Conservation required ☐ Re-packaging required ☐ Other	
Analysis #1	Type XRF Analysis Operator ACH Analysis Date 12/3/2008 EEE Reliability	
T	sis Obverse, knee Analysis location notes	
Element Cu (%) 27.2	Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed 60.0 5.5 Ti Results	
Analysis #2	Type Analysis Operator Analysis Date Reliability	
Location of analy		
Element Cu (%)	Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed Results	



Museum Conservation Institute	Opjec
luseum/Ohiect Info	

Object/Catalo	# [A391979-0 Owner NMNH Count 1 Curation Location MSC	
Object	- i	Pendant Object Sub-Class Zoo-Frog	
		Panama Province Veraguas Area	
00		Sona, Shaft Tombs Geographic Zone VGC-Pacific Style	
Prover	nience	☐ Field Notes ☑ Accession docs/letters ☐ Stylistic ☐ Other	
Documen	itation	Publication Inferred None	
	ř	81570 Name in Records Gold-Plated Ornament - Frog	
		Sr. Juan Gratacos (?) Date Collected	
	Donor lo	Curtis, Karl P; 1949-Jan-13; Date Accessioned	
Catalogu		Panama, Veraguas Province, Sona, Shaft Tombs In Accession Info Gold-plated ornaments from shaft tombs in vicinity of Sona, Veraguas Panama. presented to teh US national Museum by Mr.	
Research	Notes	References	
Technical	Examir	ation Examination ☑ Visual ☑ Microscopy ☐ MicroPhoto ☐ Other Exam Operator ACH	
	Descript		
		above feet.	
Me	asureme		
		Length: Width: Height: Diam.: Thickness: Weight:	
Condition/Treat	ment Not	Fragmentary. 2 piece: a large body portion and the PR foot. Missing small section of body, PR triangular leg, and PL foot. Mostly covered in corrosion but there is evidence of mechanical cleaning in the form of scratches and abraded gold surface. Restored in the	
		past as there is thick application of adhesive along 2 large breaks in body and PL suspension loop. Adhesive has yellowed in areas	
	Corrosio	Train 2 died officer of a died of a	
Corro	osion note	Interior appears black and the exterior is covered in a thick layer of green corrosion over the Au surface. Dendritic structure at interior	
Primary	Fabricati	on 🖾 Cast- Open Back 🔲 Cast- Solid 🔲 Hammered-Sheathing 🔲 Other/Unknown	
Fabric	ation Not	es	
		ial Copper Gold Alloy Organic Resin Stone Shell Composite Unknown Not present Other	
Ma	terial Not	es	
Surface	e Colorati	on Coppery Gold Reddish Pinkish Mixed Other	
Color	ration Not	es	
	Finishi	ng Surface Enrichment Polished None Other	
Finis	shing Not	Measured from photomicrograph, surface layer is approximately 0.0089mm thick	
Decor	ative deta	ils ☑ All cast ☐ Embossed ☐ Incised ☐ Chased ☐ Filigree ☐ Granulation ☐ Punched ☐ Other	
Decorative	detail not	es	
	Joine	ry 🛮 All cast 🗆 Mechanical 🗎 Solder 🗖 Other/Unknown	
Jo	inery Not	es	
Usewea	ar/toolma		
	udomorn	ns Decudement Dougram Miles Dother Notes	
7.41	eudomorp		
	nalysis re	S'S XRF X-ray radiograph SESEM-EDS PIXE LA-ICPMS Metallography Other	
		S'S XRF X-ray radiograph ESEM-EDS PIXE LA-ICPMS Metallography Other ESEM-EDS and there are abundant cross sections visible. Cross section at PR foot especially good	
Analysis	nalysis re	Ses XRF X-ray radiograph ESEM-EDS PIXE LA-ICPMS Metallography Other Definitely small enough to fit in ESEM-EDS and there are abundant cross sections visible. Cross section at PR foot especially good Special Followup Re-do Conservation required Re-packaging required Other	
Analysis Analysis	nalysis red s Rec Not	SS XRF X-ray radiograph SESEM-EDS PIXE LA-ICPMS Metallography Other Definitely small enough to fit in ESEM-EDS and there are abundant cross sections visible. Cross section at PR foot especially good Special Followup Re-do Conservation required Re-packaging required Other Type XRF Analysis Operator ACH Analysis Date 12/3/2009 ESEM Reliability Questionable accuracy	
Analysis Location	nalysis red s Rec Not s #1 of analys	S'S XRF X-ray radiograph ESEM-EDS PIXE LA-ICPMS Metallography Other ESEM-EDS and there are abundant cross sections visible. Cross section at PR foot especially good Pospecial Followup Re-do Conservation required Re-packaging required Other Type XRF Analysis Operator ACH Analysis Date 12/3/2009 Reliability Questionable accuracy Analysis location notes mottled gold surface, green corrosion	
Analysis Analysis	#1 of analys	SS XRF X-ray radiograph SESEM-EDS PIXE LA-ICPMS Metallography Other Definitely small enough to fit in ESEM-EDS and there are abundant cross sections visible. Cross section at PR foot especially good Special Followup Re-do Conservation required Re-packaging required Other Type XRF Analysis Operator ACH Analysis Date 12/3/2009 Reliability Questionable accuracy	
Analysis Location Elemen	#1 of analys t Cu 43.2	S'S XRF X-ray radiograph ESEM-EDS PIXE LA-ICPMS Metallography Other ESEM-EDS PIXE LA-ICPMS Metallography Other Definitely small enough to fit in ESEM-EDS and there are abundant cross sections visible. Cross section at PR foot especially good Pospecial Followup Re-do Conservation required Re-packaging required Other Type XRF Analysis Operator ACH Analysis Date 12/3/2009 Reliability Questionable accuracy Analysis location notes Mottled gold surface, green corrosion Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed	
Analysis Location Elemen (%) Analysis	#1 of analys t Cu 43.2	Second S	
Analysis Location Elemen (%) Analysis	#1 of analys t Cu 43.2 #2 of analys	Sestion Sest	



Museum/Object l	nfo Smithsoman Conetti		
Object/Catalogue#	A391980-0 Owner NMNH Count 1 Curation Location MSC		
Object Class	Pendant Object Sub-Class Zoo-Saurian-Crocodile		
Country	Panama Province Veraguas Area		
Site Provenience	Sona, Shaft Tombs Geographic Zone VGC-Pacific Style		
Documentation	☐ Field Notes ☐ Accession docs/letters ☐ Stylistic ☐ Other ☐ Publication ☐ Inferred ☐ None ☐ None		
Accession #	181570 Name in Records Gold-Plated Ornament Fgt Crocodile		
Maria and the second	Sr.Juan Gratacos (?) Date Collected		
Donor Cultural ID	Curtis, Karl P; 1949-Jan-13; Date Accessioned Period		
Catalogue Info	1 0100	\dashv	
	Panama, Veraguas Province, Sona, Shaft Tombs In Vicinity Of Accession Info Gold-plated ornaments from shaft tombs in vicinity of Sona, Veraguas Panama. presented to teh US national Museum by Mr. References		
Research Notes			
Descrip	Open back crocodile pendant with scroll snout, four fingered arms with balls between toes. Eyes are variant of ball in ring with pup Mouth is open and teeth are individual balls. Suspension loops are at interior of front legs. Slightly odd style to details.	iil?	
Measureme	nts		
	Length: Width: Height: Diam.: Thickness: Weight:		
Condition/Treatment No	Broken in half and missing bottom half below the arms. Otherwise, in very good condition, no corrosion visible. The gold surface is all intact. Pinkish accretion (burial soil) visible mainly on interior.	s	
Corros	on None Green-Surface Green-Core Black-Surface Black-Core Red-Surface Red-Core Other		
Corrosion no	The interior of the break edge is dark, but not completely black.		
Primary Fabrica	ion 🛮 Cast- Open Back 🔲 Cast- Solid 🔛 Hammered-Sheathing 🗀 Other/Unknown 🖂 Cast- Closed Core 🔲 Hammered-Sheet 🔲 Wire/Rod		
Fabrication No	tes Casting flaws at PR side of mouth, PR eye, and various lumps and pits on the surface		
Mate	Interior is dealy but the participation and colored	er	
Material No			
Surface Colora		\neg	
Coloration No	tes		
	tes Surface is gold and shiny, likely burnished	\neg	
Decorative de	ails 🛮 All cast 🗌 Embossed 🔲 Incised 🔲 Chased 🔲 Filigree 🔲 Granulation 🔲 Punched 🔲 Other	\neg	
	ery 🛮 All cast 🔲 Mechanical 🔲 Solder 🔲 Other/Unknown		
Joinery No		\neg	
Usewear/toolm	rks ☐ Abrasion ☐ Rubbed ☐ Scratches ☐ Burr(s) ☐ Cracking ☐ Incised ☐ Core/Investment ☐ Other	_	
Usewear/toolmarks No			
Pseudomoi	hs Pseudomorph Organics None Other Notes		
Analysis r			
Analysis Rec N	tes If small enough to fit into ESEM, could analyze break edge. In very good condition		
<u></u>	☐ Special ☐ Followup ☐ Re-do ☐ Conservation required ☐ Re-packaging required ☐ Other		
Analysis #1	Type XRF Analysis Operator ACH Analysis Date 12/3/2009 E Reliability	╣	
	is Obverse ,Center of head Analysis location notes Gold surface Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed	_	
Element Cu (%) 40.8	Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed 54.4 4.8 Results		
Analysis #2	Type XRF Analysis Operator ACH Analysis Date 12/3/2009 E Reliability]	
Location of analy	is Break edge ,Break edge at center Analysis location notes Black mineralized break edge]	
Element Cu (%) 22.9	Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed 72.5 4.3 Results]	



2.20.00	0011001111110112110111111	
Museum/Ob	piect Info	

wuseum/Object	
Object/Catalogue #	A396669-0 Owner NMNH Count 1 Curation Location MSC
Object Class	Disk Object Sub-Class Plaque/Pectoral?
•	Panama Province Veraguas Area
Site	Near Sona. From Geographic Zone VGC-Pacific Style
Provenience Documentation	☐ Field Notes ☑ Accession docs/letters ☐ Stylistic ☐ Other ☐ Publication ☐ Inferred ☐ None
Accession #	184319 Name in Records Gold Ornament, Disk
Collector	Mrs.Stirling (purchased) Date Collected
Donor	Old World Archeology Fund; Date Accessioned 1949
Cultural ID	Period
Catalogue Info	Panama, Chiriqui. Lightly scratched ring on convex side; 2 holes punched through from back. Weight 36g. Accession Info through Mrs. M.W. Stirling by the Old World Archeological Fund
Research Notes	References Photo neg. no. 38-857
Technical Exami	nation Examination ☑ Visual ☑ Microscopy ☐ MicroPhoto ☐ Other Exam Operator ACH ☐ Exam date 11/18/2008 🔠
Descrip	tion Gold disk with two punched holes punched from side opposite the incised line. Burrs remain on side with incised line. Incised circular line appears on opposite side of disk as raised circular line. 10.5cm diam.
Measureme	
	Length: Width: Height: Diam.: 10.5cm Thickness: Weight: 36g
Condition/Treatment No	otes Good condition. There are some scratches and a very small amount of light brown accretion on surface and at punched holes. No breaks or cracks but some distortion of the disk
Corros	ion ☑ None ☐ Green-Surface ☐ Green-Core ☐ Black-Surface ☐ Black-Core ☐ Red-Surface ☐ Red-Core ☐ Other
Corrosion no	tes
Primary Fabrica	tion Cast- Open Back Cast- Solid Hammered-Sheathing Other/Unknown Cast- Closed Core Hammered-Sheet Wire/Rod
Fabrication No	Not clear whether faceting is from hammering or subsequent distortion
Mate	erial ☐ Copper ☑ Gold Alloy ☐ Organic ☐ Resin ☐ Stone ☐ Shell ☐ Composite ☐ Unknown ☐ Not present ☐ Other
Material No	otes
Surface Colora	tion Coppery Gold Reddish Pinkish Mixed Other
Coloration No	otes
Finisl	ning ☐ Surface Enrichment ☒ Polished ☐ None ☐ Other
Finishing No	otes
Decorative de	tails All cast Embossed Incised Chased Filigree Granulation Punched Other
Decorative detail no	otes Two punched holes and a circular incised line
Joir	nery All cast Mechanical Solder Other/Unknown
Joinery No	otes
Usewear/toolmarks Notes Usewear/toolmarks Notes Usewear/toolmarks Notes	
Pseudomor	1039
Analysis re	
	X-radiography may show facets from hammering
	☐ Special ☐ Followup ☒ Re-do ☐ Conservation required ☐ Re-packaging required ☐ Other
Analysis #1	Type XRF Analysis Operator ACH Analysis Date 12/3/2009 IIII Reliability good
100 miles 100 miles	sis Obverse, Center Analysis location notes Sound metal
Element Cu	Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed
(%)	93.9 6.1 Pd, Pt Results
Analysis #2	Type XRF Analysis Operator ACH Analysis Date 12/3/2008 E Reliability
Location of analy	sis Obverse, Center, Analysis location notes
Element Cu	Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed 1.0% Pt reported.
(%)	92.9 6.1 Pt Results Probably not there, so

Pre-Columbian Gold in the Smithsonian Collections

Museum/Object Info Object/Catalogue # A396670-0 Owner NMNH Curation Location MSC Count 1 Object Sub-Class Headband **Object Class** Province Veraguas Area Panama Country Geographic Zone VGC-Pacific Style Near Sona. From Site Provenience Field Notes □ Accession docs/letters □ Stylistic □ Other... Documentation ☐ Inferred ☐ None ☐ Publication Name in Records Gold Headband Accession # 184319 **Date Collected** Collector Mrs.Stirling (purchased) Date Accessioned 1949 Donor Old World Archeology Fund; Cultural ID Period Panama, Chiriqui, Paired holes punched through at Accession Info Four gold ornaments from Chiriqui Province, Panama, Purchased Catalogue Info through Mrs. M.W. Stirling by the Old World Archeological Fund ends; 1 end more rounded than other. Edges slightly References Photo neg. no. 38-857 Research Notes Exam date | 11/25/2008 | **Technical Examination** Examination ☑ Visual ☐ Microscopy ☐ MicroPhoto ☐ Other... Exam Operator ACH Thin hammered head band/ "crown" with two holes punched at either end from outside to inside and burrs remaining on inside. An Description additional hole is punched 6cm from one end. One of the ends is more rounded than the other. Measurements 2.1-2.5cm h x 58cm long Height: 2.1-2.5cm Diam .: Thickness: Weight: 59.5 g Length: 58cm long | Width: Good condition. There is some scratching in the surface and the edges appear to be cracking and the layers delaminating at a Condition/Treatment Notes couple locations. The two ends are held together with a metal wire. A small hole through the metal is present 2.4cm from same end as other punched hole but this one appears not to be punched ☑ None ☐ Green-Surface ☐ Green-Core ☐ Black-Surface ☐ Black-Core ☐ Red-Surface ☐ Red-Core ☐ Other... Corrosion Corrosion notes no corrosion Primary Fabrication ☐ Cast- Open Back ☐ Cast- Solid ☐ Hammered-Sheathing ☐ Other/Unknown ☐ Cast- Closed Core ☐ Hammered-Sheet ☐ Wire/Rod The edges appear to be delaminating in several places (cold hammering?/work hardening?). There are striations lengthwise along **Fabrication Notes** the band. □ Copper ☑ Gold Alloy □ Organic □ Resin □ Stone □ Shell □ Composite □ Unknown □ Not present □ Other... Material Most likely gold alloy with high content gold Material Notes Surface Coloration ☑ Gold ☐ Reddish ☐ Pinkish ☐ Mixed ☐ Coppery Coloration Notes Finishing ☐ Surface Enrichment ☐ Polished ☐ None ☐ Other **Finishing Notes** ☐ Filigree ☐ Granulation ☐ Punched ☐ Other... Decorative details ☐ All cast ☐ Embossed ☐ Incised □ Chased Decorative detail notes ☐ All cast ☐ Mechanical ☐ Solder ☐ Other/Unknown Joinery Joinery Notes □ Abrasion □ Rubbed □ Scratches ☒ Burr(s) □ Cracking □ Incised □ Core/Investment □ Other Usewear/toolmarks Usewear/toolmarks Notes Burrs on interior at the four punched holes at the ends and the smaller punched hole 6cm from end Pseudomorphs ☐ Pseudomorph ☐ Organics ☒ None ☐ Other Notes Analysis rec's

XRF

X-ray radiograph

ESEM-EDS

PIXE

LA-ICPMS

Metallography Analysis Rec Notes May be able to see hammered pattern ☐ Special ☒ Followup ☐ Re-do ☐ Conservation required ☐ Re-packaging required ☐ Other... Analysis #1 Analysis Date 12/5/2009 EEE Reliability Type XRF Analysis Operator ACH Analysis location notes Sound metal Location of analysis Exterior , Center on side of hole Trace Removed Cu Element Results 90.0 5.6 (%) Analysis #2 Reliability Туре **Analysis Operator** Analysis Date Analysis location notes Location of analysis Trace Removed Zn As Fe Sn Sb Hg Bi Element Results (%)

Pre-Columbian Gold in the Smithsonian Collections

Museum/Object Info

Object/Catalogue #	A396671-0 Owner NMNH Count 1 Curation Location MSC	
Object Class	Pendant Object Sub-Class Zoo-Bird	
Country	Panama Province Veraguas Area	
Site	Near Sona. From Geographic Zone VGC-Pacific Style	
Provenience Documentation	☐ Field Notes ☑ Accession docs/letters ☐ Stylistic ☐ Other ☐ Publication ☐ Inferred ☐ None	
Accession#	184319 Name in Records Pendant - Bird, Gold	
Collector	Mrs.Stirling (purchased) Date Collected	
Donor	Old World Archeology Fund; Date Accessioned 1949	
Cultural ID	Period	
Catalogue Info	Panama, Chiriqui. Stamped decoration on lower front edge of wings. holes under claws. Suspension ring Four gold ornaments from Chiriqui Province, Panama, Purchased through Mrs. M.W. Stirling by the Old World Archeological Fund	
Research Notes	References Photo neg. no. 38-857, Exhibit Hall 23 9-17-74 Accession docs: letter from Stirling saving these are from same	
Technical Exam		
Descr		
	hooked beak. The edges of the wings are decorated with a design of two rows of square blocks in low relief. There is a single suspension loop in the neck at the back.	
Measuren		
Wicadardi	Length: Width: Height: Diam.: Thickness: Weight: 111.5g	
Condition/Treatment N		
Corro	sion None Green-Surface Green-Core Black-Surface Black-Core Red-Surface Red-Core Other	
Corrosion n	otes No corrosion visible	
Primary Fabric	ation	
Fabrication N	The control of the co	
Ma	terial Copper Gold Alloy Organic Stone Stone Chell Composite Unknown Not present Other	
Material N	No copper corrosion visible but crevices and interior of back appear more coppery in color. There is one more coppery colored	
Surface Color	surface area on the back of the tail on the far PR side. There is also a silvery area on back top of the PL wing where there is also ation Coppery Gold Reddish Pinkish Other	
Coloration N	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
	shing Surface Enrichment Polished None Other	
	Notes Very shiny on high areas, whereas pits and crevices still remain more porous and matte	
	etails All cast Embossed Incised Chased Filigree Granulation Punched Other	
Decorative detail		
	inery All cast Mechanical Solder Other/Unknown	
1970	lotes All cast	
Usewear/tooln Usewear/toolmarks N		
Pseudomo	7	
	orphs ☐ Pseudomorph ☐ Organics ☒ None ☐ Other Notes ☐ PIXE ☐ LA-ICPMS ☐ Metallography ☐ Other	
	Notes In amazingly good condition. No corrosion or mineralization, which appears slightly suspicious. Look for unusual elements in XRF.	
	Special Sollowup	
Analysis #1	Type XRF Analysis Operator ACH Analysis Date 12/3/2009 Reliability good	
150	ysis Obverse ,PR side of tail Analysis Date 12/3/2009 18:31 Reliability 1900d Analysis location notes Sound metal	
Element Cu (%) 28.0	Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed	
Analysis #2	Type XRF Analysis Operator ACH Analysis Date 12/3/2009 III Reliability	
Location of anal	ysis Reverse ,PR side of tail (coppery/abraded) Analysis location notes Coppery abraded area	
Element Cu (%) 28.4	Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed	
11.77		



Pre-Columbian Gold in the Smithsonian Collections

Museum/Object Info A396672-0 Owner NMNH Curation Location MSC Object/Catalogue # Count Object Sub-Class Zoo-Frog Object Class Pendant Province Chiriqui Area Panama Country Geographic Zone VGC-Pacific Style La Vuelta, four Site Provenience ☐ Field Notes ☑ Accession docs/letters ☐ Stylistic ☐ Other... Documentation ☐ Inferred ☐ Publication □ None Name in Records Gold Ornament, Frog Effigy Accession # 184319 **Date Collected** Collector Mrs.Stirling (purchased) Date Accessioned 1949 Donor Old World Archeology Fund; Cultural ID Period Panama, Chiriqui. 3 Wire "tongue" with reversed Accession Info Four gold ornaments from Chiriqui Province, Panama, "Excavated Catalogue Info by Natives at a site known as La Vuelta, about four miles from the spirals added at ends. Paired loops under neck; body (typical of Veraguas frogs, see Lothrop 1950 fig.98a) References Photo neg. no. 38-857, Exhibit Hall 23 9-17-74 Research Notes Exam date | 11/18/2008 | | | | Exam Operator ACH Description Open back frog pendant with a double tong of triple wire bars terminating in double scrolls. Thin cast wire bars behind tongues and scrollwork to allow metal to flow easily to decoration. The body is long and ovoid with two thin angular legs sticking out to either side and the typical thin, flat, oversized feet. The eyes are simple beads and there are two thin suspension loops in place of arms. Measurements Diam .: Thickness: Weight: 1.5g Length: Width: Height: Very good condition. No corrosion, breaks, or deep scratches. There are some dark brown accretions (burial soil/investment?) Condition/Treatment Notes lodged in the pitted interior of the back and in the decorative crevices. There are micro scratches on the surface which may be from polishing, usewear, or cleaning ☑ None ☐ Green-Surface ☐ Green-Core ☐ Black-Surface ☐ Black-Core ☐ Red-Surface ☐ Red-Core ☐ Other... Corrosion Corrosion notes No corrosion visible Primary Fabrication ☐ Hammered-Sheathing ☐ Other/Unknown ☐ Cast- Solid ☐ Cast- Closed Core ☐ Hammered-Sheet ☐ Wire/Rod Pitted, porous surface in open back and some pits on other surfaces. Small wax cylinders added in crucial areas on back, likely to Fabrication Notes help metal flow easier. Two odd bumps project from the underside of the top most part of double tongues □ Copper ☑ Gold Alloy □ Organic □ Resin □ Stone □ Shell □ Composite □ Unknown □ Not present □ Other... Material **Material Notes** Surface Coloration ☐ Coppery ☒ Gold ☐ Reddish ☐ Pinkish ☐ Mixed ☐ Other Coloration Notes The surface is shiny and gold but the crevices appear more coppery The surface is compact and shiny and the high points differ in color from the more coppery crevices Finishing Notes Decorative details ☒ All cast ☐ Embossed ☐ Incised ☐ Chased ☐ Filigree ☐ Granulation ☐ Punched ☐ Other... Decorative detail notes No evidence of tool marks outside of wax model Joinery All cast Mechanical Solder Other/Unknown Joinery Notes No evidence of joinery outside of wax model ☑ Abrasion ☐ Rubbed ☐ Scratches ☐ Burr(s) ☐ Cracking ☐ Incised ☐ Core/Investment ☐ Other Usewear/toolmarks Usewear/toolmarks Notes | Abrasion of the surface likely from polishing ☐ Pseudomorph ☐ Organics ☒ None ☐ Other Notes Pseudomorphs Analysis rec's ☒ XRF ☒ X-ray radiograph ☐ ESEM-EDS ☐ PIXE ☐ LA-ICPMS ☐ Metallography Analysis Rec Notes No break edges for cross sectional analysis. No corrosion. ☑ Special ☑ Followup ☐ Re-do ☐ Conservation required ☐ Re-packaging required ☐ Other...

☐ Other. Analysis #1 Analysis Date 12/3/2009 E Reliability Type XRF Analysis Operator ACH Analysis location notes Sound metal Location of analysis Obverse ,Bottom of back Trace Removed Element Cu Pd, Pt Results 8.6 87.5 4.0 (%) Analysis #2 Reliability Analysis Operator Analysis Date Type Analysis location notes Location of analysis Bi Trace Removed As Sn Sb Element Results (%)

	101:41-5-
viuseum.	Object Info

maccanii object	
Object/Catalogue #	A396672A-0 Owner NMNH Count 50 ca. Curation Location MSC
Object Class	Bead Object Sub-Class Object Sub-Class
Country Site	Panama Province Chiriqui Area La Vuelta, four Geographic Zone VGC-Pacific Style
Provenience	La Vuelta, four Geographic Zone VGC-Pacific Style ☐ Field Notes ☑ Accession docs/letters ☐ Stylistic ☐ Other
Documentation	□ Publication □ Inferred □ None
Accession #	184319 Name in Records Gold Beads
Collector	Mrs.Stirling (purchased) Date Collected
Donor	Old World Archeology Fund; Date Accessioned 1949
Cultural ID	Fellod
Catalogue Info	Panama, Chiriqui. Found in same box with specimens Accession Info Support Supp
Research Notes	References Photo neg. no. 38-857, Exhibit Hall 23 9-17-74
Technical Exam	ination Examination 🛮 Visual 🖾 Microscopy 🗆 MicroPhoto 🗆 Other Exam Operator ACH Exam date 11/18/2008 🟢
Descrip	otion 60 beads strung on yarn, 15 loose/fragments. Beads are thin sheet metal. Among the loose beads, there is one bead that is longer
	and tubular, but still made from the same thin gold foil. Most have no visible seams, but a few have a straight edge either partially or totally disjoined. This may be a site of fusion or just a break in the bead. The edges appear slightly crimped or folded in places.
Measureme	
	Length: Width: 2mm Height: Diam.: Thickness: Weight:
Condition/Treatment No	
	brown accretions from the burial environment. Most are broken torn at one location.
Corros	ion None Green-Surface Green-Core Black-Surface Black-Core Red-Surface Red-Core Other
Corrosion no	tes Some gray tarnishing on the surface of some of the beads
Primary Fabrica	ation
Fabrication No	otes
Mat	erial Copper Gold Alloy Organic Resin Stone Shell Composite Unknown Not present Other
Material No	The beads on the district of the second of t
	organic, such as wood since such a material could have decomposed in burial, leaving only the gold sheathing.
	tion Coppery Gold Reddish Pinkish Mixed Other
Coloration No Finisi	
	otes The surfaces appear shiny
4.7	11. I.S.
	tails All cast Embossed Incised Chased Filigree Granulation Punched Other
Decorative detail no	
	nery All cast Mechanical Solder Other/Unknown
Joinery No	Some joins visible
Usewear/toolm Usewear/toolmarks No	
Pseudomoi	
	- Constitution - Congression - Constitution - Const
Analysis rec's XRF X-ray radiograph ESEM-EDS PIXE LA-ICPMS Metallography Other Analysis Rec Notes Small enough to use ESEM-EDS. Try to determine if there is a join	
•	☐ Special ☐ Followup ☒ Re-do ☐ Conservation required ☐ Re-packaging required ☐ Other
Analysis #1	Type XRF Analysis Operator ACH Analysis Date 12/3/2009 Reliability good
- S	sis Obverse ,Bottom of back Analysis Operator Analysis Date 12/3/2009
Element Cu	Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed
(%) 8.6	87.5 4.0 Pd, Pt Results
Analysis #2	Type ESEM-EDS Analysis Operator ACH Analysis Date 5/28/2009 ESEM-EDS Reliability
Location of analy	sis Put in the whole string of beads Analysis location notes mostly clean
Element Cu	Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed Good images of join
(%)	Results folds, tool marks etc.



Museum/Object I			
Object/Catalogue #	A398453-0 Owner NMNH Count 1 Curation Location MSC		
Object Class	Fragment Object Sub-Class		
Country	Panama Province Area		
Site Provenience	No Info Geographic Zone Style Style		
Documentation	☐ Field Notes ☐ Accession docs/letters ☐ Stylistic ☐ Other ☐ Publication ☐ Inferred ☐ None		
Accession#	188488 Name in Records Fragment Of Gold Ornament		
Collector	Date Collected		
Donor Cultural ID	Chapin, Edward A; 1950-Oct Date Accessioned		
	Panama (not certain) Period Accession Info Fragment of gold ornament said to have been found in Panama;		
Catalogue Info	presented to the national collections by Dr. E.A. Chapin, Curator of		
Research Notes	References		
Technical Exami	ination Examination ☑ Visual ☑ Microscopy ☐ MicroPhoto ☐ Other Exam Operator ☐ CH ☐ Exam date ☐ 11/18/2008 ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐		
Descrip			
	triangular nose with two triangular nostrils punched from the exterior with extant burrs on interior. Appears as though the material under sheathing was carved and then thin sheet metal was overlaid and burnished to take the shape of the underlying material		
Measureme			
	Length: Width: Height: Diam.: Thickness: Weight:		
Condition/Treatment No			
	accretions and possible residue of underlying material on inside of the sheathing		
Corros	ion ☑ None ☐ Green-Surface ☐ Green-Core ☐ Black-Surface ☐ Black-Core ☐ Red-Surface ☐ Red-Core ☐ Other		
Corrosion no			
Primary Fabrica	Ition Cast- Open Back Cast- Solid Hammered-Sheathing Other/Unknown Cast- Closed Core Hammered-Sheet Wire/Rod		
Eshrication No			
Fabrication No	ones .		
Mate	erial Copper Significant Composite Composite Unknown Not present Other		
Material No	otes		
Surface Colora	tion ☐ Coppery ☑ Gold ☐ Reddish ☐ Pinkish ☐ Mixed ☐ Other		
Coloration No	otes		
Finis	hing Surface Enrichment Polished None Other		
Finishing N	otes		
Decorative de	tails All cast Embossed Incised Chased Filigree Granulation Punched Other		
Decorative detail n	otes		
Join	nery All cast Mechanical Solder Other/Unknown		
Joinery No	otes		
Usewear/toolm	arks Abrasion Rubbed Scratches Burr(s) Cracking Incised Core/Investment Other		
Usewear/toolmarks No			
Pseudomo			
Analysis r			
Analysis Rec N	Analysis may no be useful since this object has no provenience, but it is small (for ESEM-EDS) there are very small pieces almost Special S Followup Re-do Conservation required Re-packaging required Other		
Amalunia #4			
Analysis #1	Type XRF Analysis Operator ACH Analysis Date 12/3/2009 Reliability good Sis Obverse ,Teeth, center Analysis location notes Sound metal		
Element Cu	Sis Obverse ,Teeth, center Analysis location notes Sound metal Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed		
(%) 1.1	90.2 8.7 Se, Gd, Results		
Analysis #2	Type Analysis Operator Analysis Date Reliability		
Location of analy			
Element Cu (%)	Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed Results		



Location of analysis

Element

(%)

Ag

Zn

Cd

As

Ni

Fe

Sn

Sb

Smithsonian Collections

Pre-Columbian Gold in the Object Report Museum/Object Info A-40100 Object/Catalogue # A403133-0 Owner NMNH Count 1 Curation Location MSC Object Sub-Class Anthro Pendant **Object Class** Country Panama Province Veraguas Site Geographic Zone VGC No info Style Provenience ☐ Field Notes Accession docs/letters ☐ Stylistic ☐ Other... Documentation Publication ☐ Inferred ☐ None Name in Records Gold-Plated Ornament/1 Accession # 188983 **Date Collected** Collector Purchased by M.W. Stirling Donor Bureau Of American **Date Accessioned** Cultural ID Period Catalogue Info Panama, Veraguas Province, Veraguas Accession Info "Ornaments from Veraguas, Panama tombs purchased by M.W. Stirling in Panama" Accession docs References Research Notes Exam date | 11/18/2008 | | | | Exam Operator ACH Description Small open back cast anthropomorphic pendant with large nose, ball in ring eyes, cast wire mouth, phallus, and evidence of a decorative frame around body. Measurements Width: Height: Diam.: Thickness: Fragmentary and delicate. Head is broken off from body and the headdress is broken off and held on only by the enriched gold Condition/Treatment Notes surface layer. At some break edges the Au surface is all that remains, curling up or hanging loose. The interior is black and mineralized. Both arms are missing as well as the bands on either side of the legs and head, may have been part of the frame. Corrosion □ None □ Green-Surface □ Green-Core □ Black-Surface ☑ Black-Core □ Red-Core □ Other... Corrosion notes Black mineralized core but no green corrosion visible on the surface Primary Fabrication ☐ Cast- Solid ☐ Hammered-Sheathing ☐ Other/Unknown ☐ Cast- Closed Core ☐ Hammered-Sheet ☐ Wire/Rod **Fabrication Notes** Pitted, porous back with typical ridges from casting Material □ Copper ☑ Gold Alloy □ Organic □ Resin □ Stone □ Shell □ Composite □ Unknown □ Not present □ Other... Interior is black and mineralized but exterior is still gold colored Material Notes Surface Coloration

Coppery ☑ Gold ☐ Reddish ☐ Pinkish ☐ Mixed ☐ Other Coloration Notes Finishing Finishing Notes In broken areas, the gold surface is lifting off and curling up in areas. In stable area, the gold appears shiny and compact Decorative details ☒ All cast ☐ Embossed ☐ Incised ☐ Chased ☐ Filigree ☐ Granulation ☐ Punched ☐ Other... Decorative detail notes No evidence of tool marks outside of wax model ☑ All cast ☐ Mechanical ☐ Solder ☐ Other/Unknown Joinery Notes No evidence of joinery outside of wax model ☐ Abrasion ☐ Rubbed ☐ Scratches ☐ Burr(s) ☐ Cracking ☐ Incised ☐ Core/Investment ☐ Other Usewear/toolmarks Usewear/toolmarks Notes Pseudomorphs ☐ Pseudomorph ☐ Organics ☒ None ☐ Other Notes Analysis rec's

XRF

X-ray radiograph

ESEM-EDS

PIXE

LA-ICPMS

Metallography

Other Analysis Rec Notes Extremely corroded and brittle. Would minimize handling if possible and most analyses would not be useful as structure is too ☐ Special ☐ Followup ☐ Re-do ☒ Conservation required ☒ Re-packaging required ☐ Other... Analysis #1 Type XRF Analysis Operator ACH Analysis Date 12/3/2009 Reliability questionable accuracy Location of analysis Obverse ,Face Analysis location notes Corroded interior, surface enrichment Element Cu Cd As Ni Fe Sn Sb Bi Trace Removed 40.4 4.9 1.0 (%)Results Analysis #2 1111 Type Analysis Operator Analysis Date Reliability

Analysis location notes

Trace

Removed

Results



Museum/Object	
Object/Catalogue#	A403134-0 Owner NMNH Count 1 Curation Location MSC
Object Class	Pendant Object Sub-Class Anthro
Country	Panama Province Veraguas Area
Site Provenience	No info Geographic Zone VGC Style Style
Documentation	☐ Field Notes ☑ Accession docs/letters ☐ Stylistic ☐ Other ☐ Publication ☐ Inferred ☐ None
Accession #	188983 Name in Records Gold-Plated Ornament/1
Collector	Purchased by M.W. Stirling Date Collected
Donor	Bureau Of American Date Accessioned
Cultural ID	"Classic Veraguas Culture Period Peri
Catalogue Info	Panama, Veraguas Province, Veraguas Accession Info "Ornaments from Veraguas, Panama tombs purchased by M.W. Stirling in Panama" Accession docs
Research Notes	Analyzed (Cal #0001) 18 carat References
	nation Examination ☑ Visual ☑ Microscopy ☐ MicroPhoto ☐ Other Exam Operator ☐ Character ☐ Exam date ☐ 11/19/2008 ☐ ☐
Descrip	tion Small anthropomorphic open back cast pendant with single suspension loop at back, large cast wire lips, no nose, coffee bean in ring eyes, headdress, double spiral earrings, raised U-wire hands, phallus, and small globular breasts/nipples.
Measurem	ents
	Length: Width: Height: Diam.: Thickness: Weight:
Condition/Treatment No	Burrs of the enriched gold surface remain on some break edges. Does not appear to have been extensively cleaned as soil is still
Corros	present on most surfaces. Loose flakes of gold surface and fragments are packaged separately in polyethylene bag ion □ None □ Green-Surface □ Green-Core □ Black-Surface ☑ Black-Core □ Red-Surface ☑ Red-Core □ Other
Corrosion no	
	At the break edges, the interior appears black and reduish-black. Small amount of light green conscious to violate and
Primary Fabrica	tion ☑ Cast- Open Back ☐ Cast- Solid ☐ Hammered-Sheathing ☐ Other/Unknown ☐ Cast- Closed Core ☐ Hammered-Sheet ☐ Wire/Rod
Fabrication N	otes
Mat	erial Copper 🗵 Gold Alloy Corganic Resin Stone Shell Composite Unknown Not present Other
Material N	otes
Surface Colora	
	otes Where the surface is visible under the soil, it appears gold
	hing Surface Enrichment Polished None Other
1200 State (100 State	otes Where visible, the surface appears shiny and compact and is flaking off the black mineralized substrate at break edges
	tails All cast
	otes No evidence of tool marks outside of wax model
	nery All cast Mechanical Solder Other/Unknown otes No evidence of joinery outside of wax model
Joinery N	
Usewear/toolm Usewear/toolmarks N	
Pseudomo	
Analysis r	
	otes See CAL #0001 Sample or photos of sample may be extant
	☐ Special ☐ Followup ☐ Re-do ☐ Conservation required ☐ Re-packaging required ☒ Other
Analysis #1	Type XRF Analysis Operator ACH Analysis Date 12/3/2009 Reliability questionable accuracy
Location of analy	sis Obverse ,Face Analysis location notes Corroded, powdery surface
Element Cu (%) 17.5	Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed 73.7 3.3 Results
Analysis #2	Type Analysis Operator Analysis Date Reliability
Location of analy	
Element Cu	Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed Results



wuseum/Object	nto				
Object/Catalogue#	A403135-0 Owner NMNH Count 1 Curation Location MSC				
Object Class	Pendant Object Sub-Class Zoo-Frog				
Country	Panama Province Veraguas Area				
Site	No info Geographic Zone VGC Style				
Provenience	☐ Field Notes ☒ Accession docs/letters ☐ Stylistic ☐ Other				
Documentation	□ Publication □ Inferred □ None				
Accession #	188983 Name in Records Gold-Plated Ornament/1				
Collector	Purchased by M.W. Stirling Date Collected				
Donor	Bureau Of American Date Accessioned				
Cultural ID	Period Period				
Catalogue Info	Panama, Veraguas Province, Veraguas Accession Info "Ornaments from Veraguas, Panama tombs purchased by M.W.				
Oatalogue IIIIO	Stirling in Panama" Accession docs				
Research Notes	References (Lothrop, Veraguas, fig.96a)				
Technical Exami	<i>nation</i> Examination ☑ Visual ☑ Microscopy ☐ MicroPhoto ☐ Other Exam Operator ACH				
Descrip	tion Open back cast frog pendant with ball in ring eyes, suspension loops in place of arms, globular nose, flat, thin feet. Hind legs are				
	bulges on body (Lothrop, Veraguas, fig.96a)				
Measureme					
	Length: Width: Height: Diam.: Thickness: Weight:				
Condition/Treatment No					
	condition. Green corrosion on surface that appears to have been mostly cleaned off and there is remaining beige accretions on the surface.				
Corros					
Corrosion no					
Drimany Enhrica					
Primary Fabrica	tion ☑ Cast- Open Back ☐ Cast- Solid ☐ Hammered-Sheathing ☐ Other/Unknown ☐ Cast- Closed Core ☐ Hammered-Sheet ☐ Wire/Rod				
Fabrication No	The control of the co				
rabilication No	Dendritic pattern on the surface				
Mate	erial Copper S Gold Alloy Organic Resin Stone Shell Composite Unknown Not present Other				
Material No					
	pattern on the surface				
Surface Colora	tion 🛮 Coppery 🔻 Gold 🗖 Reddish 🗖 Pinkish 🔻 Mixed 🗖 Other				
Coloration No	otes Perhaps due to cleaning, the surface appears gold in some areas, especially at the interior of the back, and dark coppery in others,				
Finisl	ning 🛮 Surface Enrichment 🖾 Polished 🔲 None 🔲 Other				
Finishing No	otes The gold areas are shiny and the variation in color in abraded and broken areas indicates surface enrichment				
	tails All cast Embossed Incised Chased Filigree Granulation Punched Other				
	No evidence of tool marks outside of wax model				
	nery All cast Mechanical Solder Other/Unknown				
Joinery No	otes No evidence of joinery outside of wax model				
Usewear/toolm	arks Abrasion Rubbed Scratches Burr(s) Cracking Incised Core/Investment Other				
Usewear/toolmarks No	otes				
Pseudomor	phs Pseudomorph Organics None Other Notes				
Analysis r					
Analysis Rec No	esteroites ESEM-EDS, may be interesting because of dendritic pattern and exposed break edge of eye and PL foot.				
	☑ Special ☑ Followup ☐ Re-do ☐ Conservation required ☐ Re-packaging required ☐ Other				
Analysis #1	Type XRF Analysis Operator ACH Analysis Date 12/3/2009 Reliability				
1751	1 (2 - 1/2) (2 - 1/2) (3 -				
27					
Element Cu (%) 27.4	Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed 67.4 5.0 Os, At Results				
(70)	00,7K 163010				
Analysis #2	Type Analysis Operator Analysis Date Reliability				
Location of analy					
Element Cu	Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed				
(%)	Results				
N 2/0 L					



Pre-Columbian Gold in the Smithsonian Collections

Museum/Object Info Owner NMNH Curation Location MSC Object/Catalogue # A403136-0 Count Object Sub-Class ? Pendant **Object Class** Panama Province Veraguas Country Geographic Zone VGC Style No info Provenience ☐ Stylistic ☐ Other... Field Notes Accession docs/letters Documentation ☐ Publication ☐ Inferred □ None Name in Records Gold-Plated Ornament/1 Accession # 188983 **Date Collected** Collector Purchased by M.W. Stirling Date Accessioned Donor Bureau Of American Cultural ID Period "Classic Veraguas Culture Panama, Veraguas Province, Veraguas Accession Info "Ornaments from Veraguas, Panama tombs purchased by M.W. Catalogue Info Stirling in Panama" Accession docs Analyzed (Cal #0001) 16 carat References Research Notes Exam Operator ACH Exam date | 11/19/2008 | | | Description Open back cast double headed bird pendant with hemispherical bell with clapper for body, 2 projecting feet at top, bell eyes with clappers, 2 hooked open beaks with fleshy protuberances at the top, geometrical patterned necklace/gorget on both necks. Wings and tail are thin flat bands and the wings are decorated with raised circles and cast wire line. Single suspension loop on back of neck Measurements Diam .: Thickness: Weight: Length: Width: Height: Fragmentary and extremely brittle. Most of the pendant is missing, including parts of the wings and tail, although some are retained Condition/Treatment Notes as fragments in a polyethylene bag. The gold surface is flaking off in some areas, revealing a black, mineralized core. there is green corrosion over the surface and a light brown/pinkish accretion over the surface (burial soil?). The suspension loop is broken also □ None ☑ Green-Surface □ Green-Core □ Black-Surface ☑ Black-Core □ Red-Surface □ Red-Core □ Other... Corrosion Corrosion notes All of the break edges show a black mineralized core and there is also some green corrosion over the surface Primary Fabrication ☐ Hammered-Sheathing ☐ Other/Unknown ☐ Cast- Solid ☐ Cast- Closed Core ☐ Hammered-Sheet ☐ Wire/Rod **Fabrication Notes** ☐ Not present ☐ Other... Material ☐ Copper ☐ Gold Alloy ☐ Organic ☐ Resin ☐ Stone ☐ Shell ☐ Composite ☐ Unknown Material Notes ☐ Mixed Surface Coloration ☐ Coppery **⊠** Gold ☐ Reddish ☐ Pinkish Coloration Notes Finishing ☐ Other Finishing Notes Decorative details ☒ All cast ☐ Embossed ☐ Incised ☐ Chased ☐ Filigree ☐ Granulation ☐ Punched ☐ Other... Decorative detail notes No evidence of tool marks outside of wax model Joinery

All cast

☐ Mechanical
☐ Solder
☐ Other/Unknown No evidence of joinery outside of wax model Joinery Notes □ Abrasion □ Rubbed □ Scratches □ Burr(s) □ Cracking □ Incised □ Core/Investment □ Other Usewear/toolmarks Usewear/toolmarks Notes ☐ Pseudomorph ☐ Organics ☒ None ☐ Other Notes Pseudomorphs Analysis rec's

XRF

X-ray radiograph

ESEM-EDS

PIXE

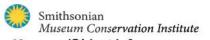
LA-ICPMS

Metallography Analysis Rec Notes | Heavily mineralized so might not show much ☐ Special ☐ Followup ☐ Re-do ☐ Conservation required ☐ Re-packaging required ☑ Other... Analysis #1 Analysis Date 12/3/2009 Reliability Type XRF Analysis Operator ACH Location of analysis Obverse ,Frag of wing with gold Analysis location notes Corroded interior, surface enrichment Fe Trace Removed Element Results 67.6 5.6 2.5 (%) Analysis #2 Analysis Operator Analysis Date Reliability Type Location of analysis Analysis location notes Removed Zn Cd As Ni Fe Sn Sb Bi Trace Ag Flement Results (%)



Pre-Columbian Gold in the

Museum Conse	ervation Institute Object Report	711
Museum/Object	\\uniterral \text{withcomian Collection}	11.
Object/Catalogue #	A403137-0 Owner NMNH Count 1 Curation Location MSC	7
Object Class	Pendant Object Sub-Class Anthro	1
Country	Panama Province Veraguas Area	1
Site	No info Geographic Zone VGC Style	1
Provenience	☐ Field Notes 🛮 Accession docs/letters 🖸 Stylistic 🗋 Other	1
Documentation	□ Publication □ Inferred □ None	1
Accession #	188983 Name in Records Gold-Plated Ornament/1	1
Collector	Purchased by M.W. Stirling Date Collected	1
Donor	Bureau Of American Date Accessioned	1
Cultural ID	Period	╛
Catalogue Info	Panama, Veraguas Province, Veraguas Accession Info "Ornaments from Veraguas, Panama tombs purchased by M.W. Stirling in Panama" Accession docs	
Research Notes	References	
Technical Exami	ination Examination ☑ Visual ☑ Microscopy ☐ MicroPhoto ☐ Other Exam Operator ACH	::::
Descrip		٦
	globular eyes, cast wire lips, necklaces, hands, spiral earrings. Holding three rods that extend up and terminate in a double backed ring. Two suspension loops on back at top of heads	-
Measureme		┪
Wedstrem	Length: Width: Height: Diam.: Thickness: Weight:	┪
Condition/Treatment No		┪
	fragments preserved separately in a polyethylene bag. There is no green corrosion present, which may indicate chemical cleaning.	
0	There are surface areas that appear more coppery, perhaps due to cleaning. Dendritic pattern on surface may also be from cleaning	Ц
Corros Corrosion no	Transport of the Control of the Cont	_
	The interior as visible at the break edges appears annost completely black and militeralized.	_
Primary Fabrica	ation	
Fabrication No	otes Dendrites visible at the more coppery colored surfaces	
Mate	erial Copper Gold Alloy Organic Resin Stone Shell Composite Unknown Not present Other.	_
Material No	otes Dendritic structure visible on some surfaces- also, the cross-section of the broken wire/rod shows metallic dendritic structure (.025m	m
Surface Colora	wide) within black mineralized material. ation ☑ Coppery ☑ Gold ☐ Reddish ☐ Pinkish ☐ Mixed ☐ Other	_
Coloration No	otes Some areas appear shiny and gold while others are more coppery (the coppery areas have dendritic structure visible at surface while	e
	hing Surface Enrichment Polished None Other	_
Finishing No		٦
Decorative de	etails All cast Embossed Incised Chased Filigree Granulation Punched Other	_
Decorative detail no	otes No evidence of tool marks outside of wax model	
Join	nery 🛮 All cast 🔲 Mechanical 🔲 Solder 🔲 Other/Unknown	
Joinery No	otes No evidence of joinery outside of wax model	٦
Usewear/toolm	arks Abrasion Rubbed Scratches Burr(s) Cracking Incised Core/Investment Other	_
Usewear/toolmarks No	otes	
Pseudomor	rphs ☐ Pseudomorph ☐ Organics ☒ None ☐ Other Notes ☐	
Analysis r	rec's XRF X-ray radiograph ESEM-EDS ☐ PIXE ☐ LA-ICPMS ☐ Metallography ☐ Other	
Analysis Rec No		
<u></u>	☑ Special ☐ Followup ☐ Re-do ☐ Conservation required ☐ Re-packaging required ☐ Other	- 100
Analysis #1	Type XRF Analysis Operator ACH Analysis Date 12/3/2009 EEE Reliability	
Location of analy	sis Reverse ,PR end of top band Analysis location notes Gold surface	
Element Cu	Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed	
(%) [5.7]	85.4 8.9 Results	
Analysis #2	Type XRF Analysis Operator ACH Analysis Date 12/3/2009 IIII Reliability	
	Analysis location notes Coppery surface	
Element Cu (%) 5.0	Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed 90.0 5.0 Pt Results	



Museum/Object l				
Object/Catalogue #	A403138-0 Owner NMNH Count 1 Curation Location MSC			
Object Class	Pendant Object Sub-Class Zoo-Felid?			
Country	Panama Province Veraguas Area			
Site	No info Geographic Zone VGC Style			
Provenience Documentation	☐ Field Notes ☑ Accession docs/letters ☐ Stylistic ☐ Other ☐ Publication ☐ Inferred ☐ None			
Accession#	188983 Name in Records Gold-Plated Ornament/1			
Collector	Purchased by M.W. Stirling Date Collected			
	Bureau Of American Date Accessioned			
Cultural ID	Period			
Catalogue Info	Panama, Veraguas Province, Veraguas Accession Info "Ornaments from Veraguas, Panama tombs purchased by M.W. Stirling in Panama" Accession docs			
Research Notes	References			
Technical Evami	nation Examination ☑ Visual ☑ Microscopy ☐ MicroPhoto ☐ Other Exam Operator ACH			
Descrip				
Measureme	ents			
	Length: Width: Height: Diam.: Thickness: Weight:			
Condition/Treatment No				
Corros	ion ☐ None ☒ Green-Surface ☒ Green-Core ☐ Black-Surface ☒ Black-Core ☐ Red-Surface ☐ Red-Core ☐ Other			
Corrosion no				
Primary Fabrication				
Fabrication No				
Mate	erial Copper Gold Alloy Organic Resin Stone Shell Composite Unknown Not present Other			
Material No	tes			
Surface Colora	tion Coppery Gold Reddish Pinkish Mixed Other			
Coloration No				
Finish	ing Surface Enrichment Dolished None Other			
Finishing No	otes Distinct gold layer on surface over mineralized interior			
Decorative de	ails ☑ All cast ☐ Embossed ☐ Incised ☐ Chased ☐ Filigree ☐ Granulation ☐ Punched ☐ Other			
	otes No evidence of tool marks outside of wax model			
	ery ☑ All cast ☐ Mechanical ☐ Solder ☐ Other/Unknown			
Joinery No				
Usewear/toolma Usewear/toolmarks No	ATTO SECURIOR SECTION AND AND ADDRESS OF THE PROPERTY OF THE P			
Pseudomor	phs Pseudomorph Organics None Other Notes			
Analysis re	ec's ☑ XRF ☐ X-ray radiograph ☐ ESEM-EDS ☐ PIXE ☐ LA-ICPMS ☐ Metallography ☐ Other			
Analysis Rec No	otes			
	☐ Special ☐ Followup ☐ Re-do ☐ Conservation required ☐ Re-packaging required ☐ Other			
Analysis #1	Type XRF Analysis Operator ACH Analysis Date 12/3/2009 E Reliability questionable accuracy			
Location of analy	sis Obverse ,Tip of nose, above lip Analysis location notes Gold surface with some green corrosion			
Element Cu (%) 35.0	Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed [61.8] 2.9			
Analysis #2	Type Analysis Operator Analysis Date Reliability			
Location of analy				
Element Cu	Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed			
(%)	Results			



Museum/Object		ommonium Concernons
Object/Catalogue #	A403139-0 Owner NMNH Count 1 Curation Location MSC	Hart.
Object Class	Pendant Object Sub-Class Zoo-Felid?	
Country	Panama Province Veraguas Area	
Site Provenience	No info Geographic Zone VGC Style	
Documentation	☐ Field Notes Accession docs/letters ☐ Stylistic ☐ Other ☐ Publication ☐ Inferred ☐ None	
Accession #	188983 Name in Records Gold-Plated Ornament/1	
Collector	and the second of the second o	
Donor Cultural ID	Bureau Of American Date Accessioned	In the tent
	Period Accession Info "Ornaments from Veraguas Panama, Veraguas Province, Veraguas Accession Info "Ornaments from Veraguas	COMPANY OF THE PARTY OF THE PAR
Catalogue Info	Panama, Veraguas Province, Veraguas Accession Info "Ornaments from Veraguas Stirling in Panama" Access	s, Panama tombs purchased by M.W.
Research Notes	References	
Technical Exami	nination Examination ☑ Visual ☑ Microscopy ☐ MicroPhoto ☐ Other Exam Operator	ACH Exam date 11/19/2008
Descrip	Open back cast jaguar pendant with cast wire lips, teeth, ball in ring eyes, globular nostrils and legs.	I suspension loops on interior of front
Measureme		
S 1978 22 197	Length: Width: Height: Diam.: Thicknes	
Condition/Treatment No	Notes Fragmentary and broken. Missing the tail, ears (?), and PR front leg. There is a large break and held onto the body at the PL foot. There are several other large cracks in the body and the wh	
	accretion that appears to be burial soil. Minimally cleaned but surface appears scratched with	
Corros	There is a cream canada in cream cone in black canada in black cone in kee	urface Red-Core Other
Corrosion no	Interior appears mineralized and there is a light green corrosion over the gold surface that is vi	sible under the light brown soil.
Primary Fabrica	Cation ☐ Cast- Open Back ☐ Cast- Solid ☐ Hammered-Sheathing ☐ Other/Unknown ☐ Cast- Closed Core ☐ Hammered-Sheet ☐ Wire/Rod	
Fabrication No	Notes	
Mat	aterial Copper S Gold Alloy Corganic Resin Stone Shell Composite	Unknown Not present Other
Material No	Notes	
Surface Colora	ration Coppery Gold Reddish Pinkish Mixed Other	
Coloration No		
	shing Surface Enrichment Polished None Other	
Finishing N	Notes Distinct gold layer on surface over mineralized interior	
Decorative de	letails All cast Embossed Incised Chased Filigree Granulation Punch	ed Other
Decorative detail n	notes No evidence of tool marks outside of wax model	
Join	oinery ☑ All cast ☐ Mechanical ☐ Solder ☐ Other/Unknown	
Joinery No	Notes No evidence of joinery outside of wax model	
Usewear/toolm	marks Abrasion Rubbed Scratches Burr(s) Cracking Incised Core/Inv	estment Other
Usewear/toolmarks No		
Pseudomo	,	_
Analysis r		Other
Allalysis Rec N	Notes Seems mostly mineralized but cross sections reveal pockets of metal at interior	
Amelyoia #4	☐ Special ☐ Followup ☐ Re-do ☐ Conservation required ☐ Re-packaging required	
Analysis #1	Type XRF Analysis Operator ACH Analysis Date 12/3/2009 IIII lysis Obverse ,PR back leg Analysis location notes Gold sur	The state of the s
Element Cu	lysis Obverse ,PR back leg Analysis location notes Gold sur Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Remove	
(%) 19.4		Results
Analysis #2	Type Analysis Operator Analysis Date	Reliability
Location of analy		and the second
Element Cu (%)	Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Remov	Results



Museum/Object	Info											mmisom	iun Conet	Atons
Object/Catalogue #	A40	3140-0 O	wner NMN	IH Co	unt 1		Curation Locat	on MS	SC .			- 1		
Object Class	Penda	ant					codile god					304		
Country	Panan	na Provi	nce Veragu			ea						4		
Site	No inf			c Zone VG				yle			1	76		
Provenience Documentation		일 가장이 되었습니다 ㅠ요	Accession Inferred	docs/letters	Styl		Other			· ·			- 17 - 47 - 73	
Accession #	18898	3		Name in	Records	Go	ld-Plated Ornar	ment/1				Name of the least		2
Collector	Purch	ased by M.V	/. Stirling	Date (Collected						nal fai		r dalidi da	
Donor	Burea	u Of Americ	an	Date Acc		느								- 1
Cultural ID					Period	닉		lu o		<u> </u>				
Catalogue Info	Panan	na, Veragua	s Province, \	/eraguas		ľ	Accession Info		ments from t			tombs purc	hased by M.	vv.
Research Notes							References					1		
Technical Exam	inatio	n Examin	ation 🛮 Vis	ual 🛛 Mic	roscopy		MicroPhoto [Othe	r Exam	Operator A	СН	Exam date	11/20/200	8
Descrip							e god with wing							
			in ring eyes, oes on either		nklets, sin	ngle	suspension loc	p in ba	ick, and fram	ed by two fl	at band	ds at top and	bottom with	
Measurem		roodone ona	700 OII OILIIOI	0.00.										\neg
		Length:	Wi	dth:	Hei	ght:		Diam.:		Thickness:		Weight:		
Condition/Treatment N	lotes F	ragmentary	but repaired.	A clear sti	ff backing	j ma	aterial is presen	t on the	reverse of t	he top and	oottom	bands, pres	umably stab	ilizing
							r resin. The adi							de.
Corros	3.7						Black-Surface							
Corrosion no	otes N	lo surface co	orrosion but t	he core app	ears blac	k in	places and pa	rtially m	nineralized w	ith coppery	inclusio	ons and poc	kets of greer	1
Primary Fabrica			en Back Sed Core	Cast- Solid			Hammered-Show	eathing	☐ Other/	Jnknown				
Fabrication N	_		ing flaws, esp											
Mat		□ Copper ☑ Gold Alloy □ Organic □ Resin □ Stone □ Shell □ Composite □ Unknown □ Not present □ Other												
Material N	lotes C	oppery grain	ns at interior	and gold su	rface									
Surface Colora	ation [Coppery	⊠ Gold □	Reddish	Pinkis	sh	☐ Mixed ☐	Other				- E		
Coloration N							- Control of the Cont							
			nrichment [Other							
Finishing N	lotes D	Distinct gold	ayer on surfa	ace over pa	rtially min	eral	lized interior. G	old is s	shiny and co	mpact, indic	ating b	urnishing		
Decorative de	etails 2	All cast	Embossed	d 🔲 Incise	ed 🗆 Ch	nase	ed 🗌 Filigree	☐ Gr	ranulation	☐ Punched		ther		
Decorative detail n	_												-148	
			Mechanica		100	ther	/Unknown							
Joinery N			of joinery out											
Usewear/toolm							r(s) Crackii	ng 🔲	Incised \square	Core/Inves	tment	☐ Other		
Usewear/toolmarks N			he top and b											_
Pseudomo				373			Other Notes	IODM	о П.Мана		7.046			
Analysis r Analysis Rec N	and the second	CONTRACTOR DESCRIPTION					PIXE LA				_	T .		\neg
Analysis Neo N	<u> </u>						ration required						10.5	
Analysis #1		Type XR			lysis Oper				Date 12/3/2					\neg
Location of analy	veis Oh	7,500			ysis Opei	ialo			cation notes			ty		=
Element Cu	Au	Ag Zn		201 4-43	Fe Sn	1		Pb		Removed				=
(%) 6.3		4.5								P, Pd	Resi	ults		
Analysis #2	_	Type X			alysis Ope	erato			Date 12/3/2		Reliabil			\Box
Location of analy							76		cation notes			ge		_
(%) 19.6	75.5	Ag Zn 3.9	Cd As	s Ni	Fe Sr 1.1	<u>'</u>	Sb Hg	_{РР}	Bi Trace	Removed	Resi	ults		



Type XRF

Location of analysis Obverse ,Top of tail at curl

5.7

80.9

Element

(%)

Pre-Columbian Gold in the Object Report Smithsonian Collections Museum/Object Info 4402141 A403141-0 Owner NMNH Object/Catalogue # Count 1 Curation Location MSC Pendant Object Sub-Class Zoo-Saurian Object Class Province Veraguas Area Panama Country Site No info Geographic Zone VGC Style Provenience ☐ Field Notes Accession docs/letters ☐ Stylistic Documentation Publication ☐ Inferred ☐ None Name in Records | Gold-Plated Ornament/1 Accession # 188983 Collector **Date Collected** Purchased by M.W. Stirling Donor Date Accessioned Bureau Of American Cultural ID Period Panama, Veraguas Province, Veraguas "Ornaments from Veraguas, Panama tombs purchased by M.W. Catalogue Info Accession Info Stirling in Panama" Accession docs References Research Notes Technical Examination Examination Visual Microscopy ☐ MicroPhoto ☐ Other... Exam Operator ACH Exam date 11/20/2008 Open back cast lizard pendant with coffee bean eyes, globular nostrils with indentations, square teeth, and projecting dorsal spines down back with twisted cast wire decoration on both sides with straight cast wire lines down both sides as well. the tail curves to one side, and there are two suspension loops, one on the inside of either leg. Measurements Width: Length: Height: Diam .: Thickness: Weight: Good condition. Whole but there is some abrasion along the back inside edge of the tail showing a section of the metal. May have Condition/Treatment Notes been coated at some point with clear coating. some scratches on surface Corrosion □ None ☑ Green-Surface □ Green-Core □ Black-Surface □ Black-Core □ Red-Surface □ Red-Core □ Other... Corrosion notes There is a small amount of green corrosion on the surface Primary Fabrication ☐ Cast- Solid ☐ Hammered-Sheathing ☐ Other/Unknown ☐ Cast- Closed Core ☐ Hammered-Sheet ☐ Wire/Rod **Fabrication Notes** □ Copper ☑ Gold Alloy □ Organic □ Resin □ Stone □ Shell □ Composite □ Unknown □ Not present □ Other... The interior appears darker and more bronze colored while the exterior is shiny gold. There are some more coppery colored areas on **Material Notes** the ends of the dorsal spines that may have a dendritic pattern visible at the surface Surface Coloration ☐ Coppery ☐ Gold ☐ Reddish ☐ Pinkish ☐ Mixed ☐ Other Coloration Notes Finishing **Finishing Notes** Shiny gold layer on surface over darker interior Decorative details ☑ All cast ☐ Embossed ☐ Incised ☐ Chased ☐ Filigree ☐ Granulation ☐ Punched ☐ Other... Decorative detail notes No evidence of tool marks outside of wax model ☑ All cast ☐ Mechanical ☐ Solder ☐ Other/Unknown Joinery Joinery Notes No evidence of joinery outside of wax model ☐ Abrasion ☐ Rubbed ☐ Scratches ☐ Burr(s) ☐ Cracking ☐ Incised ☐ Core/Investment ☐ Other Usewear/toolmarks Usewear/toolmarks Notes Pseudomorphs ☐ Pseudomorph ☐ Organics ☒ None ☐ Other Notes Analysis rec's ☐ XRF ☐ X-ray radiograph ☐ ESEM-EDS ☐ PIXE ☐ LA-ICPMS ☐ Metallography Analysis Rec Notes Special ☐ Followup ☐ Re-do ☐ Conservation required ☐ Re-packaging required ☐ Other... Analysis #1 Analysis Date 12/3/2009 EEE Reliability Type XRF Analysis Operator ACH Location of analysis Obverse ,PR back leg Analysis location notes Gold surface Element Cu Fe Trace Removed 0.2 (%) Results Analysis #2

Analysis Operator ACH

Sn

Sb

Hg

Fe

0.2

Analysis Date 12/3/2009 E Reliability

Trace Removed

Results

Analysis location notes Gold surface

Museum/Object i	nfo					
Object/Catalogue #	A403142-0 Owner NMNH Count 1 Curation Location MSC					
Object Class	Pendant Object Sub-Class Zoo-Bird					
Country	Panama Province Veraguas Area					
Site Provenience	No info Geographic Zone VGC Style					
Documentation	☐ Field Notes					
Accession #	188983 Name in Records Gold-Plated Ornament/1					
Collector	Purchased by M.W. Stirling Date Collected					
Donor	Bureau Of American Date Accessioned	NMNH A403142-0				
Cultural ID	Period Pe	5				
Catalogue Info	Stirling in Panama" A	raguas, Panama tombs purchased by M.W. Accession docs				
Research Notes	References					
Technical Exami		perator ACH Exam date 11/20/2008				
Descrip	tion Open back bird pendant with two long ears, small hemispherical body, two projecting fe curled cast wire. Collar made from horizontal rows of cast wire, globular eyes, hooked of suspension loop in middle of neck.	et from middle of body made from row of open beak, and thin, flat wings and tail. Single				
Measureme						
Weasurenn		nickness: Weight:				
Condition/Treatment No						
	of tail and some edges broken or chipped along wings, tail, and ears. Some light brown	accretions cover the back of the pendant.				
Corros	Some scratching and abrasion of surface likely from cleaning as some of the green corrion ☐ None ☒ Green-Surface ☐ Green-Core ☐ Black-Surface ☒ Black-Core ☐					
Corrosion no	The standard was a second of the control of the second of					
Primary Fabrica	Some of closs sections appear black at interior. Hard, green corresion present in patients on more and back surfaces					
Filliary Fabrica	☐ Cast- Closed Core ☐ Hammered-Sheet ☐ Wire/Rod					
Fabrication No	3 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1					
Mate		al ☐ Copper ☑ Gold Alloy ☐ Organic ☐ Resin ☐ Stone ☐ Shell ☐ Composite ☐ Unknown ☐ Not present ☐ Other				
Material No						
	tion Coppery Gold Reddish Pinkish Mixed Other					
Coloration No						
	ning ⊠ Surface Enrichment ⊠ Polished □ None □ Other					
5 m - 4704	otes Shiny gold layer on surface over darker interior					
	tails All cast	Punched U Other				
	otes No evidence of tool marks outside of wax model					
	nery All cast Mechanical Solder Other/Unknown					
Joinery No						
Usewear/toolmarks No		ore/Investment LI Other				
Pseudomoi	phs Descudomorph Organics None Other Notes					
Analysis r		graphy Other				
Analysis Rec N	otes Small fragment can be analyzed by ESEM-EDS. XRF of wings, tail, and ears.	_				
·	☑ Special ☐ Followup ☐ Re-do ☐ Conservation required ☐ Re-packaging rec	quired 🖾 Other				
Analysis #1	Type XRF Analysis Operator ACH Analysis Date 12/3/200	Control of the Contro				
	sis Reverse ,PR side of tail Analysis location notes G					
Element Cu (%) 8.5	Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace	Removed Results				
Analysis #2	Type Analysis Operator Analysis Date	Reliability Reliability				
Location of analy						
Element Cu (%)	Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace	Removed Results				



Museum Conservation Institute	Onlective
lucoum/Object Info	

	A404222 0 O NIMANU O LA O LI LI MOO					
Object/Catalogue #	A404233-0 JOwner NWINH Count 1 Curation Location MSC					
Object Class	Pendant Object Sub-Class Zoo-Frog					
Country	Panama Province Veraguas Area					
Site Provenience	Rio San Pablo, Geographic Zone VGC-Pacific Style					
Documentation	☐ Field Notes ☐ Accession docs/letters ☐ Stylistic ☐ Other ☐ Publication ☐ Inferred ☐ None					
Accession #	202030 Name in Records (Large) Gold-Plated Copper Frog					
Collector	Collected by Stirling in Panama Date Collected					
Donor	Bureau Of American Date Accessioned					
Cultural ID	Period					
Catalogue Info	Panama, Veraguas Province, Rio San Pablo, About 4 Accession Info "Collected in 1951 by M.W. Stirling at site on the Rio San Pablo miles above Sona" Accession docs					
Research Notes	Does not fit typical Veraguas style for frog References					
Technical Exam	ination Examination 🗵 Visual 🖾 Microscopy 🗆 MicroPhoto 🗀 Other Exam Operator ACH Exam date 11/20/2008 📖					
Descrip	Large open back cast frog pendant. The back feet are curved row of cast wire rather than flat bands. The front feet also have thin cast wire fingers. The head is flat and has a chisel shaped nose and sharp pointy teeth in open mouth. 2 ball in ring eyes, double spiral tongues. 2 snakes from either side of the head with ball eyes and double spiral tongues. Suspension loops are at the interior of arms					
Measurem	ents					
	Length: Width: Height: Diam.: Thickness: Weight:					
Condition/Treatment N	hard, bulky green corrosion and brown accretions. The PL arm is broken off and retained separately in polyethylene bag. The snake on the PL side of head has broken off and is missing. Where visible, the gold surface appears slightly scratched					
Corros Corrosion no	The Discontinuous Discontinuou					
	very flatu, bulky green contosion over most of the surface. The interior appears black and militeralized					
Primary Fabrica	ation Cast- Open Back Cast- Solid Hammered-Sheathing Other/Unknown Cast- Closed Core Hammered-Sheet Wire/Rod					
Fabrication N	otes					
Mat	erial Copper Gold Alloy Organic Resin Stone Shell Composite Unknown Not present Other					
Material N						
Surface Colora	ation Coppery Gold Reddish Pinkish Mixed Other					
Coloration N	otes					
Finis	hing Surface Enrichment Polished None Other					
Finishing N	otes Shiny gold layer on surface with mineralized black interior					
Decorative de	tails 🛮 All cast 🗆 Embossed 🗔 Incised 🔲 Chased 🔝 Filigree 🗔 Granulation 🔲 Punched 🗔 Other					
Decorative detail n	otes No evidence of tool marks outside of wax model					
Joi	nery All cast Mechanical Solder Other/Unknown					
Joinery N	otes No evidence of joinery outside of wax model					
Usewear/toolm						
Pseudomo	rphs Pseudomorph Organics None Other Notes Bulky corrosion over suspension rings may be some form of					
Analysis r						
Analysis Rec N						
	☑ Special ☑ Followup ☐ Re-do ☐ Conservation required ☐ Re-packaging required ☑ Other					
Analysis #1						
I monore en anomarca	Type XRF Analysis Operator ACH Analysis Date 12/3/2009 E Reliability sis Obverse ,Back, high point (clean Au) Analysis location notes Gold surface					
From a constant such a control of the page						
Element Cu (%) 28.1	Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed 66.8 5.1 Results					
Analysis #2	Type Analysis Operator Analysis Date Reliability					
Location of analy						
Element Cu (%)	Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed Results					

Museum/Object	Info					
Object/Catalogue#	A404234-0 Owner NMNH Count 1 Curation Location MSC					
Object Class	Pendant Object Sub-Class Zoo-Frog					
Country	Panama Province Veraguas Area					
Site Provenience	Rio San Pablo, Geographic Zone VGC-Pacific Style					
Documentation	☐ Field Notes ☑ Accession docs/letters ☐ Stylistic ☐ Other ☐ Publication ☐ Inferred ☐ None					
Accession #	202030 Name in Records Copper Frog (Small) Gold-Plated					
Collector	BAE Date Collected					
Donor	Bureau Of American Date Accessioned					
Cultural ID	Panama, Veraguas Province, Rio San Pablo, About 4 Accession Info "Collected in 1951 by M.W. Stirling at site on the Rio San Pablo, 4					
Catalogue Info	Above Sona miles above Sona" Accession docs					
Research Notes	References					
Technical Exami	ination Examination ☑ Visual ☑ Microscopy ☐ MicroPhoto ☐ Other Exam Operator ACH ☐ Exam date 11/21/2008 ☐					
Descrip	tion Small open back cast frog pendant with ball/globular eyes, suspension loops for arms, hemispherical body, legs projecting out from the body and flat rectangular feet.					
Measureme	ents					
	Length: Width: Height: Diam.: Thickness: Weight:					
Condition/Treatment No	Covered in green thick green corrosion crust and brown accretions. Missing proper right suspension loop, part of proper right foot, and has numerous chips along the edges and on the PL eye, exposing a black core.					
Corros	ion ☐ None ☑ Green-Surface ☑ Green-Core ☐ Black-Surface ☑ Black-Core ☐ Red-Surface ☐ Red-Core ☐ Other					
Corrosion no	black, mineralized core with veins of green corrosion inside. Exterior is covered in a thick layer of light green corrosion crust					
Primary Fabrica						
Fabrication No	Open back cast. Interestingly the eyes are also hollow cast, rather than being whole balls of wax added to wax model.					
Mat						
Material No	2907					
Surface Colora						
Coloration No.						
	hing Surface Enrichment Polished None Other					
Finishing N	otes Shiny gold layer on surface with mineralized black interior					
Decorative de	tails All cast Embossed Incised Chased Filigree Granulation Punched Other					
Decorative detail n						
	nery All cast Mechanical Solder Other/Unknown					
Joinery No						
Usewear/toolm Usewear/toolmarks No						
Pseudomoi	rphs ☐ Pseudomorph ☐ Organics ☒ None ☐ Other Notes ☐					
Analysis r	ec's ☑ XRF ☑ X-ray radiograph ☐ ESEM-EDS ☐ PIXE ☐ LA-ICPMS ☐ Metallography ☐ Other					
Analysis Rec N						
	☐ Special ☐ Followup ☐ Re-do ☐ Conservation required ☐ Re-packaging required ☐ Other					
Analysis #1	Type XRF Analysis Operator ACH Analysis Date 12/3/2009 EII Reliability Not Accurate					
0.5	sis Obverse ,Back, high point (mostly corroded, small patch of Analysis location notes Thick Green corrosion and brown accretion					
Element Cu (%) 77.2	Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed 19.9 1.6 Results					
Analysis #2	Type Analysis Operator Analysis Date Reliability					
Location of analy						
Element Cu (%)	Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed Results					



(%)

31.8

66.9

Object Report

Pre-Columbian Gold in the

Smithsonian Collections Museum/Object Info Object/Catalogue # A404235-0 Owner NMNH Count 1 Curation Location MSC Object Sub-Class Zoo-Saurian-Alligator **Object Class** Pendant Panama Province Veraguas Area Country Site Rio San Pablo. Geographic Zone VGC-Pacific Style Provenience Accession docs/letters ☐ Field Notes ☐ Stylistic ☐ Other... Documentation Publication ☐ Inferred ☐ None Name in Records Gold-Plated Copper #Alligator/1 Accession # 202030 **Date Collected** Collector BAE Donor Date Accessioned Bureau Of American Cultural ID Period Panama, Veraguas Province, Rio San Pablo, About 4 Accession Info "Collected in 1951 by M.W. Stirling at site on the Rio San Pablo, 4 Catalogue Info Mi. Above Sona miles above Sona" Accession docs References Research Notes Technical Examination Examination Visual Microscopy MicroPhoto Other... Exam date 11/20/2008 | | | | Exam Operator ACH Description Open back cast alligator pendant with projecting ball (16 balls) decoration on back, ball eyes, two balls for nostrils, cast wire lips, and cast wire teath with open mouth. Tail curled to left. Suspension loops on inside of front legs. Measurements Length: Width: Height: Diam .: Thickness: Weight: Condition/Treatment Notes Whole but the gold surface has flaked off or been abraded off most of the top surface. The surface appears pitted and porous. May have been coated with clear resin Corrosion □ None ☑ Green-Surface □ Green-Core □ Black-Surface □ Black-Core □ Red-Surface □ Red-Core ☑ Other... Corrosion notes Interdendritic corrosion has left clear dendritic pattern on tops of suspension loops and corroded areas of back. Primary Fabrication ☑ Cast- Open Back Cast- Solid ☐ Hammered-Sheathing ☐ Other/Unknown ☐ Cast- Closed Core ☐ Hammered-Sheet ☐ Wire/Rod Fabrication Notes | Dendritic pattern in surface from interdendritic corrosion. ☐ Copper ☑ Gold Alloy ☐ Organic ☐ Resin ☐ Stone ☐ Shell ☐ Composite ☐ Unknown ☐ Not present Other... Gold surface layer and darker substrate with evidence of dendritic structure Material Notes Surface Coloration ☑ Coppery ☒ Gold ☐ Reddish ☐ Pinkish ☐ Mixed ☐ Other Coloration Notes Mostly dark brown/black because gold has flaked off.. but where surface is preserved, it appears gold and shiny Most of surface has flaked off but where it is still present, it is gold and shiny Finishing Notes Decorative details ☑ All cast ☐ Embossed ☐ Incised ☐ Chased ☐ Filigree ☐ Granulation ☐ Punched ☐ Other... Decorative detail notes No evidence of tool marks outside of wax model ☑ All cast ☐ Mechanical ☐ Solder ☐ Other/Unknown Joinery No evidence of joinery outside of wax model Joinery Notes ☐ Abrasion ☐ Rubbed ☐ Scratches ☐ Burr(s) ☐ Cracking ☐ Incised ☐ Core/Investment ☐ Other Usewear/toolmarks Usewear/toolmarks Notes Pseudomorphs ☐ Pseudomorph ☐ Organics ☐ None ☐ Other Notes Analysis rec's ☒ XRF ☒ X-ray radiograph ☐ ESEM-EDS ☐ PIXE ☐ LA-ICPMS ☐ Metallography ☐ Other Analysis Rec Notes Dendritic structure visible on surface Special □ Followup □ Re-do □ Conservation required □ Re-packaging required ☑ Other... Analysis #1 Analysis Date 12/3/2009 E Reliability Type XRF Analysis Operator ACH questionable accuracy Location of analysis Obverse , Tail, straight part Analysis location notes Small amount of gold left on black core Sn Trace Removed Element 3.2 Results (%) Analysis #2 Type XRF Analysis Operator ACH Analysis Date 12/3/2009 E Reliability Analysis location notes Black surface Location of analysis Obverse ,Back, center Element Cu Ni Fe Sn Sb Ha Trace Removed

V, Zn

Results

Pre-Columbian Gold in the Smithsonian Collections

Museum/Object Info Owner NMNH Object/Catalogue # A404236-0 Count 1 Curation Location MSC Pendant Object Sub-Class Zoo-Bird **Object Class** Area Province Veraguas Panama Country Geographic Zone VGC-Pacific Style Site Rio San Pablo, Provenience Tield Notes Accession docs/letters ☐ Stylistic ☐ Other... Documentation ☐ Publication ☐ Inferred ☐ None Name in Records Gold-Plated Copper Bird Pendant/1 Accession# 202030 **Date Collected** Collector BAE Date Accessioned Donor Bureau Of American Cultural ID Period Panama, Veraguas Province, Rio San Pablo, About 4 Accession Info "Collected in 1951 by M.W. Stirling at site on the Rio San Pablo, 4 Catalogue Info miles above Sona" Accession docs References Research Notes Technical Examination Examination Visual Microscopy MicroPhoto Other... Exam Operator ACH Exam date | 11/20/2008 | IIII Description Open back cast bird pendant with hooked open beak, ball in ring eyes, and crescent shaped ears. There is no noticeable body but there are two projecting feet and a single suspension loop in the back of the neck. The wings and tail are flat and thin. Measurements Width: Height: Diam .: Thickness: Length: Appears completely corroded and mineralized. The object is broken and twisted in numerous locations although all of the pieces Condition/Treatment Notes appear to connected. Object is covered in brown burial dirt. □ None ☑ Green-Surface ☑ Green-Core □ Black-Surface □ Black-Core □ Red-Surface ☑ Red-Core □ Other... Corrosion Corrosion notes The entire piece appears mineralized. The center is red, likely cupite, and the exterior is covered in a thick layer of green corrosion. Primary Fabrication ☐ Hammered-Sheathing ☐ Other/Unknown ☑ Cast- Open Back ☐ Cast- Solid ☐ Hammered-Sheet ☐ Cast- Closed Core ☐ Wire/Rod **Fabrication Notes** ☑ Unknown ☐ Not present ☐ Other... Material ☑ Copper ☐ Gold Alloy ☐ Organic ☐ Resin ☐ Stone ☐ Shell ☐ Composite Most likely Cu or Cu alloy, however, there is no visual evidence of gold in or on the object. **Material Notes** Surface Coloration ☐ Coppery ☐ Gold ☐ Reddish ☐ Pinkish ☐ Mixed Only green corrosion is visible Coloration Notes ☐ Surface Enrichment ☐ Polished ☐ None Finishing Notes Not clear as the surface is entirely covered in green corrosion Decorative details ☒ All cast ☐ Embossed ☐ Incised ☐ Chased ☐ Filigree ☐ Granulation ☐ Punched ☐ Other... Decorative detail notes No evidence of tool marks outside of wax model No evidence of joinery outside of wax model Joinery Notes ☐ Abrasion ☐ Rubbed ☐ Scratches ☐ Burr(s) ☐ Cracking ☐ Incised ☐ Core/Investment Usewear/toolmarks Usewear/toolmarks Notes ☐ Pseudomorph ☐ Organics ☒ None ☐ Other Notes Pseudomorphs Analysis rec's

XRF

X-ray radiograph

ESEM-EDS

PIXE

LA-ICPMS

Metallography

Other Analysis Rec Notes Entirely mineralized. X ray may reveal more details ☐ Special ☐ Followup ☐ Re-do ☐ Conservation required ☐ Re-packaging required ☐ Other... Analysis #1 Analysis Date 12/3/2009 E Reliability Type XRF Analysis Operator ACH Not Accurate Analysis location notes Bulky green corrosion Location of analysis Obverse ,PR corner of tail Cd Ni Fe Sn Sb Bi Trace Removed Cu Flement 99.9 0.1 Results (%) Analysis #2 Reliability Type Analysis Operator Analysis Date Analysis location notes Location of analysis Removed Cd Sn Sb Pb Trace Zn As Fe Element Results (%)

Pre-Columbian Gold in the Smithsonian Collections

Museum Conservation Institute

Museum/Object Info

visible under the green corrosion in some areas Corrosion Corrosion notes Corrosion note
Country Site Rio San Pablo. Geographic Zone VGC-Pacific Style Provenience Documentation Accession # Field Notes Accession docs/letters Stylistic Other Collector Date Collected Date Collected Date Collected Date Collected Date Accessioned Date Accessioned Date Accessioned Period Catalogue Info Panama, Veraguas Province, Rio San Pablo, About 4 Accession Info Mil. Above Sona Accessioned Accessioned Date Accessioned Period Mil. Above Sona Accessioned Mil. Above Sona Accessioned Mil. Above Sona Accessioned Mil. Above Sona Accession Info Mil. Above Sona Accession Info Milles above Sona Accession docs Accession Info Milles above Sona Accession Info Accession Info Milles above Sona Accession Info Accession Info Accession Info Milles above Sona Accession Info Accession Info Milles above Sona Accession Info Accession Info Accession Info Accession Info Milles above Sona Accession Info Acc
Site Provenience Documentation Field Notes Accession docs/letters Stylistic Other Publication Inferred None No
Provenience Documentation Field Notes
Documentation
Accession # 202030
Collector Donor Cultural ID Catalogue Info Research Notes Panama, Veraguas Province, Rio San Pablo, About 4 Accession Info Mil. Above Sona Accession docs
Donor Cultural ID Catalogue Info Research Notes References Technical Examination Description Numerous thin fragments, the largest of which appear to be the head of an open cast bird pendant with bells for eyes. There are numerous fragments that may be from wings decorated with hemispherical indentations at the edges. There is a hollow beak that does not appear to go with the bird head and may indicate that there are more than one objects represented by the fragments. Measurements Length: Width: Width: Height: Diam.: Thickness: Weight: Condition/Treatment Notes None Green-Surface Green-Core Black-Surface Black-Core Red-Surface Red-Core Other References Re
Cultural ID
Catalogue Info Panama, Veraguas Province, Rio San Pablo, About 4 Accession Info
Research Notes Mil. Above Sona
References References References References
Technical Examination
Description Numerous thin fragments, the largest of which appear to be the head of an open cast bird pendant with bells for eyes. There are numerous fragments that may be from wings decorated with hemispherical indentations at the edges. There is a hollow beak that does not appear to go with the bird head and may indicate that there are more than one objects represented by the fragments. Measurements Length: Width: Height: Diam.: Thickness: Weight: Condition/Treatment Notes All fragments are very corroded and brittle with a black mineralized core and green corrosion over the surface. A gold surface lay visible under the green corrosion in some areas Corrosion Corrosion None Green-Surface Green-Core Black-Surface Black-Core Red-Surface Red-Core Other Most pieces have a black mineralized core and green corrosion over the surface Primary Fabrication Cast-Open Back Cast-Solid Hammered-Sheathing Other/Unknown
numerous fragments that may be from wings decorated with hemispherical indentations at the edges. There is a hollow beak that does not appear to go with the bird head and may indicate that there are more than one objects represented by the fragments. Measurements Length: Width: Height: Diam.: Thickness: Weight: Condition/Treatment Notes All fragments are very corroded and brittle with a black mineralized core and green corrosion over the surface. A gold surface lay visible under the green corrosion in some areas Corrosion Corrosion notes Primary Fabrication Cast- Open Back Cast- Solid Hammered-Sheathing Other/Unknown
Measurements
Measurements Length: Width: Height: Diam.: Thickness: Weight: Condition/Treatment Notes All fragments are very corroded and brittle with a black mineralized core and green corrosion over the surface. A gold surface lay visible under the green corrosion in some areas Corrosion Corrosion notes Primary Fabrication Cast- Open Back Cast- Solid Hammered-Sheathing Other/Unknown
Length: Width: Height: Diam.: Thickness: Weight: All fragments are very corroded and brittle with a black mineralized core and green corrosion over the surface. A gold surface lay visible under the green corrosion in some areas Corrosion Corrosion notes Primary Fabrication Condition/Treatment Notes All fragments are very corroded and brittle with a black mineralized core and green corrosion over the surface. A gold surface lay visible under the green corrosion in some areas Black-Core Red-Surface Red-Core Other Most pieces have a black mineralized core and green corrosion over the surface Primary Fabrication Cast- Open Back Cast- Solid Hammered-Sheathing Other/Unknown
Condition/Treatment Notes All fragments are very corroded and brittle with a black mineralized core and green corrosion over the surface. A gold surface lay visible under the green corrosion in some areas Corrosion Corrosion notes Most pieces have a black mineralized core and green corrosion over the surface Primary Fabrication Condition/Treatment Notes All fragments are very corroded and brittle with a black mineralized core and green corrosion over the surface Black-Core Black-Core Red-Surface Red-Core Other Most pieces have a black mineralized core and green corrosion over the surface Primary Fabrication Cast- Open Back Cast- Solid Hammered-Sheathing Other/Unknown
visible under the green corrosion in some areas Corrosion Corrosion notes Primary Fabrication Visible under the green corrosion in some areas Green-Core ☐ Black-Surface ☒ Black-Core ☐ Red-Surface ☐ Red-Core ☐ Other Most pieces have a black mineralized core and green corrosion over the surface Hammered-Sheathing ☐ Other/Unknown
Corrosion notes Most pieces have a black mineralized core and green corrosion over the surface Primary Fabrication Cast- Open Back Cast- Solid Hammered-Sheathing Other/Unknown
Corrosion notes Most pieces have a black mineralized core and green corrosion over the surface Primary Fabrication Cast- Open Back Cast- Solid Hammered-Sheathing Other/Unknown
Primary Fabrication 🗵 Cast- Open Back 🔲 Cast- Solid 🔲 Hammered-Sheathing 🔲 Other/Unknown
☐ Cast- Closed Core ☐ Hammered-Sheet ☐ Wire/Rod
Fabrication Notes
T distribution 17000
Material ☐ Copper ☑ Gold Alloy ☐ Organic ☐ Resin ☐ Stone ☐ Shell ☐ Composite ☐ Unknown ☐ Not present ☐ Oth
Material Notes Cu present and gold present on surface
Surface Coloration Coppery Gold Reddish Pinkish Mixed Other
Coloration Notes
Finishing Surface Enrichment Polished None Other
Finishing Notes
Decorative details All cast Embossed Incised Chased Filigree Granulation Punched Other
Decorative detail notes No evidence of tool marks outside of wax model
Joinery All cast Mechanical Solder Other/Unknown
Joinery Notes No evidence of joinery outside of wax model
Usewear/toolmarks ☐ Abrasion ☐ Rubbed ☐ Scratches ☐ Burr(s) ☐ Cracking ☐ Incised ☒ Core/Investment ☐ Other
Usewear/toolmarks Notes There is a whitish compact material in the beak and head fragments that may be burial soil or investment
Usewear/toolmarks Notes There is a whitish compact material in the beak and head fragments that may be burial soil or investment Pseudomorph
Usewear/toolmarks Notes Pseudomorphs Analysis rec's There is a whitish compact material in the beak and head fragments that may be burial soil or investment Organics None Other Notes Analysis rec's XRF X-ray radiograph SESEM-EDS PIXE LA-ICPMS Metallography Other
Usewear/toolmarks Notes Pseudomorphs Analysis rec's Analysis Rec Notes There is a whitish compact material in the beak and head fragments that may be burial soil or investment Organics None Other Notes PIXE LA-ICPMS Metallography Other Pieces are heavily mineralized, but can definitely fit into SEM-EDS
Usewear/toolmarks Notes Pseudomorphs Analysis rec's There is a whitish compact material in the beak and head fragments that may be burial soil or investment Organics None Other Notes Analysis rec's XRF X-ray radiograph SESEM-EDS PIXE LA-ICPMS Metallography Other
Usewear/toolmarks Notes Pseudomorphs Analysis rec's Analysis Rec Notes There is a whitish compact material in the beak and head fragments that may be burial soil or investment Organics None Other Notes PIXE LA-ICPMS Metallography Other Pieces are heavily mineralized, but can definitely fit into SEM-EDS
Usewear/toolmarks Notes Pseudomorphs
Usewear/toolmarks Notes Pseudomorphs Analysis rec's Analysis Rec Notes Special Followup Re-do Conservation required Re-packaging required Reliability Questionable accuracy.
Usewear/toolmarks Notes Pseudomorph
Usewear/toolmarks Notes Pseudomorphs
Usewear/toolmarks Notes Pseudomorph

Museum/Object I	Info	Smithsonian Collections
Object/Catalogue #	A404238-0 Owner NMNH Count 1 Curation Location MSC	
Object Class	Pendant Object Sub-Class Zoo-Bird	4.9 15.04
Country	Panama Province Veraguas Area	The second way of
Site	Rio San Pablo, Geographic Zone VGC-Pacific Style	
Provenience	☐ Field Notes ☒ Accession docs/letters ☐ Stylistic ☐ Other	
Documentation	□ Publication □ Inferred □ None	
Accession#	202030 Name in Records Bird Pendant, Gold-Plated Copper	
Collector	BAE Date Collected	1
Donor	Bureau Of American Date Accessioned	
Cultural ID	Period	EM.
Catalogue Info	Panama, Veraguas Province, Rio San Pablo, About 4 Accession Info "Collected in 1951 by M.V Mi. Above Sona" Accession Info miles above Sona" Accession Info "Collected in 1951 by M.V Mi. Above Sona" Accession Info miles above Sona" Accession Info Info Info Info Info Info Info In	W. Stirling at site on the Rio San Pablo, 4 ssion docs
Research Notes	References	
Technical Exami	ination Examination ☑ Visual ☑ Microscopy ☐ MicroPhoto ☐ Other Exam Operato	or ACH Exam date 11/21/2008
Descrip		
1	above body, S scroll on beak, forward facing eyes, crescent shaped earrings, and headdress	s.
Measureme	ents	- 4-
, , , , , , , , , , , , , , , , , , ,	Length: Width: Height: Diam.: Thickne	ess: Weight:
Condition/Treatment No	otes Fragmentary. Broken into numerous small fragments, the largest of which are two body piece	ces, and part of the head and top beak.
	The pieces are all brittle and appear completely mineralized at the interior. All pieces are co accretion/burial soil.	vered in a pinkish/light brown
Corros		-Surface Red-Core Other
Corrosion no	There is a small amount of green corrosion on the surface but the interior appears black and	l mineralized
Primary Fabrica		vn
	☐ Cast- Closed Core ☐ Hammered-Sheet ☐ Wire/Rod	
Fabrication No	otes Open back cast with pits and ridges in the back and two globs on the back that appear to be	a separate layer
Mate	erial Copper 🗵 Gold Alloy 🗌 Organic 🔲 Resin 🔲 Stone 🔲 Shell 🔲 Composite 🖺	☐ Unknown ☐ Not present ☐ Other
Material No	otes	
Surface Colora	ation Coppery Gold Reddish Pinkish Mixed Other	
Coloration No		
	hing Surface Enrichment Polished None Other	
Finishing No	otes The surface appears to be shiny gold while the interior is black and mineralized	
Decorative de	etails 🛮 All cast 🗆 Embossed 🗀 Incised 🗀 Chased 🗀 Filigree 🗀 Granulation 🗀 Pun	ched Other
Decorative detail no		
	nery All cast Mechanical Solder Other/Unknown	
Joinery No		
Usewear/toolm	laiks	nvestment Other
Usewear/toolmarks No	43044011	
Pseudomor		Cother
Analysis Rec No	rec's XRF X-ray radiograph ESEM-EDS PIXE LA-ICPMS Metallograph lotes Mostly mineralized but there are numerous small pieces to use for analysis. Possible that m	
,a.y 5.6 1 165 1 1	☐ Special ☐ Followup ☐ Re-do ☒ Conservation required ☐ Re-packaging required	
Analysis #1	Type XRF Analysis Operator ACH Analysis Date 12/3/2009	
The state of the s	/sis Obverse ,Beak, top Analysis location notes Gold s	
Element Cu (%) 9.6	Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Rem	
Analysis #2	Type XRF Analysis Operator ACH Analysis Date 12/3/2009	Reliability Reliability
Location of analy	sis Reverse ,Body frag, over PL glob/flaw Analysis location notes Gold s	
Element Cu	Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Rem	Results



Analysis #2

Element

(%)

Location of analysis Thick bead

96.1

Type XRF

3.9

Cd

As

Ni

Fe

Pre-Columbian Gold in the Object Report Smithsonian Collections Museum/Object Info A437756-0 Owner Object/Catalogue # **NMNH** Count 50 ca. Curation Location MSC Bead Object Sub-Class **Object Class** Province Herrera Area Country Panama El Hatillo, Site He-4 Geographic Zone Azuero Peninsula-Parita Site Style Provenience ▼ Field Notes ☐ Accession docs/letters ☐ Stylistic ☐ Other... Documentation □ Publication ☐ Inferred ☐ None Name in Records Gold And Stone Beads And Accession # 219603 Date Collected 1948 Collector BAE, Stirling and Willey Donor Bureau Of American **Date Accessioned** Cultural ID Prehistoric Period Site extends from Late Cocle phase Panama, Herrera Province, El Hatillo, Site He-4 Catalogue Info Accession Info Found accession docs in NMNH Hardcopy files Find 346-1: Find contained the remains of a child, the References Site Report: Ladd (1968) Archaeological investigations into the Research Notes Smoked ware plate, three doglike animals modeled in Parita and Santa Maria Zones Exam date 11/21/2008 ||||| Description 9 gold beads. 8 of the beads are very thin sheet/sheathing that may have gone over a core material and 1 of them appears slightly thicker and is biconical in shape Measurements Length: Width: Height: Diam .: Thickness: Condition/Treatment Notes 8 of the beads are deformed and have cracks and tears through them. Only one of the beads appears to be in its original shape. They have a small amount of accretions and burial dirt on their surface but are othewise clean and in good condition. There is some light scratching of the gold surfaces Corrosion ☑ None ☐ Green-Surface ☐ Green-Core ☐ Black-Surface ☐ Black-Core ☐ Red-Core ☐ Other... Corrosion notes Primary Fabrication ☐ Cast- Open Back ☐ Cast- Solid ☑ Hammered-Sheathing ☐ Other/Unknown ☐ Cast- Closed Core ☐ Hammered-Sheet ☐ Wire/Rod Fabrication Notes The edges appear crimped and are folded in some areas as if shaped over something else Material ☐ Copper ☐ Gold Alloy ☐ Organic ☐ Resin ☐ Stone ☐ Shell ☐ Composite ☐ Unknown ☐ Not present Other... likely high purity gold Material Notes ☑ Gold ☐ Reddish ☐ Pinkish ☐ Mixed ☐ Other Coloration Notes Finishing ☐ Surface Enrichment ☐ Polished ☐ None Shiny- may have been burnished Finishing Notes ☐ All cast ☐ Embossed ☐ Incised ☐ Chased ☐ Filigree ☐ Granulation ☐ Punched ☐ Other... Decorative details Decorative detail notes ☐ All cast ☐ Mechanical ☐ Solder ☐ Other/Unknown Joinery Joinery Notes Abrasion Rubbed ☐ Scratches ☐ Burr(s) ☐ Cracking ☐ Incised ☐ Core/Investment ☐ Other Usewear/toolmarks Usewear/toolmarks Notes Pseudomorphs ☐ Pseudomorph ☐ Organics ☒ None ☐ Other Notes Analysis rec's

XRF

X-ray radiograph

ESEM-EDS □ PIXE □ LA-ICPMS □ Metallography

Other Analysis Rec Notes Image beads with ESEM-EDS. May be able to see structure, measure thickness, and locate joins Special □ Followup □ Re-do □ Conservation required □ Re-packaging required □ Other... Analysis #1 Type XRF Analysis Date 12/3/2009 E Reliability Analysis Operator ACH Location of analysis Thin Bead Analysis location notes Sound metal Element Cu Cd Ni Bi Trace Removed Fe Sn 1.5 3.6 (%) Results

Analysis Operator ACH

Sn

Sb

Pb

Analysis Date 12/3/2009 Reliability

Trace Removed

Results

Analysis location notes Sound metal

Museum/Object	Info Smithsonian Conection						
Object/Catalogue #	A438089-0 Owner NMNH Count 38 Curation Location MSC						
Object Class	Fragments Object Sub-Class						
Country	Panama Province Herrera Area						
Site Provenience	El Hatillo, Site He-4 Geographic Zone Azuero Peninsula-Parita Style						
Documentation	☐ Field Notes ☐ Accession docs/letters ☐ Stylistic ☐ Other ☐ Publication ☐ Inferred ☐ None						
Accession #	219603 Name in Records Gold And Or Copper (Tumbaga?) Frag						
Collector	BAE, Stirling and Willey Date Collected 1948						
Donor Cultural ID	Bureau Of American Date Accessioned Prehistoric Period Site extends from Late Cocle phase						
	historic Period Site extends from Late Cocle phase ama, Herrera Province, El Hatillo, Site He-4 Accession Info Found accession docs in NMNH Hardcopy files						
Catalogue Info							
Research Notes	Find 361 (?): Located in Mound VII, Trench 7, depth of 2.9m, north 9.3m, west wall. No ceramic contents. References Site Report: Ladd (1968) Archaeological investigations into the Parita and Santa Maria Zones.						
Technical Exam	ination Examination ☑ Visual ☑ Microscopy ☐ MicroPhoto ☐ Other Exam Operator ☐ CH ☐ Exam date 11/21/2008 🗓						
Descrip	bition Box 1: Five fragments and one very small fragment of a cast pendant (?) possibly a bird pendant based on the shape of the tail fragment. All of the pieces are thin and flat and there is a small amount of decoration on one fragment that has cast wire and scroll work.						
Measurem							
Wododieni	Length: Width: Height: Diam.: Thickness: Weight:						
Condition/Treatment N							
Corros	ion ☐ None ☒ Green-Surface ☒ Green-Core ☐ Black-Surface ☒ Black-Core ☐ Red-Surface ☒ Red-Core ☐ Other						
Corrosion no	The interior of the fragments, seen from the break edges, appears red, black, and green. There is thick green corrosion covering						
Primary Fabrica	ation						
Fabrication N	The object appears cast but not enough of it remains to determine what type of casting						
Mat	erial Copper 🗵 Gold Alloy Corganic Resin Stone Shell Composite Unknown Not present Other.						
Material N	There is a gold surface visible but the root of the chiest in heavily correded						
Surface Colora	ation Coppery Gold Reddish Pinkish Mixed Other						
Coloration N							
	hing Surface Enrichment Polished None Other						
	otes The mineralized interior and thin gold surface remaining indicates that the object underwent surface enrichment						
	tails All cast Embossed Incised Chased Filigree Granulation Punched Other						
	otes Not enough of the object remains to make this determination						
	nery All cast Mechanical Solder Other/Unknown						
Joinery N	200000 (MCC 200000 MCC 400000 MCC 20000 MCC 20						
Usewear/toolm Usewear/toolmarks N							
Pseudomo	rphs Pseudomorph Organics None Other Notes There may be organics mixed in with the bulky accretions on the						
Analysis i	ec's XRF						
Analysis Rec N	merodially control and ministration may not be a second and ministration and a second and ministration and a second a second and a second a second and a second a second and a second and a second and a second and a						
# <u></u>	☐ Special ☐ Followup ☐ Re-do ☐ Conservation required ☐ Re-packaging required ☐ Other						
Analysis #1	Type XRF Analysis Operator ACH Analysis Date 12/3/2009 E Reliability						
The second of the second second second second	Reverse ,Frag with 3 wires, cleanest spot Analysis location notes gold surface						
(%) Solution (%) (80.1)	Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed 66.8 2.9 Results						
Analysis #2	Type XRF Analysis Operator ACH Analysis Date 12/3/2009 IIII Reliability						
Location of analy	osis Obverse ,Large frag, center, cleanest spot Analysis location notes Green corrosion and white accretion						
Element Cu (%) 61.3	Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed Results						

Museum Conservation Institute	Opjective
useum/Ohiect Info	-
IISQIIM/CINIQCT INTO	

macca	iiii Object		
Object/C	atalogue #	A438145-0 Owner NMNH Count 1 Curation Location MSC	A478145
O	bject Class	Fragments Object Sub-Class	0.0000000000000000000000000000000000000
	Country	Panama Province Herrera Area	
	Site	El Hatillo, Site He-4 Geographic Zone Azuero Peninsula-Parita Style	AL WARRIES IN THE RESIDENCE OF THE PARTY OF
	rovenience umentation	☐ Field Notes ☐ Accession docs/letters ☐ Stylistic ☐ Other	
200	amomation	□ Publication □ Inferred □ None	
P	Accession #	219603 Name in Records Tumbaga Fragments	
	Collector	BAE, Stirling and Willey Date Collected 1948	
	Donor	Bureau Of American Date Accessioned	(1)
	Cultural ID	Prehistoric Period Site extends from Late Cocle phase	industrial Countries
Cat	alogue Info	Panama, Herrera Province, El Hatillo, Site He-4. Accession Info Found accession docs in	n NMNH Hardcopy files
		Location information with object: HA-4 Fe-381 ?? VII	
Rese	earch Notes	Find 381: Mound VII, Trench 7, depth 4.7-5m. north 2.7m. East profile. The unit contained a few fragments References Site Report: Ladd (1968)	Archaeological investigations into the
Techni	ical Exami	ination Examination ☑ Visual ☑ Microscopy ☐ MicroPhoto ☐ Other Exam Operation	
		otion Bag of corroded fragments all appear to be thin and flat- likely from cast pendant	Exam date 172 172 000 Ex
	Descrip	bag of corroded fragments all appear to be thin and flat-likely from cast perioant	1
	Measurem	ents	
		Length: Width: Height: Diam.: Thickn	ness: Weight:
Condition/	Treatment No	otes Completely mineralized and fragmentary. No discernible form	
	Corros	sion None Green-Surface Green-Core Black-Surface Black-Core Rec	d-Surface Red-Core Other
	Corrosion no		
Pri	mary Fabrica	AND THE RESIDENCE OF THE PARTY	
5.053	,	☐ Cast- Closed Core ☐ Hammered-Sheet ☐ Wire/Rod	wii
F	abrication No	otes Too deteriorated	7
	Mat	erial Copper Sold Alloy Organic Resin Stone Shell Composite	
	Material No	There is a gold layer visible under corrosion crust and Copper corrosion products throughout	ut the rest
Si	urface Colora	ation Coppery S Gold Reddish Pinkish Mixed Other	
		otes What is visible of the surface appears gold	
	Finis		
	Finishing No	otes Surface under crust is gold and shiny	
		tails All cast Embossed Incised Chased Filigree Granulation Pur	nched Other
Decor	ative detail n	otes Too deteriorated to tell	
		nery All cast Mechanical Solder Other/Unknown	
	Joinery No	otes Too deteriorated to tell	
Us	sewear/toolm	arks Abrasion Rubbed Scratches Burr(s) Cracking Incised Core/	Investment Other
Usewear	toolmarks No	otes	
	Pseudomoi	rphs ☐ Pseudomorph ☐ Organics ☒ None ☐ Other Notes	
	Analysis r	ec's XRF ☐ X-ray radiograph ☐ ESEM-EDS ☐ PIXE ☐ LA-ICPMS ☐ Metallograp	hy Other
An	alysis Rec N	otes May be too mineralized to be analyzed	
		☐ Special ☐ Followup ☐ Re-do ☐ Conservation required ☐ Re-packaging require	d Other
Ana	lysis #1	Type XRF Analysis Operator ACH Analysis Date 12/3/2009	Reliability Reliability
Loca	ation of analy	sis ? ,Small frag with clean gold surface Analysis location notes Gold	
	ement Cu	Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Rem	
	(%) 62.2	34.8 2.2 0.8 0.8	Results
Ana	llysis #2		
1		Type XRF Analysis Operator ACH Analysis Date 12/3/2009	
	•	rsis ? ,Larger accreted fragment, edge with less accretions Analysis location notes Green	
	ment <u>Cu</u> %) 93.5	Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Ren	
(%) 93.5	4.5 0.7 1.3 1.3	Results

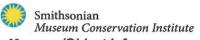


Museum/Object	Info	41918
Object/Catalogue #	A439908-0 Owner NMNH Count 1 Curation Location MSC	
Object Class	Pendant Object Sub-Class Zoo-Bird	
Country	Panama Province Panama Area	
Site Provenience	No info Geographic Zone Panamá/Colón Style Style	
Documentation	☐ Field Notes ☐ Accession docs/letters ☐ Stylistic ☐ Other ☐ Publication ☐ Inferred ☐ None	<u> </u>
Accession #	254765 Name in Records Gold Bird Pendant	
Collector	Date Collected	
Donor	Stevens, Marjo; 1964-Jul; Gift; Date Accessioned	
Cultural ID	Panama, Panama Accession Info	
Catalogue Info	Fallallia, Fallallia	
Research Notes	References	
Technical Exami	ination Examination ☑ Visual ☑ Microscopy ☐ MicroPhoto ☐ Other Exam Ope	erator ACH Exam date 11/21/2008
Descrip		es, spiral earrlings, and three
	plumes/feathers on head. There is a single suspension loop at back of neck and very sn projecting feet at the center. The wings and tail are flat and thin.	nall (unusually small) body with two
Measuremo		
		ckness: Weight:
Condition/Treatment No		polishing or cleaning. The central plume on
	the head was either miscast or broken off. May be coated in clear coating.	
Corros	sion ☑ None ☐ Green-Surface ☐ Green-Core ☐ Black-Surface ☐ Black-Core ☐ F	Red-Surface Red-Core Other
Corrosion no		
Primary Fabrica	ation Cast- Open Back Cast- Solid Hammered-Sheathing Other/Unk	nown
	☐ Cast- Closed Core ☐ Hammered-Sheet ☐ Wire/Rod	
Fabrication No	에서 하다는	
Mot	Back is pitted and the interior of the body and head are especially porous and pitted. Underial ☐ Copper ☒ Gold Alloy ☐ Organic ☐ Resin ☐ Stone ☐ Shell ☐ Composite	
	No consideration of the condition of the condition of the conditions	G G G IKITOWII G NOT PIESEIT G GTIEF
Material No	0.03	
	ation Coppery Gold Reddish Pinkish Mixed Other	
Coloration No.	CONTROL IN	
	hing Surface Enrichment Polished None Other otes No break edges to help determine surface enrichment, but it is likely somewhat enriched	The front is shiny and annears nolished
Finishing N	and there is extensive scratching	. The noncis shirty and appears polished
Decorative de	etails All cast Embossed Incised Chased Filigree Granulation I	Punched Other
	otes All details appear to be in wax model	
	nery All cast Mechanical Solder Other/Unknown	
Joinery N	Assessed to the control of the contr	
Usewear/toolm		re/Investment Other
Usewear/toolmarks No		
Pseudomo		ranhy
Analysis r Analysis Rec N		
7a.yo.o 7 too 7 .	☐ Special ☐ Followup ☐ Re-do ☐ Conservation required ☐ Re-packaging required	
Analysis #1	Type XRF Analysis Operator ACH Analysis Date 12/4/2009	
	rype KRP Allalysis Operator Acti Analysis Date 12/4/2008 Analysis location notes So	
Element Cu	Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace F	W 5110 APR 12 SUBS
(%) 5.2	89.1 5.7	Results
Analysis #2	Type XRF Analysis Operator ACH Analysis Date 12/4/2009	Reliability
Location of analy	rsis Reverse ,Suspension loop Analysis location notes So	
Element Cu	Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace F	
(%) 6.7	86.8 6.1 0.4 0.4	Se, Pd Results

Museum/Object i	nto
Object/Catalogue #	A448234-0 Owner NMNH Count 1 Curation Location MSC
Object Class	Pendant Object Sub-Class Zoo-Frog
Country	Panama Province Panama Area Panama Canal Zone (?)
Site	No Info Geographic Zone Panamá/Colón Style
Provenience	☐ Field Notes ☐ Accession docs/letters ☐ Stylistic ☐ Other
Documentation	□ Publication □ Inferred ☑ None
Accession #	265536 Name in Records Cast Gold Pendant (Frog)
Collector	Dr.C.L.G. Anderson (~1906) Date Collected
Donor	Swackhamer, Donald A; 1966- Date Accessioned
Cultural ID	Chiriqui Style (A. D. 1200 To Period
Catalogue Info	Panama, Panama Canal Zone, Panama Canal Zone Accession Info Said by nephew to be excavated by Anderson ~1906 in Panama
	Canal Zone
	No accession documents at NMNH (microfilm or hardcopy) References Anderson 1938 "Old Panama and Castilla del Oro" (not mentioned in this publication"
Technical Exami	nation Examination 🛘 Visual 🔻 Microscopy 🗖 MicroPhoto 🖨 Other Exam Operator 🗚 Exam date 11/21/2008 🟢
Descrip	- 5, F
	front legs. The snakes in the front have spiral cast wire bodies. The back is hemispherical with a double wire circle around it. The
14	legs extend out in an S shape and have small U shaped hands with three lines incised in the wax model, representing the digits.
Measureme	
O	Length: Width: Height: Diam.: Thickness: Weight:
Condition/Treatment No	In excellent condition except for the top of the suspension loop that appears black and red as the gold surface has worn away. Lots of small scratches on the surface. Buildup of wax on hollow interior of bell and under suspension loop, indicating past conservation and
	application of coating
Corros	ion ☑ None ☐ Green-Surface ☐ Green-Core ☐ Black-Surface ☑ Black-Core ☐ Red-Surface ☐ Red-Core ☐ Other
Corrosion no	No corrosion on surface but at suspension loop where the surface is abraded, a black interior is visible.
Primary Fabrica	
	☐ Cast- Closed Core ☐ Hammered-Sheet ☐ Wire/Rod
Fabrication No	Dendrites visible in crevices. Interior of head is pitted and porous- in as cast state.
Mate	□ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □
Material No	ites
Surface Colora	tion 🛮 Coppery 🔻 Gold 🗖 Reddish 🗖 Pinkish 🗖 Mixed 🗖 Other
Coloration No	11 70 0
Finish	ning 🛮 Surface Enrichment 🖾 Polished 🗆 None 🗆 Other
Finishing No	otes Has high polish
Decorative del	ails All cast Embossed Incised Chased Filigree Granulation Punched Other
	otes All details appear to be in wax model
	ery ☑ All cast ☐ Mechanical ☐ Solder ☐ Other/Unknown
	otes All joinery appears to be in wax model
Usewear/toolma Usewear/toolmarks No	
Pseudomor	
Analysis re	
Analysis Rec No	
	☐ Special ☐ Followup ☐ Re-do ☐ Conservation required ☐ Re-packaging required ☐ Other
Analysis #1	Type XRF Analysis Operator ACH Analysis Date 12/4/2009 E Reliability
	Sis Obverse ,Center, back Analysis location notes Sound metal
Element Cu	Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed
(%) 26.8	67.9 5.3 Ar, Pa Results
52 NSO	
Analysis #2	Type XRF Analysis Operator ACH Analysis Date 12/4/2009 E Reliability
Location of analys	sis Reverse ,Suspenion loop Analysis location notes Sound metal
Element Cu	Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed
(%) 24.0	64.1 11.7 At, Pa Results



Museum/Object	Info	
Object/Catalogue#	A448247-0 Owner NMNH Count 1 Curation Location MSC	LO F
Object Class	Pendant Object Sub-Class Anthro	
Country	Panama Province Bocas del Toro Area	
Site Provenience	No info Geographic Zone VGC-Caribbean Style	來
Documentation	☐ Field Notes ☐ Accession docs/letters ☐ Stylistic ☐ Other ☐ Publication ☐ Inferred ☐ None	11
Accession #	268732 Name in Records Golden Figurine Of Man	PRINCES PROPERTY OF THE
Collector	Purchased by George Barrett Date Collected	THE PARTY AND PROPERTY OF THE PARTY OF THE P
Donor	Barrett, George Sr.; 1966-Sep Date Accessioned Period	
Cultural ID	Pre-Columbian Period Panama, Bocas Del Toro Province, Boca Del Toro Accession Info No accession docs at NMNH	(hardcopy or microfilm)
Catalogue Info	Province	(Hardoopy of Micromin)
Research Notes	Only info is from Catalogue card that reads "Purchased by Barrett in Bocas del Toro"	
Technical Exam	i ination Examination ☑ Visual ☑ Microscopy ☐ MicroPhoto ☐ Other Exam Operator	
Descrip	ption Solid cast wire anthropomorphic figurine with large nose/beak, holding two scepters, has three phallus. Single suspension loop on back.	arge wire plumes on head and
Measurem	nents	
	Length: Width: Height: Diam.: Thickness	: Weight:
Condition/Treatment No	lotes Excellent condition. Some mixed white and brown accretions in incised (cast) decoration	
Corros	sion None Green-Surface Green-Core Black-Surface Black-Core Red-Su	rface Red-Core Other
Corrosion no	otes	
Primary Fabrica	ation	
Fabrication N		entral wire at top of head terminates
Mat	in sprue-like form. There are several blobs on the surface, likely artifacts from casting terial ☐ Copper ☒ Gold Alloy ☐ Organic ☐ Resin ☐ Stone ☐ Shell ☐ Composite ☐ L	Inknown
Material N		THAT CHILD THE PROCESS CONTRACTOR
Surface Colora	ration Coppery Gold Reddish Pinkish Mixed Other	
Coloration N	Notes	
Finis	shing Surface Enrichment Polished None Other	
Finishing N	Notes Unable to tell surface enrichment because there are no break edges or corrosion. All raised sur	faces are polished
Decorative de	etails All cast Embossed Incised Chased Filigree Granulation Punche	d Other
Decorative detail n	notes Details incised in wax model prior to casting	
	inery All cast Mechanical Solder Other/Unknown	
Joinery N		
Usewear/toolm		stment U Other
	All raised surfaces are polished	
Pseudomo		Other
	Analysis rec's ☒ XRF ☒ X-ray radiograph ☒ ESEM-EDS ☐ PIXE ☐ LA-ICPMS ☐ Metallography ☐ Other Analysis Rec Notes Could use ESEM to look at dendrites	
	☐ Special ☐ Followup ☐ Re-do ☐ Conservation required ☐ Re-packaging required	☐ Other
Analysis #1	Type XRF Analysis Operator ACH Analysis Date 12/4/2009	Reliability
Location of analy	lysis Obverse ,Face Analysis location notes Sound me	etal
Element Cu (%) 5.1	Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Remove	Results
Analysis #2	Type Analysis Operator Analysis Date	Reliability
Location of analy	ysis Analysis location notes	
Element Cu (%)	Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Remove	Results



Pre-Columbian Gold in the Smithsonian Collections

Museum Conservation Institute

Juseum/Object Info

Museum/Object i	into
Object/Catalogue #	A536060-0 Owner NMNH Count 1 Curation Location MSC
Object Class	Ornament Object Sub-Class Ring-Nose
Country	Panama Province Veraguas Area
Site	La Pita Geographic Zone VGC Style
Provenience Documentation	☐ Field Notes ☐ Accession docs/letters ☐ Stylistic ☒ Other
	☐ Publication ☐ Inferred ☐ None
Accession #	361220 Name in Records Nose-Ring
Collector	Bureau of American Ethnology Date Collected
Donor	Department Of Anthropology; Date Accessioned
Cultural ID	Chiriqui-Style Period
Catalogue Info	Panama, Veraguas, La Pita. Based on hand-written note on exhibition case diagram in photo exhibit book: Hardcopy of accession info at NMNH. Accessioned in 1976 when the object was taken out of the display case and no previous
Research Notes	Were in display prior to 1976. Found without any References photo exhibit book for Hall 23, case 19
	other documentation than a note in the photo exhibit
Technical Exami	ination Examination ☑ Visual ☑ Microscopy ☐ MicroPhoto ☐ Other Exam Operator ☐ CH ☐ Exam date 11/21/2008
Descrip	tion Thin foil sheething in the shape of a nose ring with four bands. Substrate missing. Likely organic.
Measureme	note .
Measureme	Length: Width: Height: Diam.: Thickness: Weight:
Condition/Treatment No	
Condition/ Heatment 140	in the thin metal and slight distortion of the whole object.
Corros	2 Total 2 Good Carlado 2 Good Colo 2 Black Carlado 2 Black Colo 2 Trea Carlado 2 Carlotte
Corrosion no	tes
Primary Fabrica	
	☐ Cast- Closed Core ☐ Hammered-Sheet ☐ Wire/Rod
Fabrication No	
Mate	The edges simply fold over indicating mechanical attachment to the substrate surface or else through the use of an adhesive
Material No	
Surface Colora	2 - spper, 2 - set 2 - tetales. 2 + miles 2 - times
Coloration No	
Finish	
Finishing No	otes Burnished
Decorative de	tails All cast Embossed Incised Chased Filigree Granulation Punched Other
	otes Details appear embossed, possibly by burnishing over a shaped substrate
	nery All cast Mechanical Solder Other/Unknown
Joinery No	
Usewear/toolma	arks ☐ Abrasion ☐ Rubbed ☐ Scratches ☐ Burr(s) ☒ Cracking ☐ Incised ☐ Core/Investment ☐ Other
Usewear/toolmarks No	
Pseudomor	
Analysis re	
Analysis Rec No	Determine thickness
	☐ Special ☐ Followup ☐ Re-do ☐ Conservation required ☐ Re-packaging required ☐ Other
Analysis #1	Type XRF Analysis Operator ACH Analysis Date 12/4/2009 Reliability good
100	sis Obverse ,Inner ring center Analysis location notes Sound metal
Element Cu	Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed
(%) 1.7	90.8 7.6 Results
Applicate #2	
Analysis #2	Type Analysis Operator Analysis Date Reliability
Location of analy	
Element Cu	Au Ag Zn Cd As Ni Fe Sn Sb Hg Pb Bi Trace Removed
(%)	