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An anthropological investigation into the facial preservation of ceremonial tsantsa and commercial shrunken heads

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Appendix 19

Environmental damage (shrunken head collection)

Records for each shrunken head are available, with regards to fungal deterioration (Table A19-1, *appendix* pp.1-6), pest infestation and cracking of the tissues from storage conditions and mishandling (Table A19-2, *appendix* pp.6-9).

Table A19-1: Fungal deterioration evident across each shrunken head.

Head ID	Processor origin	Brown discolouring fungal development	Concentrated white fungal development	Damage	Surface area
A95789	Ceremonial	Scalp, hairline, internal head, creases/folds (facial down present), surface perforations.		R eyebrow loss, weakening of L eyebrow.	Minimal.
A121104	Ceremonial	Scalp, hairline, internal head, nostrils, creases/folds (facial down present), surface perforations.	R nasal roof, L posterior lobe, L&R lateral cheek (hidden by scalp hair).		Prevalent.
A642550	Ceremonial	Scalp, hairline, internal head, nostrils, creases/folds (facial down present), surface perforations.	L medial cheek surrounding mouth and L lateral chin.		Minimal.
A642560	Ceremonial	Scalp, hairline, forehead, internal head, nostrils, creases/folds (facial down present), surface perforations.		Weakening of L eyebrow.	Minimal.
E165119B0	Ceremonial	Scalp, hairline, internal head, nostrils, creases/folds (facial down present), surface perforations.	Left and right posterior cheek (hidden by scalp hair).		Minimal.
E403395-0	Ceremonial	Scalp, hairline, internal head, nostrils, lip perforations.	Creases/folds.		Prevalent.
A38099	Commercial	Scalp, internal head, nostrils, creases/folds.	Marking internal and external head, predominantly the hairline and inferior of left cheek.	Scalp hair and L&R eyebrow loss.	Prevalent.

Head ID	Processor origin	Brown discolouring fungal development	Concentrated white fungal development	Damage	Surface area
A61492	Commercial	Scalp, hairline, internal head, nostrils, creases/folds (facial down present).	L lateral forehead, under chin and across anterior neck.		Prevalent.
A63428	Commercial	Scalp, hairline, internal head, nostrils, creases/folds (facial down present).			Minimal.
A63429	Commercial	Across internal and external head (facial down present). Less evident across cheeks, ears, nasal tip.		Scalp hair loss. Weakening of R eyebrow.	Prevalent.
A68229	Commercial	Across neck, L&R posterior cheeks (facial down present).	Across most of internal and external head. Less evident across cheeks, prominences of ears, nasal tip, under chin.		Prevalent.
A68231	Commercial	Across internal and external head (facial down present). Less evident across R cheek, nose.		L&R eyebrows lost.	Prevalent.
A97275	Commercial	Across internal and external head (facial down present).	Marks evident across internal and external head. Concentrated at medial portion of face - R half of nasal bridge, nasal base, nostrils, medial of upper lip, across lips.	Weakening of R eyebrow.	Prevalent.
A102935	Commercial	Across internal and external head (facial down present).			Prevalent.
A109084	Commercial	Across internal and external head (facial down present).			Prevalent.
A119820	Commercial	Across external head (facial down present) - weak at facial prominences.			Minimal.
A130409	Commercial	Across external head (facial down present) - weak at cheeks, forehead, neck.	Creases/folds surrounding eyes, nose, mouth. Nostrils and lips.		Prevalent.
A190320	Commercial	Across internal and external head. Less evident across nasal tip and alae.	Patches across internal and external head, predominantly scalp, inferior chin, forehead.	Full scalp hair and L&R eyebrow loss.	Prevalent.
A221683	Commercial	Across internal and external head (facial down present).			Prevalent.
A230414	Commercial	Scalp, internal head.	Hairline, creases/folds, L&R brow ridge.	Scalp hair and L&R eyebrow loss.	Minimal.

Head ID	Processor origin	Brown discolouring fungal development	Concentrated white fungal development	Damage	Surface area
A642477	Commercial	Across internal and external head (facial down present) - with exception to prominences of L&R cheeks, nose and chin.	Weak at neck crease inferior to chin.		Prevalent.
A642549	Commercial	Across external head.	L central cheek, R inferior cheek, patches across scalp, R brow ridge.	Scalp hair and L&R eyebrow loss.	Prevalent.
A642556	Commercial	Across internal and external head (facial down present).	Patches across face, predominantly at hairline, creases/folds, surrounding nose and mouth.		Prevalent.
A642557	Commercial	Across internal and external head (facial down present).	Patches across face, predominantly along inferior jaw line.		Prevalent.
A642564	Commercial	Across internal and external head (facial down present).	Patches across internal and external head.		Prevalent.
A642565	Commercial	Across internal and external head.	Across brow ridge, surrounding nose, L medial cheek and L lateral chin.	Scalp hair loss. R eyebrow loss, weakening of L eyebrow.	Prevalent.
378202	Commercial	Across internal and external head (facial down present).			Prevalent.
CONTROL 400206	Commercial	Across internal and external head (facial down present).			Prevalent.
E326930-0	Commercial	Scalp, hairline, internal head, nostrils, creases/folds (facial down present), surface perforations.			Minimal.
E358641-0	Commercial	Scalp, hairline, lower lip, nostrils, eyelids, creases/folds (facial down present).			Minimal.
E358642-0	Commercial	Scalp, hairline, internal head, nostrils, creases/folds (facial down present).	Surrounding left eyelid, left lateral forehead and hairline, folded regions of left ear (regions hidden by scalp hair).		Minimal.
E378203-0	Commercial	Scalp, hairline, internal head, creases/folds (facial down present).			Prevalent.
E378892	Commercial	Across internal and external head (facial down present).	Across external head, excluding eyelids, nose and lips.		Prevalent.

Head ID	Processor origin	Brown discolouring fungal development	Concentrated white fungal development	Damage	Surface area
E382592-0	Commercial	Across internal and external head (facial down present).	Across internal and external head. Less evident at facial prominences (free from facial down).		Prevalent.
E387845-0	Commercial	Across external head (facial down present) - weak at cheeks and neck.	Eyelids, nostrils, upper lip, facial creases/folds.		Prevalent.
E397131-0	Commercial	Scalp, hairline, internal head, nostrils, creases/folds (facial down present).			Minimal.
E411333-0	Commercial	Scalp, hairline, internal head, nostrils, creases/folds (facial down present).	Anterior to L lateral ear and R lateral forehead.		Minimal.
N387872-0	Commercial	Scalp, hairline, internal head, nostrils, creases/folds (facial down present), surface perforations.		L eyebrow loss.	Minimal.
P387657-0	Commercial	Across internal and external head (facial down present).	Superior medial forehead and close to L medial eyebrow.		Prevalent.
P387659-0	Commercial	Across internal and external head (facial down present).	Across internal and external head and at transverse creases between eyelids.		Prevalent.
P387660-0	Commercial	Scalp, beard, hairline, nostrils, creases/folds, mouth opening.	Medial forehead at hairline.	L&R eyebrows loss.	Prevalent.
P387661-0	Commercial	Across internal and external head (facial down present). Less evident across nasal tip and alae.			Prevalent.
A36675	Ambiguous	Scalp, hairline, internal head, nostrils, creases/folds (facial down present), surface perforations.	L lateral-superior cheek (hidden by scalp hair).	R eyebrow loss.	Minimal.
A41122	Ambiguous	Scalp, hairline, internal head, creases/folds (facial down present), surface perforations.			Minimal.
A44058	Ambiguous	Scalp, hairline, internal head, nostrils, creases/folds (facial down present), surface perforations.	L brow ridge (hidden by scalp hair).		Minimal.
A95788	Ambiguous	Scalp, hairline, internal head, creases/folds (facial down present), surface perforations, across L&R cheeks.	Across L&R cheeks, concentrated at superior half (hidden by hair).		Prevalent.
A121091	Ambiguous	Scalp, hairline, internal head, nostrils, creases/folds (facial down present), surface perforations.			Minimal.
A155039	Ambiguous	Scalp, hairline, internal head, nostrils, creases/folds, surface perforations.	L&R brow ridge, L ala and L nasolabial creases, L medial-inferior cheek, L&R posterior-central cheek.	Scalp hair and L&R eyebrow loss.	Prevalent.

Head ID	Processor origin	Brown discolouring fungal development	Concentrated white fungal development	Damage	Surface area
A161722	Ambiguous	Scalp, hairline, internal head, nostrils, creases/folds (facial down present), surface perforations.	Minor at R lateral forehead.		Minimal.
A191643	Ambiguous	Scalp, hairline, internal head, nostrils, creases/folds, surface perforations.	Across brow ridge, R lateral forehead, R ala crease, small patches marking L&R superior cheeks.	Scalp hair loss.	Prevalent.
A233681	Ambiguous	Scalp, hairline, internal head, creases/folds (facial down present), surface perforations.		L eyebrow loss.	Minimal.
A642548	Ambiguous	Across internal and external head.	Weak patches across internal and external head.		Prevalent.
A642551	Ambiguous	Scalp, hairline, internal head, nostrils, creases/folds, surface perforations.		Scalp hair and L&R eyebrow loss.	Prevalent.
A642552	Ambiguous	Scalp, hairline, internal head, nostrils, creases/folds (facial down present), surface perforations.	R ala, L brow ridge.	L eyebrow loss.	Minimal.
A642553	Ambiguous	Scalp, hairline, internal head, nostrils, creases/folds (facial down present), surface perforations.	R ala, R superior ear, R lateral brow ridge (hidden by scalp hair).		Minimal.
A642554	Ambiguous	Scalp, hairline, internal head, nostrils, creases/folds (facial down present), surface perforations.	Patches across external head, predominantly surrounding chin, lip perforations, L ala, folds at L lateral mouth.	L&R eyebrow loss.	Prevalent.
A642555	Ambiguous	Scalp, hairline, internal head, nostrils, creases/folds (facial down present), surface perforations.	Spots across L hairline, L lateral cheek (hidden by scalp hair), R mouth pin perforation.	R eyebrow loss.	Minimal.
A642558	Ambiguous	Scalp, hairline, forehead, internal head, nostrils, creases/folds, surface perforations.			Minimal.
A642559	Ambiguous	Scalp, hairline, internal head, nostrils, creases/folds, surface perforations.		R eyebrow loss.	Minimal.
A642561	Ambiguous	Scalp, hairline, internal head, nostrils, creases/folds (facial down present), surface perforations.			Minimal.
A642562	Ambiguous	Scalp, hairline, internal head, nostrils, creases/folds, surface perforations.		L&R eyebrows loss.	Minimal.
A642563	Ambiguous	Scalp, hairline, internal head, nostrils, creases/folds (facial down present), surface perforations.			Minimal.

Head ID	Processor origin	Brown discolouring fungal development	Concentrated white fungal development	Damage	Surface area
E039500	Ambiguous	Scalp, hairline, internal head, creases/folds, surface perforations.			Minimal.
E315111-0	Ambiguous	Scalp, hairline, internal head, nostrils, creases/folds (facial down present), surface perforations.	Superior forehead, close to hairline (hidden by scalp hair).	L&R eyebrow loss.	Minimal.
Elgin1	Ambiguous	Scalp, hairline, internal head, nostrils, creases/folds (facial down present), surface perforations.	Superior of left lateral cheek (hidden by scalp hair).		Minimal.

Table A19-2: Pest infestations and cracking of the tissues from storage conditions and mishandling.

Head ID	Processor origin	Pest infestation damage	Cracks/scratches
A95789			Fine surface cracks, marked at medial L&R cheeks.
A121104	Ceremonial		Few fine surface cracks at creases and forehead.
A642550	Ceremonial		Few fine surface cracks, mostly under chin and at neck.
A642560	Ceremonial		Fine surface cracks, mostly across forehead. Vertical crack at R medial inferior cheek. Transverse papillary deep crack at L lateral chin with multiple small transverse and vertical cracks forming.
E165119B0	Ceremonial		
E403395-0	Ceremonial		Few fine surface cracks.
A38099	Commercial	Prominent – superficial gnawing and perforations across face, predominantly the R eyelids and R half of forehead.	Dry, fine surface cracks.
A61492	Commercial		Dry, fine surface cracks. Prominent cracking across nose
A63428	Commercial		Prominent vertical cracks at nasal tip.
A63429	Commercial	Minimal - seldom small perforations mark face.	Dry, fine surface cracks, where epidermis remains.

Head ID	Processor origin	Pest infestation damage	Cracks/scratches
A68229	Commercial		Dry, fine surface cracks.
A68231	Commercial		Dry, fine surface cracks.
A97275	Commercial	Minimal - seldom small perforations mark L ear.	Dry, fine surface cracks.
A102935	Commercial	Minimal - seldom small perforations – 2 at L lateral cheek, 1 at R lobe.	Dry, fine surface cracks. 2 prominent transverse nasal cracks in papillary layer.
A109084	Commercial	Minimal - seldom small perforations mark face.	Dry, fine surface cracks.
A119820	Commercial		Dry, fine surface cracks where epidermis is present.
A130409	Commercial		Dry, fine surface cracks.
A190320	Commercial	Minimal - seldom small perforations mark face.	Dry, fine surface cracks.
A221683	Commercial	Prominent –superficial gnawing across face, predominantly upper eyelids, forehead, L&R superior medial cheeks, L&R ears.	Dry, fine surface cracks.
A230414	Commercial	Minimal - 1 small perforations at superior cheek.	
A642477	Commercial		Dry, fine surface cracks. Small vertical crack at L lateral neck base.
A642549	Commercial	Minimal - seldom small perforations mark face, focussed at R superior cheek and R brow ridge.	Dry, fine surface cracks.
A642556	Commercial		Dry, fine surface cracks.
A642557	Commercial	Prominent – gnawing and perforations across face, predominantly at L inner eyelids and medial superior cheek, R medial central cheek.	Dry, fine surface cracks.
A642564	Commercial	Minimal - seldom superficial gnawing and small perforations mark face.	Dry, fine surface cracks.
A642565	Commercial	Prominent - superficial gnawing and small perforations evident across face, concentrated at region surrounding mouth, R cheek, R ear.	Dry, fine surface cracks.
378202	Commercial		Dry, fine surface cracks.
CONTROL 400206	Commercial	Minimal – small perforation at L ear.	Dry, fine surface cracks.
E326930-0	Commercial	Minimal – superficial gnawing at R outer helix.	Dry, few fine surface cracks.
E358641-0	Commercial	Minimal - seldom small perforations mark across face.	
E358642-0	Commercial		
E378203-0	Commercial		Dry, fine surface cracks.
E378892	Commercial		Dry, fine surface cracks.
E382592-0	Commercial		Dry, fine surface cracks.
E387845-0	Commercial		Dry, fine surface cracks.

Head ID	Processor origin	Pest infestation damage	Cracks/scratches
E397131-0	Commercial	Minimal - seldom small perforations mark across face and L ear.	Dry, fine surface cracks.
E411333-0	Commercial	Minimal - 2 small perforations mark R cheek.	Dry, fine surface cracks.
N387872-0	Commercial	Minimal - seldom small perforations mark face.	Dry, fine surface cracks at creases. Marked transverse crack at L mouth corner, and vertical at medial inferior lip.
P387657-0	Commercial	Minimal - seldom small perforations mark face.	Dry, fine surface cracks. Marked transverse crack at medial forehead and at right eye corner across nasal bridge.
P387659-0	Commercial	Prominent – marked perforations at alae folds, across mouth, particularly R corner of lower lip.	Dry, fine surface cracks.
P387660-0	Commercial	Minimal - seldom small perforations mark face.	Dry, fine surface cracks.
P387661-0	Commercial		Dry, fine surface cracks.
A36675	Ambiguous	Minimal - seldom small perforations mark face.	Fine surface cracks. Marked transverse nasal crack.
A41122	Ambiguous		Few very fine surface cracks. Prominent vertical crack at anterior-medial neck.
A44058	Ambiguous		Few fine surface cracks at forehead.
A95788	Ambiguous		Few very fine surface cracks.
A121091	Ambiguous		Few fine surface cracks.
A155039	Ambiguous	Minimal - seldom small perforations mark face.	Dry, fine surface cracks. Cracked at R inner eye [handling].
A161722	Ambiguous		Fine surface cracks. Strong crack marks transverse L&R mouth corners.
A191643	Ambiguous	Minimal - seldom small perforations mark face.	Dry, fine surface cracks.
A233681	Ambiguous		Dry, fine surface cracks. Strong transverse crack at inferior chin, and horizontally at R central cheek [strong skin folds].
A642548	Ambiguous		Dry, fine surface cracks. Marked cracks at L&R inner eyelids [handling].
A642551	Ambiguous		Few fine surface cracks.
A642552	Ambiguous		Few fine surface cracks at creases and hairline.

Head ID	Processor origin	Pest infestation damage	Cracks/scratches
A642553	Ambiguous		
A642554	Ambiguous		Few fine surface cracks at R lateral neck base.
A642555	Ambiguous	Minimal - 1 small perforation mark at R ala.	Few fine surface cracks. More marked transverse cracks at L mouth corner, following direction of lip distension.
A642558	Ambiguous	Minimal – small perforations marks L lateral chin.	Few fine surface cracks at creases and hairline.
A642559	Ambiguous	Prominent – superficial gnawing and small perforations at L lobe, L lower lip.	Few fine surface cracks at hairline. Transverse nasal crack.
A642561	Ambiguous		Few fine surface cracks at creases and upper lip.
A642562	Ambiguous		Few fine surface cracks. Multiple scratches - across L&R cheeks and forehead. Marked cracks at L&R eye corners [handling].
A642563	Ambiguous		Few fine surface cracks at creases.
E039500	Ambiguous	Minimal - 2 small perforations mark L medial inferior cheek, R medial superior cheek.	
E315111-0	Ambiguous	Prominent – broad perforations mark corners of the mouth, L cheek, L lobe, R inferior outer helix.	Marked cracks at nasolabial regions nose and mouth.
Elgin1	Ambiguous		Multiple small cracks at inferior L cheek [strong fold in skin].