SCENARIO EXPLORATION · HOW IT WAS MADE

The Stones Remember

Five narrated visits of ancient Egypt, each restored to one moment in its history

The Great Pyramid of Khufu and the Hypostyle Hall of Karnak as walkable 3D; Abu Simbel, Philae and the tomb of Tutankhamun as 360 tours. Every stop carries a Then / Now layer. Built on 27 September 2026 by seven Claude Code agents working in parallel through Scenario MCP, with Blender, a research bible for every site, an accuracy review and a design review loop.



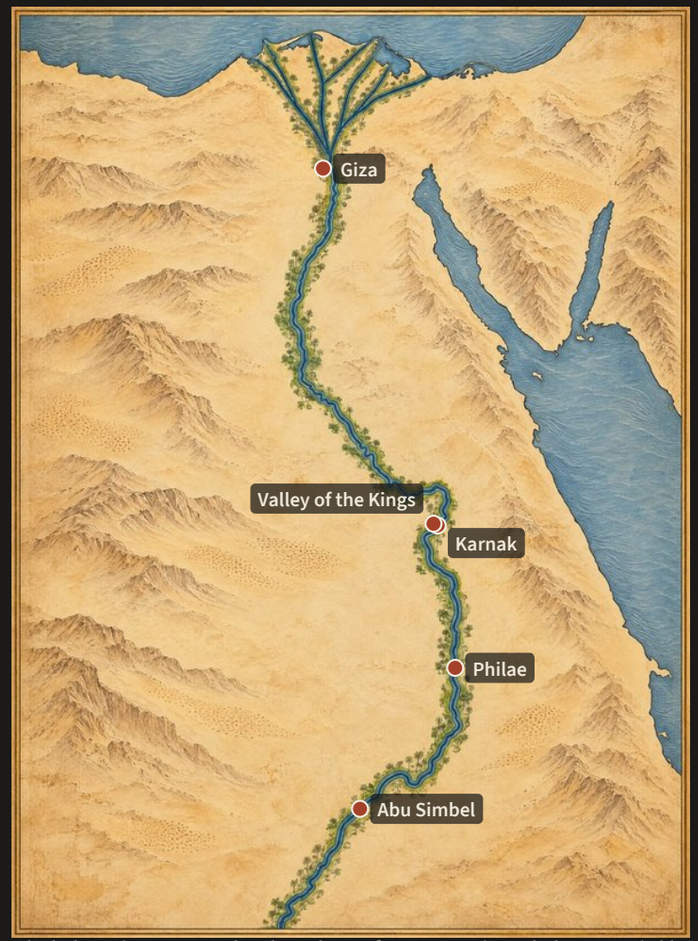
Visit The Stones Remember Scenario MCP Scenario skills Scenario

Abu Simbel at dawn, around 1255 BC: a view cut from the delivered 8192 px arrival panorama.

Five places, five precise moments

The request: an extremely accurate visit of Philae, Karnak, Abu Simbel, the Great Pyramid and the tomb of Tutankhamun, at the level of a professional VR production for museum education, with a guide, people in the scenes, voiceover and 360 or interactive 3D. The sequel to The Room Remembers, which showed one room across time, keeps its hook: every site pairs its historical moment with the same viewpoint today.

SITE	MODE	THEN	NOW
Great Pyramid of Khufu	3D	c. 2560 BC, white Tura casing intact	Stepped core, casing gone
Hypostyle Hall, Karnak	3D	c. 1250 BC, roofed and painted	Unroofed ruin, faded paint
Tomb of Tutankhamun	360	c. 1323 BC, and the first entry of 1922	Burial chamber and antechamber today
Temple of Isis, Philae	360	c. AD 100, reign of Trajan	Agilkia island, after the 1977-80 move
Great Temple, Abu Simbel	360	c. 1255 BC, dawn, Year 24	Relocated site above Lake Nasser



The hub's Nile map: a Python base drawn from Natural Earth data, restyled by GPT Image 2.5 Sunburst, with the seven ancient Delta branches.

WHY 3D HERE AND 360 THERE

Khufu and Karnak are geometric, measured and repetitive (courses, corbels, a grid of 134 columns): scripted Blender geometry gives exact, walkable architecture. Abu Simbel, Philae and KV62 are dominated by sculpture, dense painted relief and objects, where 8192 px panoramas carry far more detail than realtime meshes.

Every pixel is a claim about history

No site agent generated an image before writing its research bible: dimensions, layout, materials, colours and dated features, each tagged KNOWN, RECONSTRUCTED or UNCERTAIN, with sources. Wikipedia counted only as a pointer. A second file, ACCURACY.md, maps every narrated sentence and every scene element to its source, and the narration says uncertainty aloud: “Egyptologists think”, “no one knows whether”.

PRINCIPAL SOURCES PER BIBLE

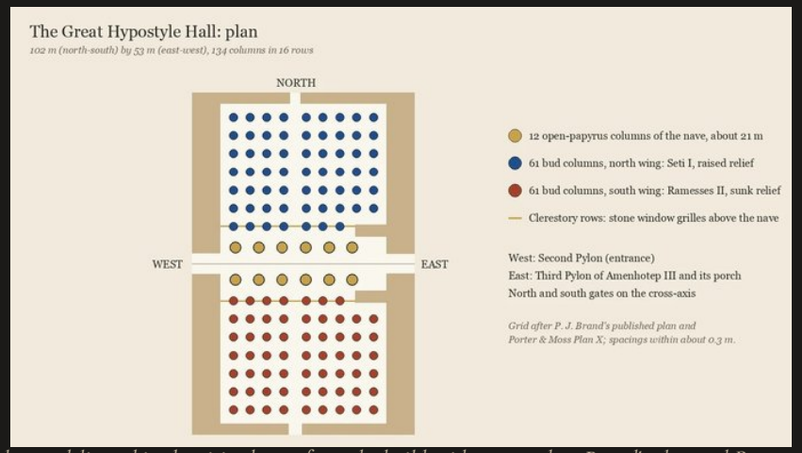
Khufu	Petrie 1883, Lehner and Hawass 2017, Tallet 2017 (Merer's papyri), AERA
Karnak	Great Hypostyle Hall Project (Brand), Porter and Moss plans
Abu Simbel	Porter and Moss VII, Burckhardt 1819, Belzoni 1820, Shaltout and Belmonte 2005
Philae	Haeny 1985, Kockelmann 2012, Porter and Moss VI, Baedeker 1914
KV62	Griffith Institute journals and Burton photographs, Carter and Mace 1923, Reeves 1990

HOW A BIBLE READS: ABU SIMBEL, SECTION 11.1

Facade 33 x 38 m, colossi about 20 m	KNOWN
Ra-Horakhty rebus niche above the door	KNOWN
Clothing and boats around 1255 BC	RECONSTRUCTED
Number of baboons on the frieze: 21, 22 or 23	UNCERTAIN
Earthquake in Year 31	UNCERTAIN
Facade painted	UNCERTAIN

WHAT THE RESEARCH CHANGED IN THE BRIEF

- Philae: West Colonnade 77 m with 32 columns; the Kingston Lacy obelisk raised in 1829 or 1830, not 1839; the Gate of Hadrian postdates AD 100.
- KV62: the north-wall king wears a wig and fillet, not the nemes; the wishing cup belongs to the antechamber threshold.
- Abu Simbel: the earthquake date (usually Year 31) has no primary basis, so the Then moment is set before it, at Year 24.



The Karnak plan as delivered in the visit, drawn from the build grid measured on Brand's plan and Porter and Moss Plan X.

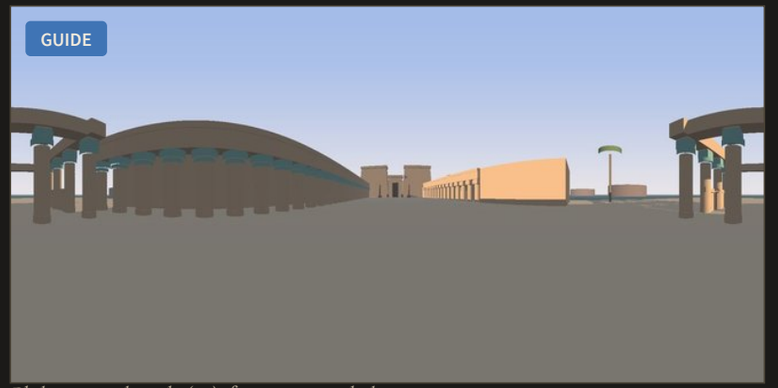
BANNED IN EVERY SCENE

Slaves building pyramids. Camels in pharaonic scenes. Sand-buried ruins in a Then layer. Mixed eras. Wrong crowns. Black soot torches. Generated inscriptions presented as readable text.

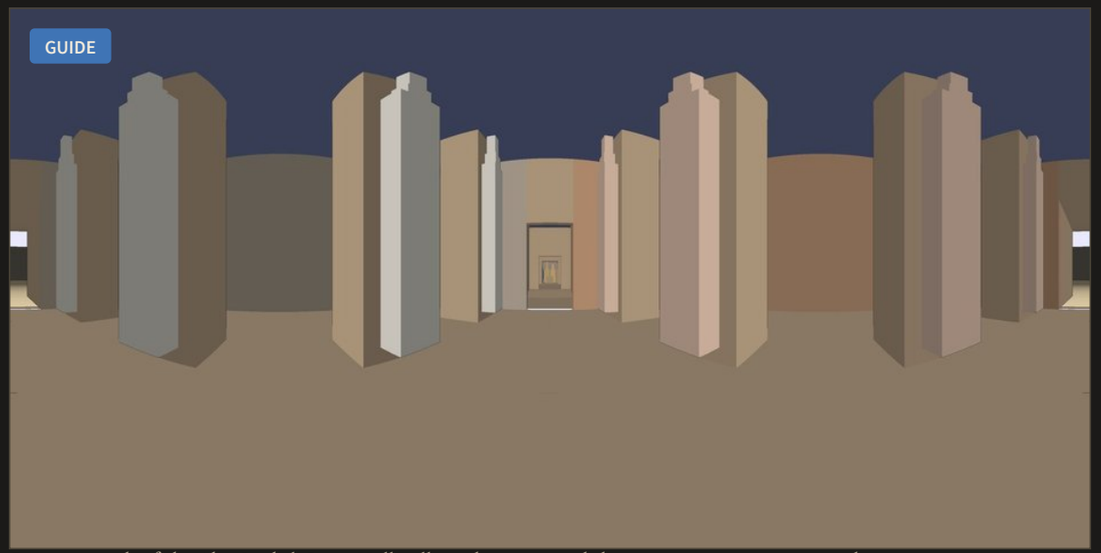
A measured guide under every panorama

Image models draw plausible temples, not correct ones. Each 360 stop therefore started as a true-scale equirectangular blockout from the bible's numbers: the Abu Simbel hall at 18 by 16.7 m with eight 1.7 m pillars, the facade at 38 by 33 m with four 21 m colossi. The shared Blender render queue stayed blocked by other sessions all night, so the agents wrote small numpy ray-casters that render these guides on the CPU, with no Blender process and no GPU.

The guide then goes to the image model as structure reference, together with photographs of the real site where useful, and a yaw-by-yaw prompt that says what stands in each direction.



Philae arrival guide (v3), from a sourced plan.



Ray-cast guide of the Abu Simbel Great Hall: pillars, doorways and the sanctuary axis at measured positions.



The delivered panorama, from the winning take: Scenario Skybox GPT with the guide as reference image. Eight Osirid pillars on axis, a clean seam.

One node, four candidates

Before painting a site, each agent asked Scenario MCP to recommend models for the job at quality priority, searched the catalogue newest first, read each live schema, then ran a shoot-out on one node with the same inputs. The winner differed by site.



Skybox GPT, text only: walls invented, seam.



Skybox GPT, guide and photos: walls swapped, room too large. Runner-up.



Skybox Flux.1 on the guide: flat, 1536 px.



GPT Image 2.5 Sunburst editing the guide: measured room and wall compositions kept. Winner.

WINNERS BY SITE

Abu Simbel	Scenario Skybox GPT with the guide as reference (seam-safe). Sunburst editing the guide held the geometry but broke the seam and poles.
Philae	GPT Image 2.5 Sunburst repainting the guide: best proportions, paint and people. Skybox GPT with the guide was runner-up.
KV62	GPT Image 2.5 Sunburst, as shown on this page, on the burial chamber node.

Each shoot-out kept the guide, the references and the prompt identical across candidates. Winners, runners-up and the reason for every rejection are recorded in the ledgers.

A panorama has no edges

SEAM REPAIR

Edit models paint a rectangle, so a seam appears at yaw 180. The fix: roll the panorama half a turn so the seam sits in the centre, repaint it, then merge back only a feathered central strip after phase-correlation alignment. Perspective patches do the same for smaller defects.

POLES

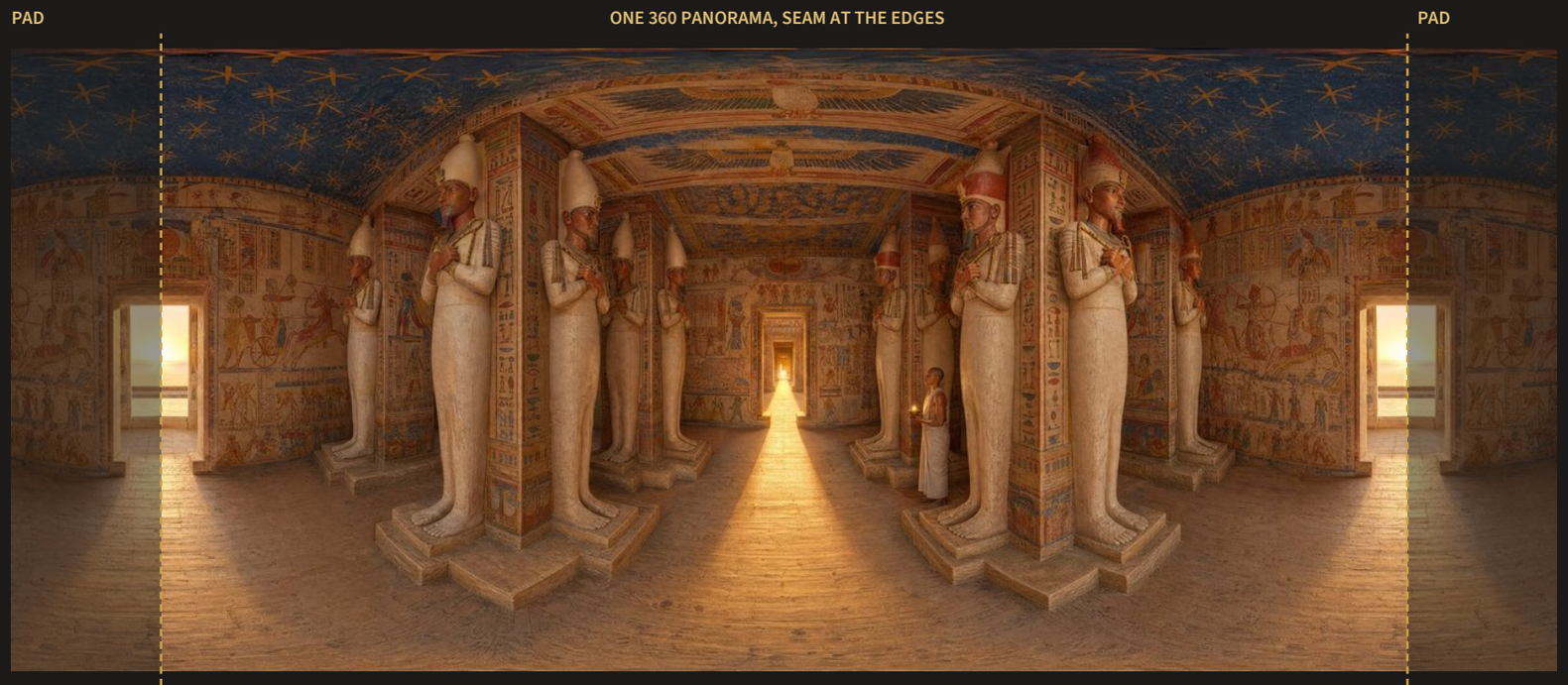
The zenith and nadir are cut out as a straight-up or straight-down view, repainted or softened there, tone-matched and reprojected within a few degrees of the pole. Philae and KV62 also carry a nadir emblem drawn in code.

UPSCALE SHOOT-OUT

Topaz Image Upscale High Fidelity V2 on a wrap-padded input stayed faithful to the painted reliefs. Scenario Skybox Upscale, the specialist, invented crack lines or desaturated the paint. Then Lanczos to 8192 by 4096, a second seam check, a 2048 px fallback.

CHECKS

Every final was inspected at yaw 0, 90, 180 and -90, straight up, straight down and in a seam close-up, with a first-to-last column difference measured against adjacent columns.



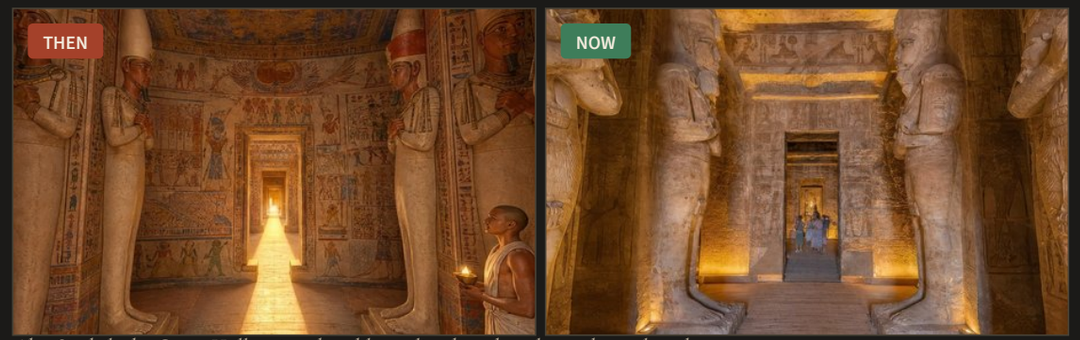
Wrap padding: the right edge is copied to the left and the left edge to the right before upscaling, so the upscaler sees a continuous image across the seam. The pad is cropped away afterwards.

The same view, two thousand years apart

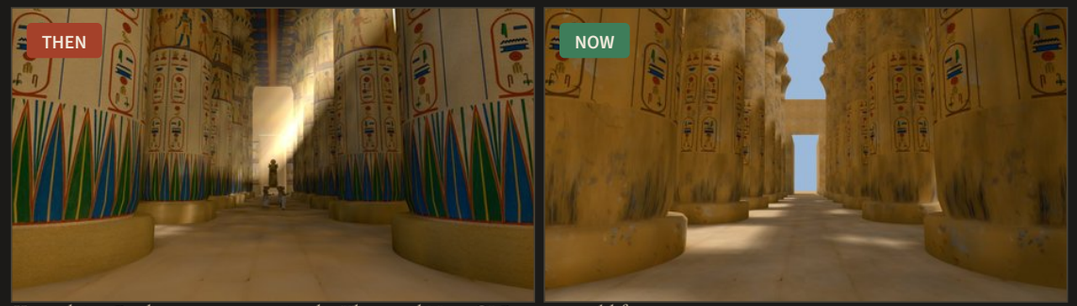
Each Now panorama is an edit of the finished Then panorama with the same model, so the geometry and framing stay identical and the toggle reads as time, not as a different photograph. In the browser a single shader holds both layers, revealed through a wipe, a lens or a full ripple. For the 3D sites the Now layer is a second set of geometry in the same world coordinates.



Philae, the southern landing: around AD 100, then Agilkia today.



Abu Simbel, the Great Hall: painted and lamp-lit, then the relocated temple today.



Karnak in 3D: the same camera in the Then and Now GLBs, one world frame.

The Now views are edits of the Then panoramas that follow the bibles' description of the sites today. They are not photographs.

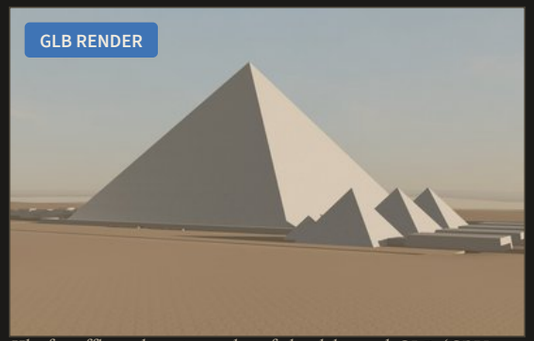
Two monuments built from numbers

GREAT PYRAMID OF KHUFU

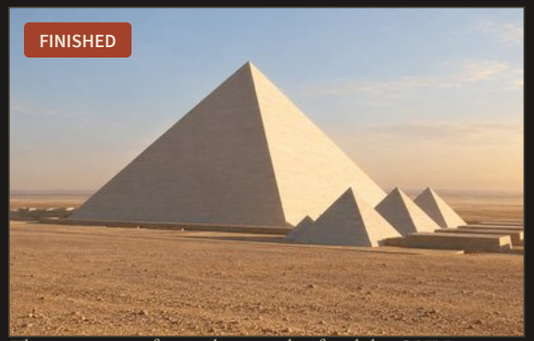
The pyramid is generated by script from measured constants: 217 courses, the doorway on course 19 at 16.97 m, the Grand Gallery at 26.28 degrees and 8.6 m high with seven corbels, every passage in the plane x = 7.29 m. The interior is a union of void volumes at true scale, in the same world coordinates as the plateau. PATINA Material and Scenario Texture supplied the stone; the course atlases and block joints were drawn in code.

GREAT HYPOSTYLE HALL, KARNAK

The hall has all 134 columns as lathe profiles with painted zones, architraves, a roof with light slots and a clerestory with nine-slot grilles. A Python ray-cast solver in Blender computed sun, sky and one bounce per vertex on the CPU and stored it as vertex colour, since no Cycles bake could run. Eight distinct wall relief panels follow the documented programme: Seti I raised relief in the north, Ramesses II sunk relief in the south.



Khufu: offline three.js render of the delivered GLB (CPU, sun, sky, 8x supersampling).



The same view after a photographic finish by GPT Image 2.5 Sunburst, told to keep every shape.

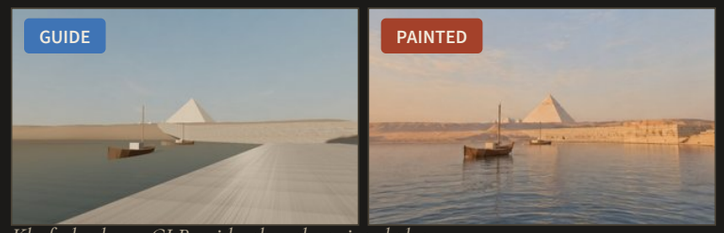


Karnak card: a web render of the Then GLB with a photographic finish, geometry kept.

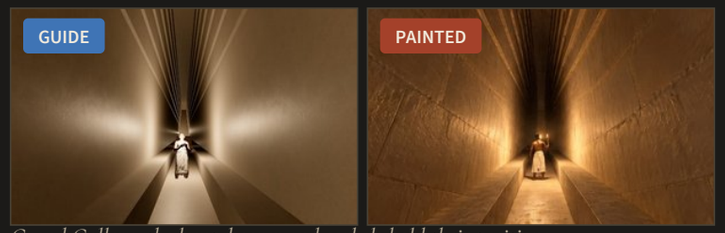
Figures came from GPT Image 2.5 Sunburst references and an image-to-3D shoot-out: Meshy 7.1 won the Karnak bearer and barque, Hitem3D 3.0 won the Khufu overseer and hauler, Meshy the Khufu priest. Phones load lighter scenes: Karnak drops from 871,848 to 234,793 triangles.

Exact geometry, photographic light

The live 3D view was the weakest image at each stop: flat light, little surface detail. So every stop of Khufu and Karnak now opens on a painted 360 plate made from the scene itself. The 3D scene is rendered as an equirectangular guide from each stop camera, Then and Now; an image model repaints it with per-stop prompts that name what must stay (outlines, people counts, lamps) and the STYLE.md light. Visitors can step back into the walkable scene at any time.



Khufu harbour: GLB guide, then the painted plate.



Grand Gallery: the lamp-bearer and corbels hold their positions.



Karnak procession: bearers, barque and grilles as modelled.

SHOOT-OUT

Recommend plus a newest-first search again. GPT Image 2.5 Sunburst kept every slope, column and figure; Skybox Flux returned 1536 px and dropped the Khufu crew, Skybox GPT moved a Karnak column and invented windows.

CHECKS

Each plate compared with its guide: 11 of 12 Karnak plates passed first time; the procession was re-run with its size, distance and end-on barque written into the prompt.

REAL GLYPHS

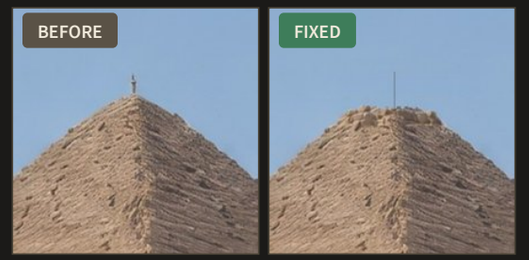
The typeset cartouches of the 3D scene are composited back over the painting through a glyph mask, so the readable names stay real.

FINISH

A two-band mirrored crossfade closes the seam, then wrap padding, a 2x Topaz upscale and 8k, 4k and 2k files; hotspots gain yaw and pitch and are drawn on each plate to check them.

TODAY'S SUMMIT, FIXED

The model had painted the Today pyramid to a point. The top is truncated at 138.5 m with the 1874 survey mast at the original apex height, so the apex was cut at the true line, the sky rebuilt and the mast drawn, with one masked edit for the broken-block platform.



Khufu Today: the summit in the painted plate, before and after.

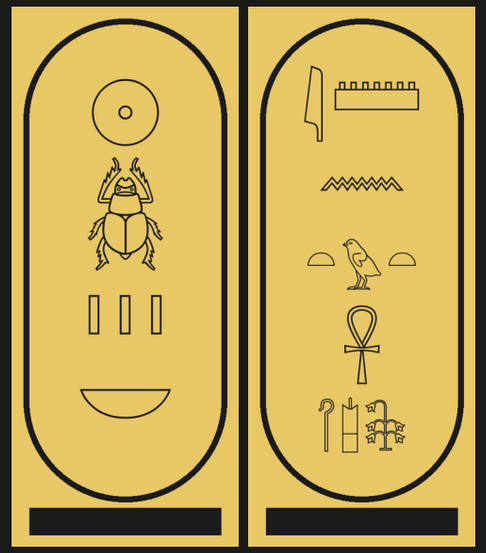
Real names, set in type

Image models write convincing pseudo-glyphs. Every readable name in the visits is therefore typeset from the Noto Sans Egyptian Hieroglyphs font (Unicode, SIL Open Font License), with each code point checked against the bibles and Unicode 16.0. Philae's research caught two wrong code points in the brief itself: the seat sign is U+132A8, not U+133E8.

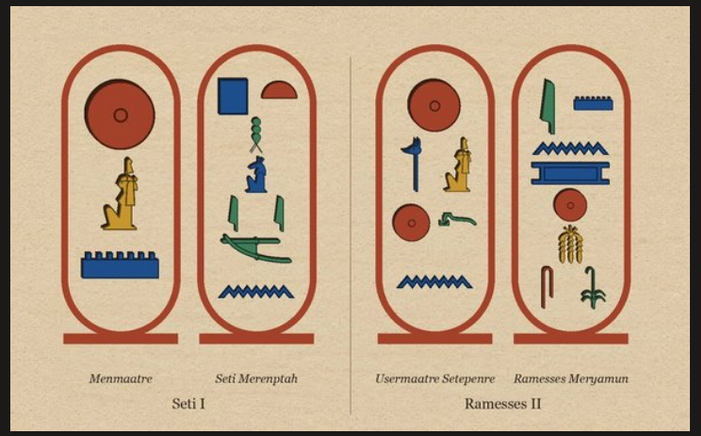
Generated reliefs remain in the panoramas and walls, where they are kept at viewing distance and never described as readable. At Karnak the titulary strips and the cartouches on columns and architraves are real; the columns of text inside painted scenes are decorative.



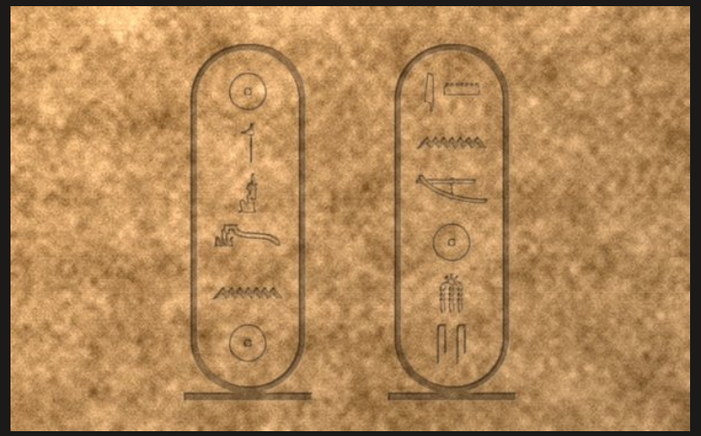
Khufu, for the gang marks in the relieving chambers



Nebkheperure and Tutankhamun Heqa-iunu-shemau, KV62



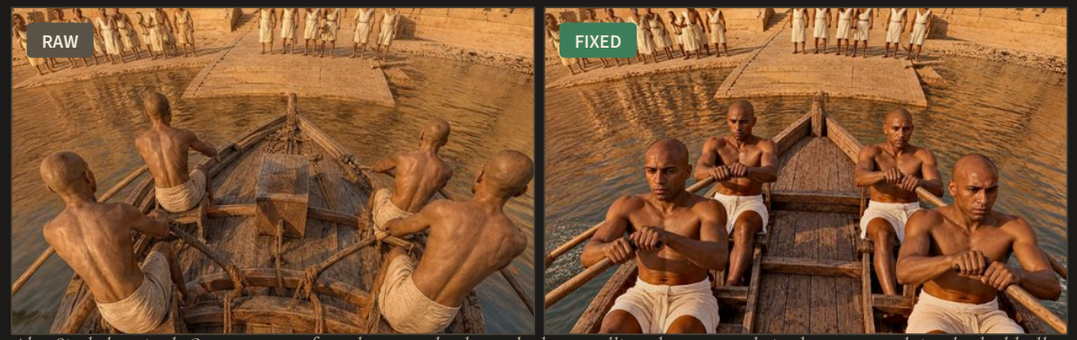
Seti I and Ramesses II, Karnak



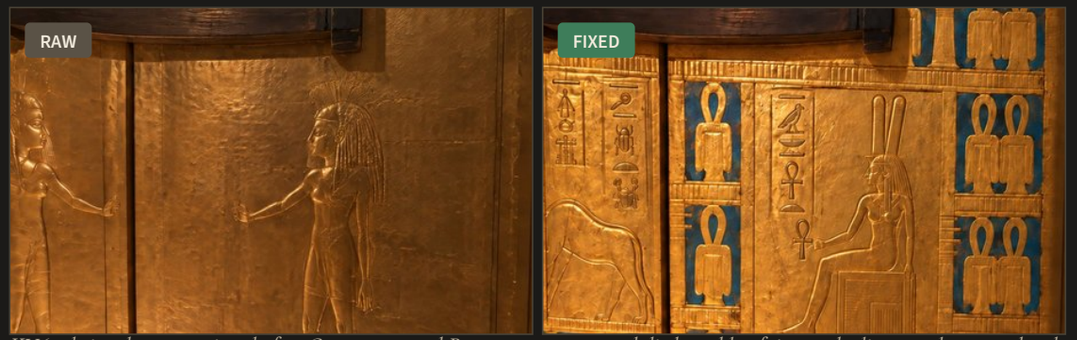
Usermaatre Setepenre and Ramesses Meryamun, Abu Simbel

What the review caught, and how it was fixed

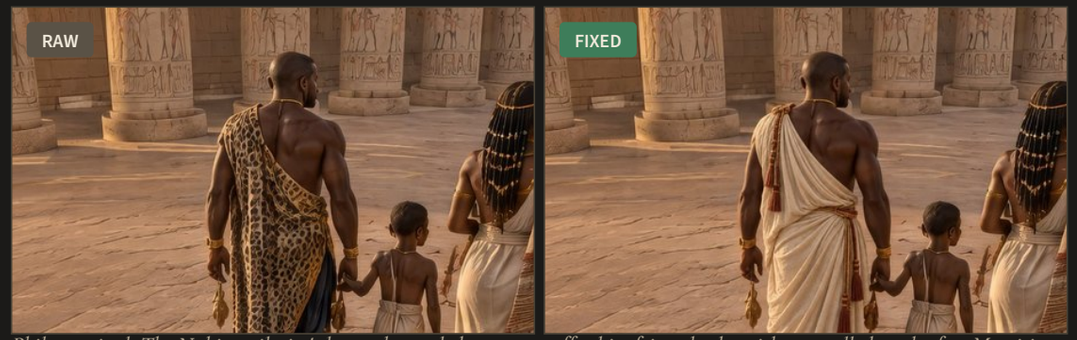
After delivery a coordinator review compared every site against its bible. Fixes were masked edits: crop a rectilinear view, edit it with GPT Image 2.5 Sunburst, reproject it with a feathered mask. Outside each patch the panorama stays pixel-identical, checked by diff against the archived version.



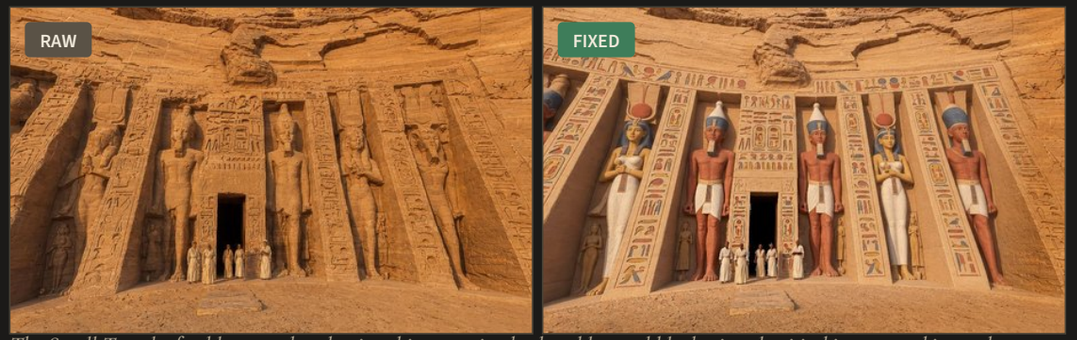
Abu Simbel arrival. Oarsmen now face the stern, backs to the bow, pulling the oars to their chests, on a plain planked hull.



KV62 shrine doors, repainted after Carter 1927 and Reeves 1990: tyets and djeds on blue faience, the lion panel, a seated god with two tall feathers.



Philae arrival. The Nubian pilgrim's leopard mantle became an off-white fringed robe with a tasselled cord, after Meroitic relief dress.

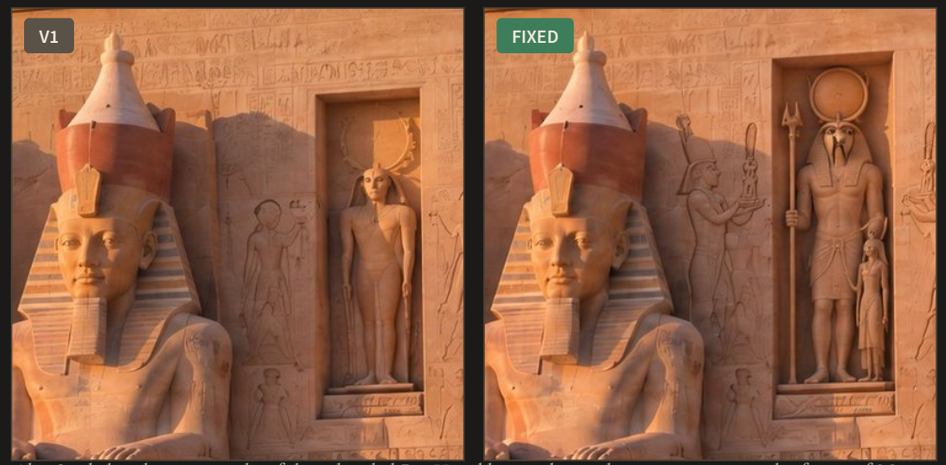


The Small Temple, freshly carved and painted in restrained ochre, blue and black, six colossi in king-queen-king order.

In the film, the tomb and the record



Opening film, Karnak: first cut, then open papyrus capitals on the twelve nave columns and closed-bud capitals in the aisles, then the two undocumented statues removed from the far doorway.



Abu Simbel niche: corrected to falcon-headed Ra-Horakhty with sun disc, user sceptre and a figure of Maat, the rebus of the throne name.

26 OR 27 NOVEMBER 1922

On 26 November Carter only looked through the breach by candlelight. The first entry, with electric light installed by Callender, was on 27 November. The stop, its panorama and its narration were reframed to the 27th.

CARTER'S WORDS

The published line is “Yes, wonderful things”; his journal for that night reads “Yes, it is wonderful”. Carter's voice line uses the journal wording and the hotspot gives both.

MIRRORED WALLS

Every Karnak wall texture ran to the viewer's left, which would have reversed the real glyphs. Both GLBs were re-exported.

KV62

A third guardian statue had crept in by the entrance (only two exist); the 1922 corridor steps became a sloping floor; the mummy's case moved to the south end of the antechamber.

PHILAE COLOUR

Faint cyan specks on white robes came from chroma subsampling in the web files. A local, model-free pass returned the neighbourhood colour to 0.2 to 0.5 % of pixels, and the smaller files are saved without chroma subsampling.

Two shoot-outs for one guide

A first shoot-out (11 takes, 4 models, 7 voices) chose a steady narrator for pronunciation: ElevenLabs Multilingual 2, George. A second one, later the same day, replaced it with a more expressive delivery: 8 candidates and 21 takes of the same three passages from the real scripts (factual with dates, awe, intimate), each measured for prosody.

Gemini 3.8 Flash TTS, Sadaltager	Winner. Expressiveness index 2.04, pitch glitches at most 0.06 per second.
Gemini 3.8 Flash TTS, Iapetus	Runner-up at 1.95, with slightly more pitch glitches.
ElevenLabs 3, Lily	Third finalist at 1.42: British and 44.1 kHz, slower.
ElevenLabs 3, George with tags	1.38.
ElevenLabs Multilingual 2, George	1.07 at low stability; the first narrator is the 1.00 baseline.
Seed Audio 1.0	Highest raw index, rejected: an 11 s hum before speech, gaps up to 3.7 s.

MEASURED AGAINST THE FIRST NARRATOR, SAME PASSAGES

Pitch spread (F0 sd)	*5.23 vs 3.16 semitones*
Pitch range	*15.0 vs 10.3 semitones*
Phrase loudness spread	*2.96 vs 0.78 dB*
Pause spread	*0.47 vs 0.20 s*
Pace	*2.7 vs 3.1 words per second*

The trade: both Gemini voices have a US accent, where the first narrator was British.

HOW EACH LINE WAS MADE

One run per stop, written from the site's own captions with years as words. This model reads direction tags, so short and long pauses shape the phrasing, and a whisper is used only on three intimate moments (Ptah in the dark, the Philae sanctuary, the KV62 burial chamber gap); none of the tags was spoken in 33 whisper-checked lines. The original WAV is kept rather than the low-bitrate rendition, normalised to -18 LUFS with a loudness range wide enough to keep the performed dynamics. Captions take their timing from whisper's word timestamps and their spelling from the script. Character voices stay few and short: an old priest and a Philae pilgrim on Gemini 3.8 Flash TTS, Carter on ElevenLabs Multilingual 2.

One motif, five orchestrations

HUB THEME

Google Lyria 3 Pro won a four-way test: the only take that was continuous, pulsed and loopable.

SITE BEDS

ElevenLabs Music Extend v2.5 continued a 12 s slice of the recorded hub motif in a new orchestration per site, then the slice was cut. The five beds share the theme acoustically; a text-only run wrote new melodies.

AMBIENCE

Layered loops from ElevenLabs Sound Effects 2 and Sonilo V1.1, chosen per site on loudness and spectrum, joined with equal-power crossfades.

OPENING FILM

Five Seedance 2.5 shots from GPT Image 2.5 Sunburst key frames, 46 s, with score sections cut to land on each shot.



Opening film key frames: Giza, Karnak, the Valley of the Kings, Philae, Abu Simbel.

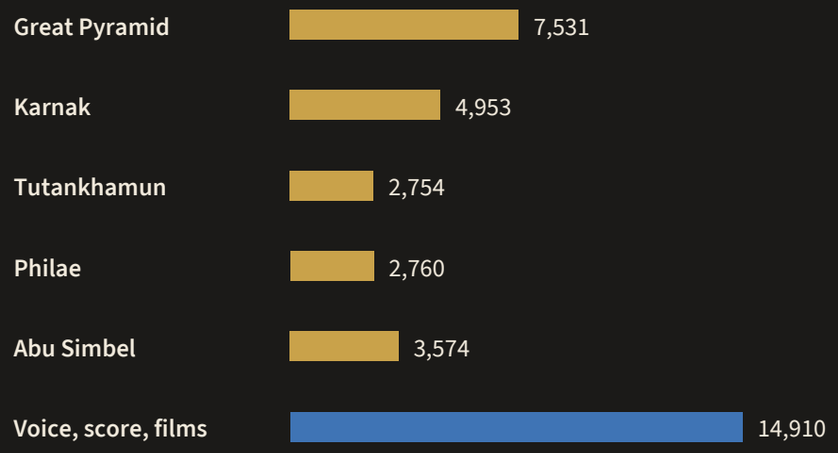
The opening film mix puts the voice at -18 LUFS with the score ducked under it; the title lands at 40.8 s over Abu Simbel. A whisper transcript of the finished cut matches the script word for word, and every line falls inside its own shot. Music was judged from spectrograms, waveforms and loudness range, and every loop was played twice and its wrap inspected for gaps or clicks.

What the ledgers record

Every Scenario job was logged with model, purpose, CU, asset IDs and whether it was kept: 542 ledger entries in six files. No model was chosen as a default; each came out of a recommendation, a newest-first search and, where two were close, a shoot-out.

MODEL	USE IN THIS EXPLORATION
Scenario Skybox GPT	360 panoramas, Abu Simbel; Khufu sky
GPT Image 2.5 Sunburst	Panoramas, painted stop views, fixes, key frames
Topaz Image Upscale	Seam-safe 2x panorama upscale
Seedance 2.5	Arrival films and opening film
Meshy 7.1 Image to 3D	Karnak procession, Khufu priest
Hitem3D 3.0	Khufu overseer and haulers
PATINA Material	PBR stone
Scenario Texture	Tura and sandstone colour
ElevenLabs Multilingual 2	First narrator, Carter
Gemini 3.8 Flash TTS	Narrator (Sadaltager), priest, pilgrim
Google Lyria 3 Pro	Hub theme
ElevenLabs Music Extend v2.5	Site beds, film score
ElevenLabs Sound Effects 2	Ambience, UI sound
Sonilo V1.1 Text to SFX	Ambience beds

CU PER LEDGER



Total **36,482 CU**

Totals include rejected takes and shoot-out losers. The Khufu total includes the painted stop views and a later round of image-to-3D boats and a hauling sledge; the audio total includes both voice shoot-outs. Seedance 2.5 is the largest single item, 10,696 CU. No other paid service was used.

Three reviewers, five rounds

Three independent reviewers, one for visual design, one for navigation and wayfinding, one for mobile and accessibility, scored the live experience from screenshots and measured walks at desktop, phone and landscape sizes. Each round of fixes was reviewed again until every lens reached 9.

LENS	FIRST REVIEW	LAST REVIEW
Visual design	6.8	**9.2**
Navigation and wayfinding	6.5	**9.0**
Mobile	5.5	**9**
Accessibility	6.5	**9**
Performance feel	5	**9**
Robustness	6.5	**9**

WHAT CHANGED

The chrome moved back to the basalt and gold of STYLE.md after the first review flagged a cool navy that clashed with the stone. Controls grew to 44 px, stop changes are announced, captions and transcripts are reachable, and the painted plates became labelled and reversible in both 3D sites.

WHAT REMAINS

In the reviewers' words, one texture-upload hitch on entering a painted Khufu stop, and a pass on real devices.



Karnak today, the painted Now plate of the nave: one of the views the reviewers walked through.

What this reconstruction is not

NO LASER SCANS

Geometry comes from published measurements and plans. Khufu's per-course heights are synthetic between anchored courses; Karnak's heights above 21 m are uncertain.

AI-PAINTED RELIEFS

Wall paintings and inscriptions in the panoramas are generated and illustrative at viewing distance. Only the typeset cartouches are readable text.

ESTIMATED POSITIONS

Philae's buildings are placed within about 10 m and 5 degrees, pending the Lyons 1896 plans.

NO CYCLES BAKE

The shared render queue never opened. Karnak carries a CPU light solution and Khufu realtime lighting; the painted plates carry the photographic light at each stop.

CHOICES, STATED

Karnak's twenty bearers are shown unmasked (the hall's relief shows them masked); no one knows how many carried the boat. The narration says both.

LISTENING

Voice takes were measured for prosody and checked by whisper; music beds were judged by spectrogram and loudness.

Visit the five sites, switch between Then and Now at every stop, and download the agent skill that recreates this workflow for any heritage site.

