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# Sulawesi Hand Stencil – World's Oldest Rock Art at 67,800 Years

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**SUBJECTS COVERED****HISTORY & CULTURE****GEOGRAPHY****CURATED & WRITTEN BY****Bharat Choudhary**

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## WHY IN NEWS

A hand stencil in a limestone cave on Muna Island, Sulawesi, Indonesia has been scientifically dated to at least 67,800 years ago — making it the oldest confirmed rock art in human history, surpassing the previous record by over 16,000 years and rewriting our understanding of early human cognitive evolution.

## THE DISCOVERY

Researchers studying **Liang Metanduno cave on Muna Island**, off the coast of **Sulawesi, Indonesia**, documented a **hand stencil** — made by pressing a hand against a cave wall and blowing pigment (ochre or charcoal) around it — that dates to a minimum age of **67,800 years ago**.

The mineral crust that formed *over* the artwork was dated to approximately **71,600 years ago**, meaning the art beneath must be at least as old — and likely older. Scientists report the **minimum age of the artwork as 67,800 years**, providing a conservative scientific benchmark.

Artistic activity at this site continued until roughly **20,000 years ago** — spanning nearly 50,000 years of human presence and creativity.

## DATING METHOD — URANIUM SERIES DATING

The precise dating was achieved through **uranium series (U-series) dating**, a radiometric technique:

Calcium carbonate (calcite) naturally forms over rock surfaces in caves as mineral-rich water percolates through limestone

This calcite incorporates **uranium** from the water but initially contains no **thorium**

Uranium (U-234) decays into thorium (Th-230) at a known rate

By measuring the ratio of U-234 to Th-230, scientists calculate how long the crust has been forming

**Laser ablation** techniques allow precise sampling of tiny areas without damaging the artwork

The critical insight: if the mineral crust is *at least* 71,600 years old, the art beneath was made *before* the crust began forming — establishing a **minimum age** for the artwork.

## SIGNIFICANCE — PREVIOUS RECORDS

The discovery surpasses the previous world record for oldest known rock art:

Site	Location	Age	Art Type
<b>Liang Metanduno</b>	Muna Island, Sulawesi, Indonesia	<b>≥67,800 years</b>	Hand stencil
Maros-Pangkep	Sulawesi, Indonesia	~51,800 years	Figurative animal paintings
El Castillo Cave	Spain	~40,800 years	Hand stencil
Chauvet Cave	France	~37,000 years	Animal paintings
Bhimbetka	India (Madhya Pradesh)	~30,000 years	Multi-period rock paintings

Liang Metanduno beats the Maros-Pangkep record (also in Sulawesi) by more than **16,000 years**.

## THE DISTINCTIVE “CLAW-LIKE” FINGERS

Unusually, the hand stencil at Liang Metanduno depicts **deliberately narrowed, claw-like finger shapes** — not the natural spread of a full hand. This is exceptionally rare in global rock art.

Researchers suggest this may reflect **symbolic human-animal connections** — a deliberate artistic choice to portray a hand transforming into (or connected to) an animal claw. This implies **complex symbolic thinking**, abstract conceptualisation, and intentional communication through art — traits previously associated only with anatomically modern humans at a much later date.

## HUMAN MIGRATION IMPLICATIONS

The discovery has profound implications for understanding when and how modern humans migrated out of Africa and into Asia and Australia.

### THE SAHUL CONNECTION

During the Pleistocene epoch (when this art was made), global sea levels were significantly lower. The landmasses now known as **Australia, New Guinea, and Tasmania** were connected into a single supercontinent called **Sahul**. To reach Sahul from mainland Southeast Asia, early humans had to cross **Wallacea** — the chain of islands between the Asian and Australian continental shelves, including Sulawesi.

The **65,000-year timeline for human arrival in Australia** (supported by archaeological evidence from Australia itself, including Madjedbebe rock shelter dated to ~65,000 years) aligns with this Sulawesi art, suggesting:

Modern humans reached Sulawesi/Wallacea at least **67,800 years ago**

They possessed sophisticated artistic and cognitive abilities *before* reaching Australia

The crossing of Wallacea required **open-water navigation** — a major cognitive and technological achievement

## INDIA'S PREHISTORIC ART CONTEXT

India has its own rich tradition of prehistoric rock art:

**Bhimbetka Rock Shelters** (Raisen district, Madhya Pradesh): Rock paintings from ~30,000 BCE; **UNESCO World Heritage Site** since 2003. Paintings depict animals, humans, geometric patterns. Near Bhopal (46 km south).

**Kupgal** (Karnataka): Petroglyphs (rock engravings) of zebu cattle and human figures

**Jogimara Cave** (Chhattisgarh): Painted cave with ancient inscriptions

**Chandravati** (Rajasthan): Rock art on open boulder surfaces

**Daraki-Chattan** (Madhya Pradesh): Cupules (hemispherical hollows) in quartzite — possibly 200,000–700,000 years old; among the world's oldest intentional markings

Bhimbetka, while younger than Sulawesi's records, remains India's oldest confirmed systematic rock art site and is central to understanding South Asian prehistoric culture.

## BEHAVIOURAL MODERNITY — A KEY UPSC CONCEPT

The Sulawesi discovery feeds directly into the debate about **behavioural modernity** — the cluster of traits associated with fully modern human cognition:

**Symbolic thinking:** Creating signs, symbols, and representations

**Abstract art:** Depicting objects, animals, or concepts not physically present

**Planning and foresight:** Preparing for future needs

**Language complexity:** Grammatical speech enabling cumulative culture

For decades, the consensus was that behavioural modernity emerged ~40,000–50,000 years ago in Europe ("Upper Palaeolithic Revolution"). Discoveries in Africa (ochre engraving at Blombos Cave, South Africa, ~75,000 years) and now Sulawesi (~67,800 years) push this back significantly — suggesting behavioural modernity may have accompanied the anatomical evolution of *Homo sapiens* in Africa (~300,000 years ago) rather than emerging suddenly in Europe.

**UPSC RELEVANCE**

Liang Metanduno, Muna Island, Sulawesi, uranium series dating, Sahul, Wallacea, Bhimbetka, Maros-Pangkep, Pleistocene.

**MAINS GS-1:**

Prehistoric human cognitive evolution; migration of Homo sapiens; symbolic thinking; archaeological evidence for art and culture.

## ★ FACTS CORNER — KNOWLEDGEPEDIA

### LIANG METANDUNO ROCK ART:

Location: **Muna Island, off Sulawesi coast, Indonesia**

Art type: **Hand stencil** with claw-like narrow fingers

Age: **≥67,800 years** (minimum); mineral crust: **~71,600 years**

Dating method: **Uranium series dating** (laser ablation)

Previous record (Maros-Pangkep, Sulawesi): **~51,800 years** — beaten by 16,000 years

Rock art sites documented: **44**; motifs dated: **11 from 8 sites**

Artistic activity at site: **~67,800 to ~20,000 years ago** (~50,000 year span)

### PREHISTORIC CONCEPTS:

**Sahul:** Ancient landmass = Australia + New Guinea + Tasmania (during Pleistocene lower sea levels)

**Wallacea:** Island chain between Asian continental shelf and Sahul (includes Sulawesi, Flores, Timor)

**Pleistocene:** ~2.6 million to 11,700 years ago; multiple ice ages, lower sea levels

**Uranium series dating:** U-234 decays to Th-230 at known rate; measures calcite crust age

### COMPARATIVE ROCK ART AGES:

Sulawesi (Liang Metanduno): **≥67,800 years** (NEW record)

Sulawesi (Maros-Pangkep): **~51,800 years** (animal paintings)

El Castillo, Spain: **~40,800 years**

Chauvet, France: **~37,000 years**

Bhimbetka, India: **~30,000 years**

### INDIA — BHIMBETKA:

Location: **Raisen district, Madhya Pradesh**

UNESCO: **World Heritage Site since 2003**

Paintings: Animals, humans, geometric patterns from **~30,000 BCE** onward

Near: Bhopal (46 km south)

### HUMAN MIGRATION TIMELINE:

Out of Africa: **~70,000–60,000 years ago** (via Arabia/coastal routes)

Australia arrival (Madjedbebe, NT, Australia): **~65,000 years ago**

Sulawesi/Wallacea crossing: implied **>67,800 years ago** (this discovery)

Open-water crossing required: confirms early maritime capability

### BEHAVIOURAL MODERNITY — KEY FACTS:

Blombos Cave (South Africa): Ochre engravings dated **~75,000 years ago** — oldest abstract markings

Homo sapiens anatomically modern: **~300,000 years ago** (Jebel Irhoud, Morocco)

Cognitive modernity now traced to **at least 67,800 years ago** in Southeast Asia

Upper Palaeolithic Revolution (Europe, ~40,000 years ago): No longer the benchmark

Sources: Nature, The Hindu, UNESCO

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