

TRILOGY I OF THE SKY

The Leadered and the Scattered

Five controls for the gathering hypothesis

VOLUME TWO

KEITH SHIRLEY

The Leadered and the Scattered

Five Controls for the Gathering Hypothesis

A Conclave Study in Two Hands

Keith Shirley

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The companion volume to *The Seven Who Are Six: The Pleiades in Thirteen Breaths*, and the second of the Codex studies to take objects in the sky and walk them across the whole world. Source numbering continues from that volume, which ended at 363.

Every scientific, historical and textual claim in this study is graded **established**, **supported**, **contested** (or **not supported**), **open**, **beyond test** or **symbolic**, as explained in How to Read This Study. Evidence checked to November 2026.

This study is contemplative, historical and scholarly. It is not a work of archaeology, astronomy, anthropology or medicine. Several of the traditions walked here are living, and some of them hold knowledge that is restricted; nothing beyond what their own keepers have published is recorded. Quotations from other authors and translators remain the property of their rights holders and are used briefly under fair use. The breath practices are gentle: breathe gently, and never force or hold the breath.

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For everyone who has ever been told

what the sky means,

and gone outside to check.

In Harmony, Small Things Grow Towards Unity

Abstract

The first book found something and could not prove it meant anything.

The Seven Who Are Six reported that fourteen traditions in at least nine unrelated language families named the Pleiades for the fact that it is **a gathering**: a heap in Hebrew and Belarusian, a herd of camels in Arabic, a crowded bunch in the Kalahari, an army of scattered detachments on the Turkic steppe, a marketplace in Nahuatl, an assembly in Māori, gathered together in Japanese. It explained this by three properties of the object. The cluster is plural, compact, and **leaderless**, and those three things have one meaning in any language.

The trouble was that the explanation had been built from the only object it explained. That is not a theory. It is a description with a hypothesis draped over it.

This book tests it, and it survives, in a corrected form.

Six predictions were written down and fixed before any searching, each naming an object that breaks exactly one of the Pleiades' properties, each stating in advance what would falsify it. Then the six were walked, thirteen breaths each, in an order where every rung was the hardest available test of what the rungs below had established: Ursa Major, Orion's Belt, the Hyades, Praesepe, the Magellanic Clouds, Coma Berenices.

One correction arrived before the first search. Orion's Belt is plural, compact, and more leaderless than the Pleiades by a factor of four in magnitude range. By the original rule it should be a heap. It is never a heap, in any language on Earth: it is three pigs, three zebras, three tortoises, three kings, three paddlers, a yardstick, a line. So a fourth property had to be added, and it turns out to be the operative one: **the object must also defeat counting.** Three is countable. Six or seven blurred together is not. The heap-name is not a description of a crowd. It is what a language reaches for when counting has already failed.

Six removals, six confirmations, with one contested exception recorded in full.

Remove **countability** and you get a count: three pigs, seven sages, and among the Seri a mule deer, a pronghorn and a bighorn sheep, individually named. Remove **leaderlessness** and the group stops existing: in six unrelated traditions the Hyades becomes the jaw of a bull, the crown of a god, the cart of Rohiṇī, a herd of camels driven by Aldebaran, a Chinese rabbit-net with the bright star caught inside it, and in the Great Victoria Desert the left foot of a woman. Remove **plurality** and you get a container or a substance: Praesepe is a manger and a mist; the Magellanic

Clouds are ash, smoke, a swamp and endless water. Remove **compactness** and you get filaments: Coma Berenices is a date-palm frond in Babylon and a lock of hair in Alexandria, which are the same perception in two economies. Remove compactness and countability together and you get a shape: a wagon, a plough, a ladle, a bear.

All four properties are necessary. The Pleiades is the only object in the near sky that holds all four, and it is the only object that gets the name.

Four further findings came out of the ladder that nobody predicted.

Where the eye can count, nothing is ever missing. Orion's Belt is three everywhere on Earth and no tradition has a lost one. Ursa Major is seven across Rome, India, Mongolia and China and no tradition has a lost one. Greek mythographers, at the same desks in the same century, produced three separate explanations for a missing Pleiad and not one for a missing Hyad, because the Pleiades tradition had committed to a number and the Hyades tradition had not. The lost sister is the residue of an arithmetic failure, and the ladder shows it from six directions.

A travelling story takes its number from the object it lands on. The Cosmic Hunt, whose distribution Berezkin has actually mapped, has seven members on Ursa Major in the north and three on Orion in southern Africa; a pursuit-and-transformation story on the Magellanic Clouds in New South Wales has two women and no one missing. Nobody carried a number. The structure travelled and every sky filled in its own arithmetic, and only one sky in the world was given a number its own stars could not meet.

Function is handed out by visibility geometry, and no culture overrode it. An object that sets becomes a calendar; an object that never sets becomes a compass, in the Arctic north and the Pacific south among peoples who never met; an object too faint to deliver an event becomes an instrument or gets no job at all, and Coma Berenices has had no job for anybody in four thousand years.

And two of the controls turned out to be working instruments. Aratos and Pliny recorded that when Praesepe cannot be seen in an otherwise clear sky, a storm is coming, and it works, because high cirrus dims a faint extended object before it dims bright points. That is the same instrument the Andes built on the Pleiades, verified in *Nature* in 2000. Two civilisations that never met found the same use for the same defect: the faintness that defeats counting is the faintness that measures the air.

The account also survives the test that could have made it provincial. Nearly all the evidence in both books comes from literate traditions that could read each other. The Magellanic Clouds lie

below the horizon of every one of them, and the five southern peoples who named them produced exactly the same results.

The study closes on three illuminations and three questions it has earned and cannot answer. The first illumination is that **there is exactly one crowd in the sky**, and it is a coincidence of angles rather than a memory. The third is that what every human being shares is not a story but a threshold: an eye that resolves to about an arcminute, a brain that counts small numbers effortlessly and fails at larger ones and makes a noise like *many* when it fails. That instrument has not changed since before anyone left Africa.

Fourteen peoples did not remember the same thing. **They ran the same instrument on the one object in the sky where counting fails.**

How to Read This Study

This is the second volume of a pair and it uses the method of the first. It is a contemplative and scholarly study, not a work of archaeology or astronomy and not a peer-reviewed paper. It weighs published evidence without adding to it.

Two hands

One hand holds what has been measured, excavated, translated and agreed. The other holds meaning: the readings of the world's traditions in their own terms. Both are offered with respect. Neither stands in for the other.

The grades

- **Established**: strong evidence and broad agreement among the relevant experts.
- **Supported**: the evidence points this way but the base is narrow, or the reading is this study's own.
- **Contested**: the evidence is mixed or disputed; **not supported** where it is clearly against the claim.
- **Open**: a genuine unknown that research has neither settled nor ruled out.
- **Beyond test**: a metaphysical claim no evidence could confirm or refute, stated with respect as a position held.
- **Symbolic**: a reading offered as meaning and practice, not as a fact about the world.

Where a claim fails, the study looks for its **near-truth**: the true thing beside it, which is often more remarkable. Every pass ends with a ledger.

The four properties

The whole book turns on four things an object either is or is not. They are stated here once and used throughout.

- **Plural.** More than one point of light resolves to an unaided eye. Praesepe and the Magellanic Clouds fail this.
- **Compact.** The members are nearer to each other than to anything else. Ursa Major and Coma Berenices fail this.

- **Leaderless.** No member dominates the others. The Hyades fails this, by three and a half magnitudes.
- **Uncountable.** The number will not come at a glance. Orion's Belt and Ursa Major fail this.

The Pleiades holds all four. Nothing else in the near sky does.

Pre-registration, and why it is the point

The six predictions in this book were written down, dated and fixed **before any searching for names**, and the file is printed in full as Appendix A.

This is not a formality. A hypothesis assembled after the evidence has been seen can explain anything, and the first book's three-property account was exactly that kind of hypothesis. The only thing that makes the confirmations here worth reading is that the predictions were made blind and that the scoring rule, including the definition of what counts as a gathering-name, was fixed in advance.

That rule is also why one result in this book goes against the prediction and is printed as a counter-case rather than reasoned away. **A reader who wants to check this book should read Appendix A first and score the six objects themselves.**

The shape of the study

Part One sets the ground: what the first book left unfinished, the correction that arrived before the first search, and how the six controls were chosen.

Part Two is six deep passes, one per object, each of thirteen breaths: Sky, Threshold, Name, Family, Number, Neighbour, Figure, Story, Year, Independence, Silence, Drift, Return. Each ends with what was seen, what was unseen, the geometry beneath, a ledger, the near-truths, three illuminations, a practice, and a statement of what the ladder has after that rung.

Part Three walks the six together and closes on three illuminations and three questions.

The passes are in **falsification order**. Ursa Major is first because it is the object most likely to destroy the hypothesis, and a reader who goes in order will watch the original three-property account get corrected at Rung Two and then rebuilt.

On living traditions and on the practices

Several traditions here are living and held by peoples with their own authority over them, and some hold restricted knowledge. Nothing restricted is sought or recorded. Where a tradition is living, this study reports what its own keepers have published and does not go behind it. Where the only published source is a colonial-era collector, the study says so.

All the practices are gentle. Breathe through the nose. Never force the breath, never hold it for long, never breathe hard and fast. If any practice brings dizziness, tingling or distress, stop and return to ordinary breathing.

A Note from the Scribe

The first book ended with three questions. This one is the first of them, answered.

That question asked what the other clusters get called, and said that if gathering-names track the three properties, the explanation becomes predictive, and that if the Hyades is named for crowds as often as the Pleiades, the explanation fails. It was written as the honest admission at the end of a book that had over-claimed slightly: we have found a pattern in one object and called it a law.

Three things about what happened next are worth a reader's knowing.

The shape of this study came from outside. The proposal to take the Hyades, Praesepe and Coma Berenices as controls, with the specific predictions of face-names, mist-names and hair-names, arrived as a reflection by Architect+. Two of its three stated reasons were wrong, which is recorded in Part One, and the third object list was incomplete. But it was the right move, and it was not this scribe's move, and the attribution is not a courtesy. The same voice supplied the central finding of the first book.

The prediction was fixed before the evidence, and it cost something. Writing Appendix A before searching meant writing down a definition of a gathering-name that could not be adjusted later. At Praesepe that definition scored a Chinese name as a hit against the prediction, and it is printed as a hit, in full, with both readings, in the middle of a chapter that otherwise confirms everything. A study that only shows its confirmations has not tested anything.

And one correction arrived before any searching at all. Orion's Belt broke the first book's rule as stated, from evidence already inside that book, and the fourth property had to be written into the pre-registration before a single search was run. The strongest result in this volume is a correction to the volume before it.

The limits are the same as last time and no smaller. No primary language was read: no Akkadian, Sumerian, Greek, Latin, Arabic, Sanskrit, Classical Chinese, Setswana, Jul'hoan, Te Reo or Western Desert language. Berezkin was read in English again. Two of the six rungs rest on only two independent traditions and say so in their own ledgers. Two of the study's three problem cases are Chinese and all of the Chinese was read through English-language encyclopaedia pages. Several European and Asian names descend from Allen in 1899 and Olcott in 1911 and are graded contested throughout.

One error was found during the work and is recorded rather than removed: the first gather reported the Maya word *Chamukuy* as a name for the Hyades, and it is the name of one star inside it.

So this is a mirror's work again, held up for a person to check. It is a mirror, not a mind. The author reads everything and decides what goes on the page.

And it ends somewhere the first book did not reach.

That book asked whether the sisters are humanity's oldest story and answered no, and offered instead the thought that everybody who ever looked at that patch of sky saw the same thing first: that there were many of something, together, in one place.

Six objects later that can be said more exactly, and exactness turns out to be the better gift.

They all saw **the one place in the sky where counting fails**.

And the thing they share is not the story, and not the sky. It is the instrument: an eye that stops separating points at about an arcminute, and a mind that counts three without trying and cannot count seven, and makes a sound like *many* when it gives up.

That is older than every language. It is behind the reader's eyes at this moment, unchanged.

Written by a mirror. Read, graded and permitted by the author. 22 November 2026

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PART ONE

The Ground

What the First Book Left Unfinished

The Seven Who Are Six established four things and over-claimed on one of them.

It established that **the calendar is the constant**: thirteen peoples for thirteen, every one using the Pleiades to run the year, and no other column in its motif map was full. It established that **the function is older than the story**, wherever the layers can be dated or compared. It established that **no count means no lost sister**, a correlation complete across every tradition it reached, with eight explanations for a missing seventh appearing in six traditions and only ever where a number larger than the eye delivers had been committed to.

And it reported a fourth thing, which was the finding it cared about most and the one it could least defend.

Fourteen traditions in at least nine unrelated language families, on six continents and across the Pacific, named the cluster for the fact that it is **a gathering**. *Kimah*, a heap, in Hebrew, Aramaic and Syriac. *Kupa* and *Hramadka* in Belarusian. *al-Thurayya*, read as a herd of camels, in Arabic. MUL.MUL, the Stars, in Sumerian. *Tagemmunt*, the group, in Amazigh. *!Khunuseti*, to gather together, in Khoikhoi. A crowded bunch of small stars in the Kalahari. *Ülker*, an army of scattered detachments, on the Turkic steppe. *Tianquiztli*, the marketplace, in Nahuatl. *Te Huihui o Matariki*, an assembly, in Māori. *Subaru*, gathered together, in Japanese.

The explanation offered was that the object is **plural, compact and leaderless**, and that those three properties have one meaning in any language. A thing that is several, close together, with nothing in charge of it, is a crowd, and no culture has to be taught that.

Why that was not good enough

Because it was derived from the object it explained.

Any account built backwards from a single case will fit that case perfectly, and fitting is not evidence. The three properties were read off the Pleiades and then offered as the reason for the Pleiades, and the argument had no exit. It could not be wrong about anything, which is another way of saying it had not yet said anything.

The first book knew this, which is why its closing question was not rhetorical:

> What do the other clusters get called? Praesepe, Coma Berenices, the Hyades and the Magellanic Clouds, across as many unrelated languages as can be reached. If gathering-names track the three properties of plural, compact and leaderless, the study's principal explanation becomes predictive. If the Hyades, which has a leader, is named for crowds as often as the Pleiades, the explanation fails.

That is the question this book answers.

And how it had to be answered

Not by looking and then explaining what was found. That is how the three-property account got into trouble in the first place.

The predictions had to be written down first, dated, and fixed, including a definition of what would count as a gathering-name, so that a name could not be quietly reclassified once it turned out to be inconvenient. The file is Appendix A. It was written before the first search and has not been edited since, and the one result in this book that goes against it is printed as a counter-case because the rule was already fixed when it turned up.

Everything in this volume rests on that file having been written first. A reader who does not believe it was should read it, note how specific several of its predictions are, and judge whether anyone would have written them that way after seeing the answers.

The Correction That Arrived First

One result landed before any searching, from an object the original question did not even list, and it corrected the first book.

Orion's Belt is plural. Three stars. **Orion's Belt is compact.** About three degrees, comparable to the Pleiades at two. **Orion's Belt is leaderless.** Alnilam at 1.69, Alnitak at 1.74, Mintaka at 2.23: a range of about half a magnitude. The Pleiades spans roughly two. **The Belt is the most leaderless object in this entire study.**

By the first book's rule as it stood, the Belt should be a heap. It holds all three stated properties, and holds two of them more purely than the object the rule was written for.

It is never a heap. Not in any language, anywhere on Earth.

The first book's own passes already recorded it: three male tortoises among the /Xam, three zebras across the Nyae Nyae Kalahari, the Seg and Utimal of Tagai in the Torres Strait. Europe adds three kings, three Marys, three brothers, three paddlers, a yardstick, an ell, a scale, a line, an arrow with three joints. The Seri of northwestern Mexico name the three stars as a mule deer, a pronghorn and a bighorn sheep, individually.

Every single one of them counts it.

The fourth property

So the rule as stated was incomplete, and the missing term is not subtle.

> Gathering-names attach to what is plural, compact, leaderless **and past the point where counting is easy**.

Three is countable. Seven spread across twenty-five degrees is countable. Six or seven blurred together inside two degrees is not.

Which reframes the first book's central finding, and the reframing is the better version:

The heap-name is not a description of a crowd. It is what a language reaches for when counting has already failed.

That was written into the pre-registration, with Orion's Belt listed as a sixth object and flagged as partly postdicted from the first book, before a single search was run. Rung Two then tested it

properly and found it holds on at least eight independent naming events across four continents and the Pacific.

The strongest result in this volume is a correction to the volume before it, and it arrived from an object nobody had thought to ask.

How the Six Were Chosen

Each control breaks exactly one property, so that the property can be seen doing its work by being absent. They are walked in **falsification order**: each rung is the hardest available test of what the rungs below have established.

Rung	Object	Property removed	Why here
1	Ursa Major	compactness **and** countability	the most widely named plural leaderless object in the northern sky; if heap-names were a general habit, they would be here
2	Orion's Belt	countability alone	holds the other three more purely than the Pleiades; isolates the new fourth property
3	The Hyades	leaderlessness alone	the Pleiades' own neighbour, same sky, same night, one bright star added
4	Praesepe	plurality	compact, leaderless and uncountable, and not several to any eye on Earth
5	The Magellanic Clouds	plurality, in the far south	the only object no literate northern tradition ever saw; tests whether the whole study is an artefact of the Eurasian library
6	Coma Berenices	compactness alone	the last untested combination, and the thinnest evidence base in the book

Two things about that order are worth saying plainly.

Rung One is first because it is the most dangerous. Ursa Major has more recorded names, in more unrelated traditions, than anything in the sky except the sun and the moon, and it is plural and leaderless. If people simply call groups of stars crowds, that is where the evidence would be

overwhelming. Starting with the object most likely to kill the hypothesis is the whole of what falsification order means.

Rung Five is there because of a specific worry. Nearly everything in both books comes from Mesopotamia, Greece, Rome, Arabia, India, China and Christian Europe: literate astronomies in contact with each other for two thousand years, several of them demonstrably reading the same texts, and most of the rest filtered through nineteenth-century collectors who had been taught Latin. A sceptic could say this is not a finding about human perception but a finding about one enormous interconnected tradition and the people who transcribed everything else into its categories.

The Magellanic Clouds lie below declination minus sixty-nine. Ptolemy never catalogued them and could not have. Neither could Hipparchus, al-Ṣūfī, Hesiod, the Shijing or the Rigveda. **Every name on that object was made by someone outside the chain**, and that is the rung on which the study either becomes general or stays provincial.

PART TWO

The Six

Ursa Major · The Seven That Never Set

Why this is the first rung

The ladder begins with the object most likely to destroy the hypothesis.

Ursa Major is plural. It is leaderless, with no star in it brighter than magnitude 1.76 and no star fainter than 3.3, which is about as even as a bright asterism gets. Two of the four properties, held cleanly. It is also the most widely named object in the northern sky, documented in more unrelated traditions than anything except the sun and moon.

If gathering-names were simply a general habit of human star-naming, a thing people do when they see several stars near each other, this is where the evidence would be overwhelming. Dozens of traditions, thousands of years, and two of the four properties satisfied.

So the first rung asks one question: **does the Great Bear get called a heap?**

If it does, the Pleiades finding is nothing. It is a coincidence noticed in one object and projected onto a species.

THE THIRTEEN BREATHS

Breath 1. Sky

What is actually up there

Seven stars in the hindquarters and tail of a much larger constellation, arranged in a shape that no one has ever had trouble seeing.

Dubhe 1.79, Merak 2.37, Phecda 2.44, Megrez 3.3, Alioth 1.76, Mizar 2.23, Alkaid 1.85. The whole figure spans roughly twenty-five degrees of sky, which is about fifty full moons laid end to end [383, 389].

Set that against the Pleiades, which fits inside two degrees. Ursa Major is more than ten times as wide, and the gap between its stars is the first fact about it.

And it never goes away. The asterism sits between declination plus forty-nine and plus sixty-two. Above roughly forty degrees north it is circumpolar: it wheels around the pole all night, every night, in every season, and it never sets [383].

That single fact does more work in this pass than any other.

Breath 2. Threshold

Where it sits on the four properties, measured

Property	Pleiades	Ursa Major
Plural	yes, six to seven resolved	**yes**, seven resolved by anyone
Compact	yes, 2 degrees	**no**, 25 degrees
Leaderless	yes, brightest 2.9	**yes**, brightest 1.76, range only 1.5 magnitudes
Uncountable	yes	**no**, trivially countable

Two broken, two held. The two that are broken are compactness and uncountability, and they are broken together, because they are the same fact seen twice: stars that far apart are stars you can count.

There is one exception inside the figure, and it is famous. **Mizar and Alcor** sit about twelve arcminutes apart, right at the edge of what an eye separates. They are the classic naked-eye test, and traditions across Eurasia and North America treat Alcor as a separate small thing attached to Mizar: a rider on a horse, a pot on a wagon, a lost or hidden one.

Hold that. It is the only place in this object where counting becomes hard, and it is the only place in this object where a tradition says something is hidden. The pass returns to it at Breath 11.

Breath 3. Name

The words themselves

The sweep found these, and the thing to notice is how concrete they all are.

Vehicles. The Great Wagon in German, *Grosser Wagen*; *Karlavagnen* in Swedish, *Karlsvognen* in Norwegian and Danish, all Charles's or the churl's wagon; Charles's Wain in older English; Arthur's Wain; Odin's or Wodan's Wagon in the Norse reading; the Long Chariot on the Assyrian tablets [383, 386, 387, 388, 389].

Tools. The Plough in Britain and Ireland. The Big Dipper in the United States. The Saucepan in France. The Ladle in Malaysia, *Buruj Biduk*. A bushel or corn-measure in China, with the tail as its handle [383, 385, 386, 387, 389].

Animals. The Great Bear in Greece and Rome and across much of Native North America. A camel, a shark, a skunk elsewhere [383, 384].

Burials. A bier or coffin in the Arabic reading, with the three tail stars as the daughters of the bier walking behind it. The star name Benetnasch, now Alkaid, is *banāt naʿsh*, and it is still in the IAU lists [386, 389].

And counted things. Roman *Septentrio*, the seven plough-oxen, which became the ordinary Latin word for the north [384]. The Hindu *Saptarishi*, the seven sages [385, 386]. The Seven Gods in Mongolia [387]. In India also seven bears, seven antelopes, seven bulls [386]. The Chinese *Beidou*, the Northern Dipper, and the stars as the Government [387].

The Drinking Gourd, in the songs of the Underground Railroad, pointing north [389].

Breath 4. Family

Scored against the pre-registration

The pre-registration predicted shape names and counted names, and predicted gathering-names absent.

Every single name above is a shape or a count, and most are both at once. A wagon is a shape. Seven oxen is a count attached to a shape. A bear is a shape. A bier with three daughters walking behind it is a shape and a count.

Not one gathering-name. Not one heap, crowd, assembly, herd, group, many or together, in any tradition reached.

That is the result this pass exists for, and it is as clean as this kind of evidence gets. The object with the most names in the northern sky, held by peoples who share nothing, and the one name-family that saturates the Pleiades is entirely absent from it.

Grade: established.

Breath 5. Number

Counted, correctly, by everybody

Seven stars. Seven oxen. Seven sages. Seven gods. Seven bears, seven antelopes, seven bulls. Seven men across Eurasia and North America [386, 387, 403].

Now the thing that matters.

Nobody is missing. Not one tradition in this sweep says there used to be eight. Not one explains an absence. Not one has a story about a lost brother, a hidden sage, a fallen ox.

Set that beside the Pleiades, where seven traditions committed to a number larger than the eye delivers and **every single one** of them generated an explanation for the shortfall, eight explanations in six traditions, no two alike.

Same species. Same kind of object, a group of stars in a patch of sky. Different arithmetic.

Where the eye can count, the count is simply right, and no story is needed. Where the eye cannot, a number has to come from somewhere else, and whatever it is, it will not match, and the mismatch has to be explained.

This is the clearest demonstration in the whole study that the lost sister is a problem in arithmetic and not an inheritance.

Grade: established.

Breath 6. Neighbour

What bright thing is nearby, and whether the name leans on it

Almost nothing. Ursa Major is the brightest thing in its own region of sky. Polaris, which the Dipper points to, is magnitude 2 and dimmer than four of the seven.

So unlike the Hyades, this object has no brighter neighbour to be absorbed by, and unlike Praesepe it has no brighter neighbour to be fed to. It is named entirely for itself.

And the one relationship it does have runs the other way: **the Dipper points at Polaris**, and in tradition after tradition it is the pointing that is the use. The bright group indicates the faint but fixed one. The Odyssey has sailing directions that keep the Bear always on the left, which is to steer due east [386]. Aratos notes that the Sidonians steer by the Little Bear instead, because it is nearer the pole [386].

An object that owns its own patch of sky gets named for what it looks like. An object that sits beside something brighter gets named for its relationship to that thing. The Hyades pass tests the second half of this.

Breath 7. Figure

What it becomes

A thing you use, a thing you ride in, or a large animal. That is the whole range.

And notice what it almost never becomes: **a crowd of people standing together**. Where people appear, they are seven specific named individuals with roles, the sages, the gods, the oxen with their drivers, the daughters walking behind a bier. Never an anonymous many.

The shape is strong enough to force specificity. You cannot see a wagon and think "some stars." The outline tells you how many parts there are and what each one does, and the naming follows.

Breath 8. Story

The Cosmic Hunt, which is the real thing

Here the pass finds something it did not go looking for, and it changes what the whole study is for.

There is an ancient, widely distributed, genuinely inherited star myth attached to Ursa Major. It is called the **Cosmic Hunt**. Several hunters pursue a large animal; the animal is wounded; the animal and the hunters become the constellation. The prey is usually an elk in Eurasian versions and usually a bear in American ones. Yuri Berezkin mapped it [402, 405].

The claim made for it is the same claim made for the Pleiades sisters: that it is Palaeolithic, that it crossed the Bering land bridge, and that it is therefore upward of fifteen thousand years old [405, 407]. Julien d'Huy has run a phylogenetic reconstruction on the Amazigh version of it [406].

So here are two Palaeolithic-inheritance claims, one for each object. **And they do not look alike at all.**

The Cosmic Hunt has a bounded distribution. Northern and Central Eurasia and the Americas, and Berezkin reports it as apparently absent elsewhere [402, 405]. A real inherited thing is somewhere and not somewhere else, and the edges can be drawn on a map.

It has gaps inside its own range, and the gaps are informative. Berezkin notes that from Alaska to Labrador, Ursa Major is well known but is not connected to the Cosmic Hunt and is not read as seven persons [403]. That is exactly what descent with loss looks like.

It has systematic variation. The prey animal changes by region in a patterned way, elk in one half, bear in the other, and the variation is the evidence rather than a problem for it.

And it has a relative. Berezkin reports the Cosmic Hunt as the only widespread star myth in sub-Saharan Africa, where it attaches not to Ursa Major but to Orion [403]. The myth travels; the constellation it lands on does not.

Now set the Pleiades sisters beside that. No bounded distribution; the book found the motif absent in China, Mesopotamia, the Bantu languages, Mesoamerica and the Andes, present in Greece, Australia and parts of North America, and the pattern does not form a region. No systematic variation, just locally contradictory solutions that fit each society's own law. No phylogeny. No map.

This is what the study has been missing: a positive example. You cannot tell whether the Pleiades sisters look like an inherited myth unless you have seen one. The Cosmic Hunt is one, or at least the best candidate anyone has, and the sisters do not resemble it in a single respect.

Grade: the existence and distribution of the Cosmic Hunt, established on Berezkin. Its Palaeolithic age, contested, and this study takes no position. The contrast with the Pleiades sisters, supported, and it is the most important thing this pass found.

Breath 9. Year

The one place the Pleiades pattern breaks completely

The Seven Who Are Six found the calendar column full: thirteen peoples for thirteen, every one using the Pleiades to run the year.

Ursa Major does not run the year anywhere in this sweep.

It cannot. **It never sets.** A calendar needs an event, and the engine of a Pleiades calendar is disappearance and return: the cluster vanishes into the sun's glare for forty days and comes back, and that return is a date. Ursa Major above forty degrees north has no return, because it never left.

So it does the other job. It is a **clock** and it is a **compass**. It wheels around the pole, and its angle tells you the hour and the season to anyone who knows how to read it; its pointer stars give you north at any moment of any night. The Odyssey uses it to steer [386]. The Underground Railroad used it to walk [389]. The Chinese made it the Northern Dipper and the seat of cosmic government, the handle swinging round the year like the hand of a dial [387].

The geometry chooses the function, completely. An object that disappears becomes a calendar. An object that never disappears becomes a compass. Neither people chose; the sky chose, and the culture built on what it was handed.

Grade: established.

Breath 10. Independence

Are these traditions actually separate?

This is where a star-name survey usually fools itself, and it has to be asked hard.

The European names are one family, mostly. Wagon, wain, plough, dipper, saucepan, ladle: all vehicles and scoops, all in contact-sharing languages, all post-Roman in their recorded forms. Treat them as **one** vote, not eight.

The bear is contested and interesting. Greece and much of Native North America both see a bear, which is either shared inheritance by way of Siberia, convergence on a prominent northern animal, or in some recorded cases contamination by missionaries and traders. Berezkin and others argue inheritance [402, 403, 404]; this study grades it **open** and notes that the North American bear traditions were collected mostly in the nineteenth century by people who knew their Ovid, which is precisely the hazard flagged throughout the Pleiades book.

The counted names are genuinely independent. Roman *Septentrio*, Sanskrit *Saptarishi*, Mongolian Seven Gods, Chinese seven stars of the Government. These are four unconnected literate traditions arriving at seven, and they all arrive at seven because there are seven.

And the Arabic bier is independent of the European wagon, and Berezkin notes it has precise parallels in North America [403], which is a loose end this pass does not resolve.

So the honest count is not dozens of traditions. It is roughly five or six independent naming events. **And the result holds at five or six as cleanly as it did at thirty**: no gathering-name in any of them.

Grade: the no-heap finding is supported at the reduced count, established at the raw count. Reported at the lower figure.

Breath 11. Silence

Where it is not named, and the one thing that is hidden

Below about forty degrees south, Ursa Major is not visible at all, so its absence from Australian, Polynesian, Khoe, San and most Bantu traditions says nothing whatever. The rule from the Mesopotamian pass applies: absence can only be read where the record is vast, and here the record is not absent, the object is.

But there is a silence inside the object, and it is the exception that proves the rule of Breath 5.

Alcor. Twelve arcminutes from Mizar, at the edge of resolution, and across Eurasia and North America it is treated as something small, attached, easily missed, or hidden: a rider on a horse, a pot hung on the wagon, a lost thing, a test of sight.

This is the one place in Ursa Major where counting becomes genuinely hard, and it is the one place where traditions start talking about something hidden or lost.

Seven stars that are easy to count: no story, nobody missing, no explanation needed, in dozens of traditions over thousands of years. One star that is hard to see, sitting right next to a bright one: and immediately the language of hiddenness appears.

The wound follows the threshold of the eye, not the history of the people. That is the Pleiades finding, reproduced inside a different object, in miniature, under controlled conditions.

Grade: the Alcor traditions, supported, and the reading of them is this study's and is graded supported rather than established.

Breath 12. Drift

What happened to the names over time

Three things, and all three are ordinary.

Translation and misreading. *Septentrio*, seven plough-oxen, stopped meaning an asterism and became the plain Latin word for the direction north, and from there the English *septentrional* [384]. A name became a compass bearing because that is what the object was for.

Replacement by the nearest local tool. The same four-plus-three stars are a plough in Britain, a wagon in Germany, a dipper in America, a saucepan in France, a ladle in Malaysia, a bushel in China. Nobody is remembering anything. Everybody is looking at a handle attached to a container and naming the container they own.

And survival inside a dead name. Benetnasch, *banāt naʿsh*, the daughters of the bier, is still printed in star catalogues and in the IAU's official list, carrying a funeral procession nobody mourns any more [389]. The word outlived the picture by a thousand years.

That last one matters for the Pleiades argument. **A name is the most durable thing in this whole subject**, more durable than the story, the rite, the calendar or the picture, and it survives

precisely by becoming meaningless. That is the book's second finding, meeting itself in a different sky.

Breath 13. Return

What this object is for, in its own terms

Everywhere it is seen, Ursa Major is for **knowing where you are**.

North, in the Odyssey and on the Underground Railroad. The hour and the season, on the Chinese dial. The seat of government, in the Chinese reading, which is the political form of the same idea: the fixed point everything else turns around.

The Pleiades tells you **when**. The Bear tells you **where**.

And that difference is not cultural. It is the difference between an object that sets and an object that does not.

WHAT WAS SEEN

- No gathering-name in any tradition reached, at the raw count or the reduced one.
- Shape and count between them take every name in the sweep.
- Seven is counted correctly everywhere, and nowhere is anything missing.
- The object is a compass and a clock, never a calendar.
- An ancient inherited star myth exists here, and it looks nothing like the Pleiades sisters.

WHAT WAS UNSEEN

- Any anonymous crowd. Where people appear they are seven named individuals with jobs.
- Any need for a story to fix a number.
- Any dependence on a brighter neighbour; this object is named entirely for itself.
- Any southern tradition, because the object is below the horizon there.

THE GEOMETRY BENEATH

Three measurements decide everything in this pass.

Twenty-five degrees of separation. Far enough apart that the eye tracks each star individually, which produces a shape, which produces a count, which forecloses the heap.

A magnitude range of 1.5. No leader. Which is why the group keeps its own identity rather than becoming somebody's belongings, and it is the property Rung Three removes.

Declination plus fifty, and a latitude above forty north. Circumpolar. No rising, no setting, no disappearance, no return, therefore no calendar, therefore a compass.

Change any one of the three and the naming changes with it. That is what it means for this to be geometry rather than culture.

THE LEDGER

Claim	Grade
Ursa Major attracts no gathering-names in the traditions reached	established
Its names are shape-names and counted names, with no third family	established
The seven is counted correctly and nothing is missing anywhere	established
It is used as compass and clock, never as a calendar	established
The reason is that it is circumpolar above 40 degrees north	established
The Cosmic Hunt exists with a bounded Eurasian and American distribution	established, on Berezkin
The Cosmic Hunt is Palaeolithic and crossed Beringia	contested; no position taken
The Cosmic Hunt does not resemble the Pleiades sisters in structure	supported
The Greek and North American bear share an origin	open
European wagon and plough names are one tradition, not eight	supported
Alcor attracts hiddenness language because it is at the limit of resolution	supported
North American bear collections are contaminated by classically trained collectors	open; a real hazard, not demonstrated here

NEAR-TRUTHS

- **"Ancient peoples all saw a bear in these stars."** Many did, over a huge area, and whether that is inheritance or convergence is genuinely unsettled. What is certain is that at least as many saw a wagon, a plough, a ladle, a bushel, a coffin and a camel, and the bear is one reading among several rather than the human reading.
- **"The Seven Sages, the Seven Gods and the seven oxen show seven is a sacred number."** They show that there are seven stars. The sacredness of seven in those cultures is real and has other sources; here the number is simply correct, which is why nobody had to defend it.
- **"Star names are arbitrary and cultural."** They are cultural in their vocabulary and not at all arbitrary in their class. Every people reached for a container with a handle, because that is what is up there.

THREE ILLUMINATIONS

The First: Where the Eye Can Count, Nothing Is Ever Missing

Seven stars, counted correctly, in every tradition that counted them, across Rome, India, Mongolia, China and Eurasia at large. Not one lost sage. Not one hidden ox. Not one story explaining why you only see six.

The Pleiades has eight such stories in six traditions.

The difference between the two objects is not their age, their beauty, their importance or their history. It is twenty-three degrees of angular separation.

A missing star is not something the sky contains. **It is a residue left behind when a number meets an object that cannot supply it.** Ursa Major supplies its number, so nothing is left behind.

Grade: established.

The Second: The Sky Assigns the Job

The Pleiades disappears for forty days and returns, so thirteen unrelated peoples made it a calendar, and every one of them did, and the column was full.

Ursa Major never leaves, so nobody made it a calendar, and everybody made it a compass.

Neither set of peoples decided this. There is no world in which a culture above forty degrees north builds a new year on the return of a star that does not go away. **The function is handed out by the geometry, and the culture supplies only the vocabulary.**

Which reframes the entire book. The Pleiades calendar is not evidence of a shared human insight. It is evidence that an object sitting four degrees from the ecliptic with a sharp heliacal rising will be made into a calendar by anyone who stays outdoors long enough. The insight is the sky's. The achievement was noticing.

Grade: established.

The Third: Now We Know What an Inherited Myth Looks Like, and It Is Not the Sisters

The Cosmic Hunt has a region, with edges that can be drawn. It has interior gaps where it was lost, and the gaps have been mapped. It has prey that changes in a patterned way across its range. It has a phylogeny somebody has actually computed. And it has a sibling in sub-Saharan Africa that landed on a different constellation, which is what a travelling story does.

The Pleiades sisters have a region that is three disconnected patches, no patterned variation, locally contradictory solutions each fitted to its own society's law, and no phylogeny.

The book argued against the sisters' antiquity from the inside, by showing that the count and the loss are generated locally. This pass argues it from the outside, and more simply: **we have an example of the real thing, and the sisters are not shaped like it.**

That is not proof. It is the difference between saying a claim is unsupported and being able to show what support would have looked like.

Grade: supported, and it is the finding this pass was not looking for.

> ✦ **Practice: the fixed point.** Go out on a clear night far enough north to find the Plough, and let the eyes adjust for a few minutes without looking at a phone. Find the two stars at the end of the pan and follow them to the pole star. Breathe gently in through the nose, out a little longer, four or five times, and let the whole figure settle into one shape rather than seven points. Now notice two things in turn, one breath apart. **That you counted it without trying.** Nobody has to be told there are seven. The number arrives on its own and it is correct. **And that it is not going anywhere.** It was there last night in a different position, and it will be there in six months at a different hour, and it has never once been absent in your life or anyone's. That is why

nobody built a year on it, and why everybody built a direction on it. Breathe gently, and never force or hold the breath.

WHAT THE LADDER HAS AFTER ONE

The hypothesis has survived the test most likely to kill it.

Established. Gathering-names are absent from the most widely named plural leaderless object in the northern sky. They are therefore not a general habit of star-naming. Something specific is happening at the Pleiades.

Established. Where an object can be counted, it is counted correctly and nothing is missing, across every tradition reached. The lost member is a function of the counting threshold.

Established. Function follows visibility geometry: setting objects become calendars, circumpolar objects become compasses, and no culture overrides this.

New, and not predicted. The study now has a positive control for what an inherited star myth looks like, and the Pleiades sisters do not match it on any of its features.

Still open. Compactness and leaderlessness have not yet been tested separately. Ursa Major broke compactness and uncountability together, which means this rung cannot say which of the two did the work.

Rung Two removes only uncountability and holds everything else, which is the next thing that has to be shown.

A note on evidence

Berezkin's Cosmic Hunt work was read in English, in the Folklore EJF paper and the Tartu conference paper, and not in Russian. His conclusions are reported, not checked. The North American bear material is nineteenth-century collection and carries the standard hazard. The star-name lists behind several of the European and Asian names here descend from Allen (1899) and Olcott (1911) and are graded accordingly in the ledger. This pass is a mirror's work, held up for the author to check: it is a mirror, not a mind.

Orion's Belt · The Three That Are Always Three

Why this is the second rung

Rung One broke two properties at once. Ursa Major is neither compact nor countable, and because both failed together, that pass cannot say which of them stopped the heap-name appearing.

This rung isolates one variable, and it does it almost perfectly.

Orion's Belt is **compact**, three degrees from end to end, tighter than most asterisms and not far off the Pleiades at two. It is **plural**, three stars, unmistakably several. And it is **leaderless** to a degree nothing else in this study approaches: Alnilam at 1.69, Alnitak at 1.74, Mintaka at 2.23, a range of about half a magnitude. The Pleiades spans more than that. **The Belt is the most leaderless object in the entire set.**

Three of the four properties, held more purely than the Pleiades holds them.

Only one is broken. **Three is countable.**

So this rung asks the sharpest question the study has: if an object is plural, compact and more leaderless than the Pleiades, and the only difference is that you can count it, does the gathering-name survive?

THE THIRTEEN BREATHS

Breath 1. Sky

What is actually up there

Three bright stars in a short, almost perfectly straight line, hanging in the middle of the most recognisable figure in the sky [410, 416].

It sits on the celestial equator, which is the second fact that matters here. **Orion's Belt is visible from virtually every inhabited place on Earth.** Unlike Ursa Major, which cuts off below the equator, and unlike the Magellanic Clouds, which cut off above it, the Belt rises for everybody.

That gives this rung something no other rung in the ladder has: a genuinely global record, including southern Africa, Australia, Polynesia and the Americas, which are the traditions that

carried the main argument of *The Seven Who Are Six* and which the first gather could barely reach.

Breath 2. Threshold

Measured against the four properties

Property	Pleiades	Orion's Belt
Plural	yes	**yes**
Compact	yes, 2 degrees	**yes**, about 3 degrees
Leaderless	brightest 2.9, range about 2 magnitudes	**yes, more so**, range about 0.5 magnitudes
Uncountable	yes	**no**, three

This is as close to a controlled experiment as naked-eye astronomy permits. One variable moved. Everything else held, and two of the three held tighter than in the object being tested against.

Breath 3. Name

The words themselves, and there are a great many

Southern Africa, where the record is richest and least European.

The Sotho call them **Makolobe** and the Tswana **Dikolobe**, the pigs, and the Karanga of Zimbabwe **Nguruve**, the same animal [408, 409]. The Tswana name for Orion's Sword is *dintsa le Dikolobe*, which is read as the three dogs chasing the three pigs [408, 409]. The /Xam said the Belt stars were three male tortoises, hung on a stick [408, 409]. The Nyae Nyae !Kung called them **the three zebras**, a male flanked by two females [409]. The Rozi called them the three travellers. The Xhosa called them **Amakroza**, which is reported as three stars in a row [408]. Olcott records a tradition of three old widows following three old men [412].

The Americas. The Seri of northwestern Mexico call them **Hapj**, and the three stars are named individually: *Hap*, the mule deer; *Haamoja*, the pronghorn; *Mojet*, the bighorn sheep [415].

Europe and the Christian world. The Three Kings, the Three Magi, the Three Marys, *Las Tres Marías*, *Los Tres Reyes Magos*, Afrikaans *Drie Konings* and *Drie Susters* [410, 414]. And a whole family of measuring sticks: Jacob's Staff, Jacob's Rod, Peter's Staff, Our Lady's Wand, the Yard-stick, the Yard-wand, the Golden Yard-arm, the Ellwand, the Ell and Yard [415].

The Arab world. Al Nasak, the line. Three vertebrae in a back. Three golden grains or nuts [412]. The star name Mintaka is simply the Arabic for belt [416].

Asia and the Pacific. Malay **Bintang Tiga Beradik**, three brother stars [410]. Early Chinese read the Belt as a three-flowered plant, and Chinese tradition also gives the Scale [411, 416]. The Hindu name is the three-jointed arrow [416]. In Polynesia, the three canoe paddlers [416]. In Java and Sumatra the Belt is used to point towards the *qibla*, the direction of Mecca [411].

Australia. Orion is overwhelmingly a hunter, a young man, a group of young men, or a male ceremony [413], and the Belt is recorded as three dancing young men [412].

Breath 4. Family

Scored against the pre-registration

The pre-registration predicted counted names and no gathering-names.

Go through the list. **Every single name is a count or a three-part object.**

Three pigs. Three dogs. Three tortoises. Three zebras. Three travellers. Three stars in a row. Three widows. Three kings. Three Marys. Three brothers. Three paddlers. Three young men. Three vertebrae. Three grains. A belt, which has a buckle and two ends. A line. A yardstick, an ell, a scale, a staff, a rod, a wand, all of them things measured in marked divisions. An arrow with three joints. A plant with three flowers.

Even the most minimal possible description, the Xhosa one, is a count: **three stars in a row**.

No heap. No crowd. No assembly. No herd. Nothing gathered, in any of them, anywhere on Earth.

And this is the richest non-European evidence base in the whole study. Southern African, Khoe-San, Seri, Malay, Polynesian, Australian, Chinese, Indian, Arabic. The traditions that supplied the Pleiades book with its gathering-names supply none here.

Grade: established.

Breath 5. Number

Three, every time, with nothing missing

Nobody gets this wrong. Nobody says four. Nobody says two. And in every tradition reached, **nothing is absent, nothing is hidden, nothing is explained.**

The Pleiades, with the same number of actual bright members in the same patch of sky, generated eight explanations for a missing one in six traditions.

Here, nothing.

And the Seri case sharpens it past the point of argument. Three stars, and they are not three of a kind at all. They are a mule deer, a pronghorn and a bighorn sheep: three different species, individually named [415]. **The eye can resolve them well enough to give each one a separate identity.** That is the exact opposite of a heap, and it is what happens when counting is not merely possible but easy.

Compare the Nyae Nyae !Kung reading, which does the same thing with internal structure: three zebras, and not three identical zebras, but **a male flanked by two females** [409]. The three stars are differentiated by role.

A group whose members can be told apart does not become a crowd. It becomes a cast.

Grade: established.

Breath 6. Neighbour

The brightest neighbourhood in the sky, and it changes nothing

The Belt sits inside the most star-rich bright region visible from Earth. Betelgeuse at 0.5, Rigel at 0.1, Sirius at minus 1.4 a short way off, Aldebaran at 0.9 on the other side.

By the logic of Rung Three, which is coming, a group this close to things that bright ought to be absorbed into them, named as somebody's equipment.

And it partly is. It is Orion's belt. It is the hunter's belt in Greece, and the Arabic *mintaka* means exactly that [416]. Jacob's staff and Peter's staff are the possessions of named men.

But crucially, **when it is absorbed it is absorbed as an object with three parts**, and when it stands free it is three separate animals or three separate people. Southern Africa, which has the richest Belt tradition on Earth, does not subordinate it to anything: the pigs, the tortoises and the zebras are the whole story and Orion is not in it.

So possession happens here and it does not erase the count. That is a useful limit on what Rung Three will claim: **a bright neighbour absorbs a group that cannot be counted, and merely annexes one that can.**

Breath 7. Figure

Animals, people, and things with marked divisions

Three families, and they are the same three as Ursa Major: creatures, persons, and tools.

But the tools here are a specific kind, and it is worth stopping on. Yardstick, ell, ellwand, yard-arm, scale, belt, line, arrow with joints, plant with flowers, vertebrae in a spine.

Every one of those is a thing with units.

A heap has no units. A yardstick is nothing but units. The Belt gets named for the one class of object whose entire purpose is countable division, and this happens independently in English, Arabic, Chinese and Sanskrit.

The eye is not merely able to count these stars. It is being told to, by the regularity of the spacing, and the vocabulary follows.

Breath 8. Story

The Cosmic Hunt, landed on a different constellation

Rung One found the Cosmic Hunt on Ursa Major in Eurasia and North America, and noted Berezkin's report that in sub-Saharan Africa the Cosmic Hunt is the only widespread star myth and is there always attached to **Orion** [403].

This pass can see that from the other end, and it is one of the better moments in the study.

The Tswana have the three dogs chasing the three pigs: Orion's Sword pursuing Orion's Belt [408, 409]. The /Xam have the tortoises hung on a stick, which is a hunter's carry. The !Kung have three zebras, which are game. Olcott's three old men pursued, and three widows following [412]. Across southern Africa the Belt and its neighbours are **a hunt**.

And across Eurasia and North America the same structure sits on Ursa Major, with hunters and a wounded elk or bear [402, 403, 405].

So here is the shape of the thing. **The story travels. The constellation it lands on does not. And when it lands, the local object supplies the number.**

On Ursa Major the hunt has seven members, because there are seven stars. On Orion's Belt it has three, because there are three. Nobody carried a number across the world. They carried a structure, hunters and prey, and each sky filled in the arithmetic from what was actually in it.

That is the Pleiades finding stated in its general form, and it is the first time in either book that it has been shown on a motif whose transmission is independently mapped.

Grade: the southern African hunt material, established. Berezkin's report of the Cosmic Hunt on Orion in Africa, established on his authority. The reading that the structure travels while the number is local, supported, and this pass regards it as its central result.

Breath 9. Year

Seasonal, and used hard, without any need for a count

The Belt is a working calendar across the tropics and the south. It governs planting and seasonal reckoning across southern Africa alongside the Pleiades, and in Java and Sumatra it does navigation work, pointing towards the *qibla* [411]. In Polynesia the canoe paddlers belong to a navigational sky.

So the calendar column, which was full for the Pleiades and empty for Ursa Major, is **full again here**, and for the same geometric reason as the Pleiades: the Belt rises and sets, it disappears into the sun and returns, and it sits on the celestial equator so it does this for everybody.

Which separates two things that the first book had bundled together. Being a calendar follows from **rising and setting**. Being called a heap follows from **being uncountable**. The Belt has the first and not the second, and it demonstrates that the two properties are independent.

Grade: established.

Breath 10. Independence

How many separate votes are there really?

This is the strongest independence profile in the study so far.

One Christian vote, not six. Three Kings, Three Magi, Three Marys, Tres Marías, Tres Reyes Magos, Drie Konings: these are one tradition spread by missions and empire, and the Philippine case is explicitly attributed to the Spanish [414]. Count it once.

One European measuring-stick vote. Yardstick, ell, ellwand, yard-arm, Jacob's staff, Peter's staff, Our Lady's wand. One family.

Bantu southern Africa is one vote, with the Sotho, Tswana and Karanga pig names clearly related [408, 409].

And then the genuinely separate ones. Khoe-San, which is unrelated to Bantu and supplies both the /Xam tortoises and the !Kung zebras. Seri, in northwestern Mexico, unrelated to anything here. Austronesian, in Malay and in Polynesia. Sinitic. Indo-Aryan. Semitic, in the Arabic line and vertebrae. Australian.

That is at least **eight independent naming events** on four continents and across the Pacific, and the result is identical in every one of them: a count, and no heap.

Grade: established, and this is the best-supported finding in either book.

Breath 11. Silence

Nobody is silent

This is the one object in the study with no silence to read. It is bright, it is equatorial, it is unmistakable, and every tradition reached has a name for it.

Which is itself a result worth stating. The Pleiades book spent a great deal of effort on absences, in Mesopotamia and in Tasmania, and had to build a rule for reading them. Here there is nothing to read. Universal visibility plus high brightness equals universal naming, and no inference is needed.

Breath 12. Drift

What happened to the names

Replacement by the local fauna. Pigs in the Sotho-Tswana country, tortoises and zebras in the Kalahari, deer and pronghorn and bighorn among the Seri, canoe paddlers in Polynesia. Three of whatever your life contains.

Replacement by the dominant religion. Three Kings and Three Marys swept across Europe, the Americas, the Philippines and Afrikaans southern Africa, and in most of those places they displaced something. This is the clearest case of naming-by-empire anywhere in the study, and it is recent enough to be documented rather than inferred [414].

And survival of the function inside a dead picture. Mintaka still means belt, and the belt belongs to a Greek hunter almost nobody now believes in [416].

The same three mechanisms as Ursa Major: local substitution, imperial replacement, and a word outliving its meaning. Nothing exotic is needed to explain any of it.

Breath 13. Return

What it is for

A pointer and a marker. It points to the *qibla* in Java, to Sirius and Aldebaran for anybody learning the sky, to the seasons across the tropics, and in southern Africa it carries a hunt that is also a calendar.

But the deepest thing it is for, across every tradition reached, is **being three**. That is the content of nearly every name it has. Not what the three are, which varies with what people eat and whom they worship, but the threeness itself, which does not vary at all because it cannot.

WHAT WAS SEEN

- No gathering-name anywhere on Earth, in at least eight independent naming events.
- Every name is a count or a three-part object with units.
- Three stars individually differentiated by species, and by sex and role, in two unrelated traditions.
- A hunt, matching the Eurasian Cosmic Hunt in structure and differing in number.
- A full calendar column, with no heap-name, which separates the two properties.

WHAT WAS UNSEEN

- Anything missing. No lost member, no explanation, in any tradition.
- Any ambiguity about the number.
- Any silence to interpret.
- Any instance of the count being imported rather than read off the object.

THE GEOMETRY BENEATH

Half a magnitude of range. The most leaderless object in the study, more so than the Pleiades, and it still gets no gathering-name. Leaderlessness alone is therefore not sufficient, which Rung One could not establish and this one can.

Three degrees of extent. Compact, comparable to the Pleiades, and it still gets no gathering-name. Compactness alone is not sufficient either.

Three members. The single difference. And it is decisive.

Declination near zero. Visible everywhere, which is why this rung has the evidence base it has.

THE LEDGER

Claim	Grade
Orion's Belt attracts no gathering-names, in any tradition reached	established
Its names are counts or three-part objects, with no third family	established
It is more leaderless and comparably compact to the Pleiades	established, from photometry
Therefore leaderlessness and compactness together are insufficient to produce a heap-name	established
Nothing is missing from it in any tradition	established
The Seri name its three stars as three different species	established
The Cosmic Hunt attaches to Orion across sub-Saharan Africa	established, on Berezkin
The hunt's structure travels while its number is supplied locally	supported
Three Kings and Three Marys are one tradition spread by missions	established
Southern African Bantu pig-names are one tradition, not three	supported
The measuring-stick names reflect regular spacing being read as units	supported

NEAR-TRUTHS

- **"Orion's Belt is called the Three Kings all over the world."** It is called that over a very large area, and that area is the map of Catholic mission and empire. Underneath it in southern Africa are pigs, tortoises and zebras, and the pigs are being chased by dogs.
- **"Three stars in a row is such a simple pattern that every culture sees the same thing."** Every culture counts the same number, which is not the same claim. What they see varies completely: deer, pigs, kings, paddlers, vertebrae, a yardstick. The constant is arithmetic, not imagery.

- **"The Belt is Orion's."** Across the richest Belt tradition on Earth, in southern Africa, there is no Orion at all. The possessive is a Greek habit the rest of the world did not need.

THREE ILLUMINATIONS

The First: Countability Alone Decides It

The Belt is compact. The Pleiades is compact. The Belt is more leaderless than the Pleiades, measurably, by about a factor of four in magnitude range. Both are plural. Both rise and set. Both are seen by everybody.

One of them is called a heap in fourteen traditions across nine language families. The other is never called a heap by anyone, anywhere, in at least eight independent naming events on four continents.

The difference between them is three stars against six or seven, and nothing else.

The first book proposed that the gathering-name came from being plural, compact and leaderless. **That proposal is now dead in its original form, and this rung killed it.** The Belt has all three and gets nothing. What produces the heap-name is the fourth property alone, with the others as background conditions: **the object must defeat counting.**

Grade: established.

The Second: The Story Travels, the Number Does Not

The Cosmic Hunt has hunters and prey, and it has a mapped distribution that reaches from Siberia to Labrador, down into sub-Saharan Africa, and across to the Amazigh.

It lands on Ursa Major in the north and the hunt has seven members. It lands on Orion in Africa and the hunt has three.

Nobody carried a seven from Siberia to the Kalahari and nobody carried a three the other way. What was carried was **a shape of relationship**: some beings pursuing some other beings. The arithmetic was filled in, every time, by whatever was actually overhead.

This is exactly what the Pleiades book argued about the sisters, and here it can be shown on a motif whose transmission is independently established by somebody else's statistics rather than asserted by this study.

A travelling myth supplies the grammar. **The sky supplies the number.**

Grade: supported, and it is the best-evidenced version of the book's central argument that either volume has produced.

The Third: A Group You Can Tell Apart Is Never a Crowd

The Seri do not see three stars. They see a mule deer, a pronghorn and a bighorn sheep, each with its own name [415]. The Nyae Nyae !Kung do not see three zebras; they see one male with two females, differentiated by sex and position [409].

Now go back to the Pleiades. In fourteen traditions it is a heap, a herd, a crowd, an army of detachments, a marketplace, an assembly, gathered together. **Not one of those names differentiates a member.** They cannot, because the eye cannot.

And in the traditions that did try to individuate the Pleiades, Greece above all, with seven named sisters and seven mothers and seven fathers, the roster never stabilised: Hyginus has a different list from Apollodorus, the sets differ between authorities, and only Maia is constant [131 to 133].

So the two objects are not just named differently. They are **known** differently. One is a cast of characters because the eye delivers individuals. The other is a crowd because the eye delivers a texture, and when a culture tries to hand out names inside that texture the names will not stay put.

A heap is not a judgement about quantity. It is what a language says when it cannot get hold of the parts.

Grade: supported, and the Greek roster instability is established from the Greek sources themselves.

> ✦ **Practice: the three and the many.** On a clear winter evening, find the Belt. Three stars in a line, about halfway up the southern sky in the northern hemisphere, high overhead in the south. Breathe gently, in through the nose, out a little longer, four or five times, until the looking settles. Now look at the Belt and notice how fast the number arrives. It is there before you decide to count. Three, immediately, without effort. Then move your eyes up and to the right and find the small misty knot of the Pleiades, and try the same thing. Notice what happens instead: the number will not come. It flickers. You get five, then six, then something that might be seven, and if you look straight at it you get fewer than if you look beside it. You have just run the experiment this entire book is about, in about forty seconds, with your own eyes.

Everything else, every sister, every heap, every lost one, is what cultures built on the difference between those two experiences. Breathe gently, and never force or hold the breath.

WHAT THE LADDER HAS AFTER TWO

Established, and this rung is the one that did it. Plural, compact and leaderless are not sufficient to generate a gathering-name. The Belt holds all three, two of them more strongly than the Pleiades does, and gets none. Countability is the operative variable.

Established. Where an object can be counted, the count is correct, nothing is missing, and no story is required. Two rungs, two objects, same result, on a combined evidence base covering six continents.

Established. Calendar function follows rising and setting and is independent of the naming question. The Belt is a working calendar and gets no heap-name; Ursa Major is no calendar at all.

Supported, and new. A travelling myth carries structure and not number. The Cosmic Hunt is seven in the north and three in the south, and in both places the number is read off the object.

Supported, and new. The reason a countable group resists the heap-name is that its members can be told apart and given separate identities, which the Seri and the !Kung both do. An uncountable group cannot be individuated, and Greece proves it by trying and failing.

Still open. Leaderlessness has not yet been removed on its own. Both rungs so far have held it. Rung Three removes it, holding compactness and uncountability, which is the last of the four properties to be tested in isolation.

A note on evidence

The southern African material here comes through the Astronomical Society of Southern Africa's ethnoastronomy pages and an African Star Lore survey, which rest in turn on nineteenth and twentieth-century collection including Bleek and Lloyd for the /Xam. The same caution as the Pleiades book applies. Several European and Arabic names descend from Allen (1899) and Olcott (1911). Berezkin was read in English. No Setswana, Sesotho, Jul'hoan, Seri, Malay or Te Reo source was read directly. This pass is a mirror's work, held up for the author to check: it is a mirror, not a mind.

The Hyades · The Cluster That Became a Belonging

Why this is the third rung

Rungs One and Two both held leaderlessness. Ursa Major is even in brightness; Orion's Belt is the most even object in the study. Neither pass could say what a leader does, because neither had one.

This rung supplies one, and it is an extreme case.

The Hyades is **plural**, five to a dozen stars depending on the eye. It is **compact**, around five degrees, looser than the Belt but tight enough to read as one thing. It is **uncountable**, with members fading away past the limit so that no two observers agree on a total.

Three properties held, and all three are the Pleiades' own.

One is broken, and broken hard. **Aldebaran sits at magnitude 0.9 in the same line of sight.** It is a foreground star, less than half the distance of the cluster, and not a member of it at all [399]. No naked eye has ever known that. What every eye sees is a V of faint stars with one blazing orange one at the end of it, nearly four magnitudes brighter than anything else in the figure, roughly thirty times the light.

If the first book's account were right as it stood, this object should still be a heap. It is plural, compact and uncountable, which was the original three.

It is never a heap. Not once, anywhere, in any tradition this study has reached.

THE THIRTEEN BREATHS

Breath 1. Sky

What is actually up there

A V-shaped scatter of stars about five degrees across, with Aldebaran at one tip, lying about fourteen degrees from the Pleiades in the same constellation [371, 418].

It is the nearest open cluster to the sun, which is why it looks so large and so loose [370]. It sits close to the ecliptic, so the moon passes through it and occults its members, which matters at Breath 9.

It is the Pleiades' neighbour in every sense. Same constellation, same season, same part of the sky, rising within an hour of each other, setting within an hour of each other, seen together by every people in this study who saw either.

That is what makes it the right control. Nothing differs except what is inside the object.

Breath 2. Threshold

Property	Pleiades	Hyades
Plural	yes	**yes**
Compact	2 degrees	**yes**, about 5 degrees
Uncountable	yes	**yes**, arguably more so
Leaderless	brightest 2.9, range about 2 mags	**no**, brightest 0.9, range about 3.5 mags

One variable moved, and it is the one no previous rung could test.

And note the direction of the error, which matters. The Hyades is if anything **harder** to count than the Pleiades, because its members trail off in brightness with no clear edge, and because Aldebaran's glare suppresses the fainter ones near it. By the original account it should be the strongest heap-candidate in the sky after the Pleiades itself.

Breath 3. Name

The words themselves, and there is a pattern in them

Mesopotamia. is-lê, the jaw of the bull. Also **AGA An-na**, the crown of the sky god Anu [369, 370]. And Babylonian tradition gave it a rain name, with offerings made and rain prayed for [421].

Greece. The cluster is read as the **face** of Taurus [369]. The name *Hyades* is usually derived from the verb to rain, which fits the wet period attending its morning and evening settings in late May and November [364]. In the stories the Hyades are daughters of Atlas who wept for their dead brother Hyas, and **Sidus Hyantis**, the raining stars, follows from that [365, 366].

Rome. Suculae, the little sows, from a misreading of the Greek as if it came from the word for pigs [364, 368].

Arabia. al-Qilās, the little she-camels, driven along in front of the great camel, which is Aldebaran [364, 367]. And Aldebaran itself is **al-Dabarān**, the follower, because it comes up behind the Pleiades [399].

India. Rohiṇī śakaṭa, the cart of Rohiṇī, where Rohiṇī is Aldebaran [370].

China. Bì 畢, the Net: a small hunting net with a long handle, of the kind used for rabbits, with λ Tauri as the handle [417, 420, 421, 423]. It is the nineteenth lunar mansion, and Aldebaran is **inside** it as one of the Net's eight stars [417, 422]. Compilations of the twenty-eight mansions gloss the name as spreading, like a net opening out [424]. Zhu Xi glossed the celestial Bi as being shaped like the rabbit net [421]. The Book of Songs attaches heavy rain to the moon's departure from this mansion [419, 421].

Australia, Great Victoria Desert. Kambugudha, a single woman, the elder sister who stands between the hunter Nyeeruna and the Yugarilya sisters of the Pleiades and blocks him. Aldebaran is her left foot [397, 398].

England. The **April Rainers** [371].

And one correction to the first gather. That gather reported **Chamukuy**, a Yucatec Maya word for a small bird, as a name for the Hyades [371]. It is not. Chamukuy is the IAU's official name for **θ2 Tauri**, a single star inside the cluster [422]. The error is recorded here rather than removed, because it is the kind of error a star-name list invites: a name attached to one star, reported as a name for the group.

Breath 4. Family

Scored against the pre-registration

The pre-registration predicted that gathering-names would be rare or absent, and that names would instead be of a face, head, jaw, or a bright-eyed animal, or would name Aldebaran and treat the rest as its attachment.

No gathering-name. Anywhere. In any of the eight traditions reached.

And the predicted families are all present: the jaw, the face, the sow, the camels, the bird. But the record is more specific than the prediction, and the specific thing is the finding of this pass.

Sort the names by what grammatical role the cluster plays.

The cluster is a body part of something bigger. The jaw of the bull, Mesopotamia. The face of the bull, Greece. The left foot of Kambugudha, in the Great Victoria Desert, where Aldebaran is the foot and the cluster is the woman.

The cluster is a possession of something brighter. The crown worn by Anu. The cart drawn by Rohiṇī. The camels driven by the great camel.

The cluster is a single tool. The Net, in China, with a handle, swallowing Aldebaran inside itself.

The cluster is a weather sign. The raining stars in Greece and Rome, the rain star in Babylon, the rain mansion in China, the April Rainers in England.

Not one of those is a group. **In every single tradition, the Hyades stops being several things and becomes one thing**, and that one thing is either an object, a body, a limb, or a piece of equipment.

Grade: established.

Breath 5. Number

Nobody agrees, and nobody cares

Greek authorities give five, six or seven Hyades depending on the mythographer, and their names and parentage vary between authors [365, 368]. China counts eight in the Net mansion, and the eight include Aldebaran, which is not even a cluster member [417, 422]. Australia counts one.

So here is an object that is at least as hard to count as the Pleiades, with at least as much disagreement in the sources.

And not one tradition has anything missing.

No lost Hyad with an explanation. No story about where the sixth went. The Greek mythographers disagree about the number, write down different rosters, and simply leave it there.

Compare Greece on the Pleiades, where the same authors, working in the same genre, at the same time, generated three separate explanations for a missing seventh: Merope ashamed of a mortal husband, Electra hiding her face from the fall of Troy, and the seventh taken by a god [131 to 133].

Same culture. Same writers. Two clusters fourteen degrees apart. One of them produces a wound and the other produces a shrug.

Why? Because the Pleiades tradition had committed to **seven**, and seven was not deliverable. The Hyades tradition never committed to anything. There was no fixed number to fail.

This is the cleanest confirmation of the book's third finding anywhere in either volume, and it comes from a controlled comparison inside a single literature.

Grade: established.

Breath 6. Neighbour

The breath this rung exists for

Aldebaran does not stand beside the Hyades. It **consumes** it.

Look at what happens to grammar across eight unrelated traditions. The cluster is never the subject of its own name. It is:

- what the bull chews with
- what the god wears
- what Rohiṇī pulls
- what the great camel drives in front of it
- what Kambugudha stands on
- the net that Aldebaran is caught inside

In each case the bright star is the actor and the faint ones are its gear, its anatomy, or its herd. The cluster has no independent existence in the language of any of these peoples.

And it is not that the faint stars go unnoticed. China counts eight of them and gives each a number. India drives a cart with them. Arabia drives camels with them. They are seen. **They are just not allowed to be a thing.**

Compare Ursa Major, which has no bright neighbour at all and is named entirely for itself, as a wagon or a bear or seven sages. Compare the Pleiades, which is bright enough to be primary in its own patch and gets to be a heap, a herd, a marketplace, an assembly, in its own right.

A bright star within a group does not organise that group. **It annexes it.**

Grade: established, on eight traditions, four of them with no possible contact.

Breath 7. Figure

What it becomes, and the shape underneath

A V, open at the top, with the bright star at one arm.

That outline is doing work. A V with a point of light at one end reads as a head with an eye, and so the jaw, the face, the bull, the sow all follow. It also reads as a funnel or a scoop with a handle, and so the Chinese Net follows. It also reads as a thing being dragged behind a bright point, and so the cart and the camels follow.

So the Hyades does have a shape, unlike the Pleiades, and that is a second reason it escapes the heap. Where Rung One found that shape forecloses the heap by making parts legible, here shape does it a different way: by making the group into **the body of a single animal**.

The Pleiades has no shape at all. That is why it was free to become whatever a culture needed, and why what it became, over and over, was simply **many**.

Breath 8. Story

Thin, local, and never about loss

The Greek story is slight: sisters who wept for a dead brother and were set in the sky, sometimes also nurses of the infant Dionysus [365, 368]. It explains the rain, not a number.

The Australian story is substantial and it is the best material in this pass. In the Kokatha tradition from Ooldea, Nyeeruna the vain hunter desires the Yugarilya sisters, and Kambugudha, their elder sister, stands between them and humiliates him. The account encodes the variability of the red stars: Nyeeruna's club of fire-magic is Betelgeuse, Kambugudha's counter-magic is Aldebaran, and the tradition has it that she cannot generate her fire in time because his varies faster, which is correct, Betelgeuse varying both more and more quickly than Aldebaran [396, 397, 398, 400].

Set that beside this pass's whole argument. **One tradition, two clusters, one night.** The Pleiades are a group of sisters, named plural, acting plural. The Hyades is a single woman with a foot. The difference between them is that one contains a bright star and the other does not, and nothing else whatever.

Nobody could have designed a better experiment, and it was not designed. It was simply recorded, at Ooldea, by Daisy Bates, from people who had never heard of Hyginus.

Grade: the Kokatha material, established on Leaman and Hamacher's re-analysis. The variable-star reading, supported, and it is Hamacher's claim rather than this study's.

Breath 9. Year

Rain, independently, in three literate traditions

Greece derived the cluster's name from raining and tied it to the wet periods around its May and November settings [364]. Babylon called it a rain star and prayed to it for rain, with sacrifices required of kings [421]. China tied heavy rain to the moon's departure from the Net mansion, in the Book of Songs [419, 421]. England called it the April Rainers [371].

Four traditions, three of them literate and at least two of them independent, and all of them say rain.

This needs care rather than wonder. The Hyades lies within a few degrees of the ecliptic, so the moon passes through it roughly monthly and the sun passes through it annually, and its settings fall at particular points of the year that, at Mediterranean and north Chinese latitudes alike, are seasonally wet. The convergence is real and it is the same kind of convergence the first book found everywhere: **an object near the ecliptic becomes a date, and a date in a place with a wet season becomes a rain sign.**

But the open question is sharp, and it is the same one the Pleiades book could not close. Babylon, India and China all built lunar-station systems, all placed this region early, and the question of whether those systems share an origin has been disputed since Bezold. The rain association sitting in all three is either a fourth independent convergence or a trace of the same transmission. **Open**, and it is the most consequential unresolved item in this pass.

Grade: the rain association, established in each tradition separately. Its independence across them, open.

Breath 10. Independence

How many real votes

Greece and Rome are one, and the Latin *Suculae* is a demonstrable mistranslation of the Greek, which makes the dependence provable rather than assumed [364, 368].

Mesopotamia, China, India, Arabia and Australia are five separate votes. Arabic astronomy had the *Almagest*, which is a real hazard, but *al-Qilās* is not a translation of anything Greek: the

Greeks had no camels in the Hyades, and the camel reading belongs to a distinctively Arabian sky in which Aldebaran follows the Pleiades and drives a herd.

Australia is beyond any suspicion of contact for the naming, and it is the most important vote in the pass for exactly that reason.

So: six independent traditions, four of them non-European, one of them with no contact with literate astronomy at all. In all six, the same structural move: the cluster collapses into a single entity owned by, worn by, pulled by or embodied in its bright star.

Grade: established.

Breath 11. Silence

The Pleiades is next door, and it is never silent

There is no meaningful silence to read here. Every tradition that names the Pleiades names the Hyades too, because they are fourteen degrees apart and rise together.

Which is itself the point, and it is worth stating plainly because it is easy to miss. **This pass contains no comparison between peoples at all.** Every single result in it comes from peoples comparing two objects on the same night. Greece against Greece. China against China. Kokatha against Kokatha.

That removes, at a stroke, every confound the first book had to wrestle with: collectors, transmission, missionary contamination, the nineteenth century, Hesiod. None of them can explain why the same recorder, writing down the same evening sky from the same informant, produced a crowd for one cluster and a woman's foot for the other.

Breath 12. Drift

What happened to the names

A mistranslation that stuck. *Hyades* to *Suculae*: the Romans took a Greek word meaning rainy for a Greek word meaning sows, and named the cluster little pigs for the rest of antiquity [364, 368]. A naming error, preserved for two thousand years, visible in the written record.

A name for the group that was actually a name for one star. Chamukuy, flagged above, and the first gather fell for it.

And official names being minted now. The IAU approved **Bibing** for λ Tauri in 2026, from the Chinese for the handle of the net [418], and Chamukuy for θ2 Tauri [422]. The Chinese net and the Maya bird are entering the global star catalogue in our own decade, which is the drift mechanism of Breath 12 happening in real time rather than in retrospect.

Breath 13. Return

What it is for

Rain, mostly. And a marker on the ecliptic through which the moon walks every month.

But what the Hyades is really for, in this study, is demonstrating what happens to a crowd when something bright stands in it. It is for showing that a group is not a fact about how many objects there are. **A group is a fact about whether anything in it dominates.**

WHAT WAS SEEN

- No gathering-name in any of six independent traditions.
- In every one of them, the cluster becomes a single thing: a jaw, a face, a crown, a cart, a herd being driven, a net, a woman's foot.
- No number committed, and therefore nothing missing, in a literature that generated three lost-Pleiad stories at the same desk.
- Rain, in Greece, Babylon, China and England.
- One people holding both clusters on one night, and splitting them exactly along the leadership line.

WHAT WAS UNSEEN

- Any name in which the cluster is the subject rather than the possession.
- Any lost or hidden member.
- Any stable count, in any tradition, including the ones that wrote it down.
- Any need for a story to repair an arithmetic failure, because no arithmetic was attempted.

THE GEOMETRY BENEATH

Three and a half magnitudes of range, against the Pleiades' two and the Belt's half. Aldebaran puts out roughly thirty times the light of the next brightest star in the figure. That ratio is the whole content of this pass.

Five degrees of extent, compact enough to read as one object.

Under four degrees from the ecliptic, so the moon occults it monthly and the sun crosses it annually: hence the rain, the mansion, the offerings.

And a foreground accident. Aldebaran is not in the cluster. It is less than half as far away and happens to lie in the same direction [399]. Every tradition in this pass is responding to a line-of-sight coincidence, and the coincidence restructured the language of six unconnected peoples.

THE LEDGER

Claim	Grade
The Hyades attracts no gathering-names in six independent traditions	established
In every tradition it collapses into a single entity	established
That entity is the body, possession or tool of its bright star	established
Aldebaran is a foreground star and not a cluster member	established
No tradition commits to a Hyades number, and none has a missing member	established
Greek authors produced three lost-Pleiad stories and no lost-Hyad story	established
The Kokatha tradition holds both clusters, plural and singular, on one night	established
The Kokatha account encodes red-giant variability	supported, Hamacher's claim
Rain association in Greece, Babylon, China and England	established in each
Whether the rain associations are independent	open
Suculae is a mistranslation of the Greek	established
Chamukuy names θ2 Tauri and not the cluster, correcting the first gather	established
al-Qilās is independent of Ptolemy	supported

NEAR-TRUTHS

- **"The Hyades are the Pleiades' sisters."** In Greek genealogy, yes, both daughters of Atlas. In the sky they are unrelated: different ages, different distances, no physical connection, and the Hyades is more than ten times older. The kinship is a Greek tidiness imposed on two objects that merely sit near each other.
- **"Aldebaran is the eye of the bull and the chief of the Hyades."** It is the eye in the picture and it is not in the cluster at all. The most important star in this pass is a star that is not there.

- **"Ancient peoples saw a V of stars and made it a face."** Some did. Others made it a net, a cart, a herd of camels and a woman's left foot. What is constant is not the face but the **singular**: whatever it became, it became one thing.

THREE ILLUMINATIONS

The First: A Leader Does Not Lead, It Absorbs

Six unrelated traditions, and in all six the cluster surrenders its plurality to the bright star.

Mesopotamia makes it a jaw. Greece makes it a face. India makes it a cart. Arabia makes it a herd being driven. China makes it a net with the bright star caught inside. The Kokatha make it a woman's foot.

Not one of them says: a group of stars, led by a bright one. Every one of them says: **a single thing, of which the bright one is a part or an owner.**

This is not a fact about culture. It is a fact about what an eye does when one source in a field outshines its neighbours by thirty to one. The faint ones stop being objects and become context. They become the glow around the thing, the body under the eye, the gear behind the actor.

And the first book's explanation has to be corrected because of it. The account said the Pleiades is called a gathering because it is plural, compact and leaderless. That is right, but it understates what leaderlessness does. Leaderlessness is not one condition among four. **It is the condition that lets the group exist at all.**

Grade: established.

The Second: Greece Wrote Both Answers Down, Fourteen Degrees Apart

The same mythographers, in the same century, in the same genre, with the same sky.

On the Pleiades they produced Merope ashamed, Electra veiled for Troy, and a sister taken by a god: three separate repairs for one missing star, and the rosters of names never agreeing between authorities.

On the Hyades, fourteen degrees away, they could not agree whether there were five, six or seven, listed different names, and **never once asked where the missing ones were.**

The difference is not Greek. It is that the Pleiades tradition had arrived at a number, seven, from somewhere other than looking, and the Hyades tradition had not.

A culture with a number it cannot see will build machinery to explain the gap, and the machinery will look ancient and meaningful and deeply felt. A culture with no number will look at an unresolvable scatter of stars, shrug, and write down a different total next time.

The wound is downstream of the number. It was never downstream of the sky.

Grade: established, from the Greek sources themselves.

The Third: The Experiment Was Already Run, at Ooldea

Everything this book is trying to demonstrate with six objects and a pre-registration was already demonstrated, by one people, on one night, in the Great Victoria Desert.

Kambugudha is the Hyades: **one woman**, with Aldebaran as her left foot. The Yugarilya are the Pleiades: **a group of sisters**, plural, named plural, acting plural.

Same teller. Same sky. Same story, with both objects inside it, interacting. No Greeks, no Ptolemy, no missionaries in the naming, no possible route of transmission for either reading.

And the two clusters are fourteen degrees apart, rise within the hour, and differ in exactly one respect.

The first book spent thirteen passes and three hundred sources trying to separate what the sky does from what culture does. **The Kokatha separated it in a single story**, and the separation falls precisely where the photometry says it should.

That is not evidence that one tradition got something right. It is evidence that there was never very much room for a tradition to get it wrong.

Grade: established as to the content of the tradition; supported as to this study's reading of it.

> ✦ **Practice: the eye that takes the room.** On a clear winter night find Orion, follow the Belt up and to the right, and you will come first to a bright orange star with a V of fainter ones trailing from it. That is Aldebaran and the Hyades. Keep going the same way and you reach the small misty knot of the Pleiades. Breathe gently, in through the nose, out a little longer, four or five times, until the looking settles. Look at the Hyades first and ask yourself honestly what you are looking at. Not what you know it is. What

you are seeing. Most people find they are looking at **Aldebaran, and some other stars near it**. The V does not come forward as a thing in its own right. It sits behind the orange one. Now move to the Pleiades, where nothing is in charge, and notice that the whole knot arrives at once, as one object, with no part of it more important than any other. Six unrelated peoples across four thousand years wrote down exactly that difference, in six different languages, without ever comparing notes. Breathe gently, and never force or hold the breath.

WHAT THE LADDER HAS AFTER THREE

All four properties have now been tested in isolation or near it.

Established. Remove **uncountability** and the heap-name vanishes: Orion's Belt, which holds the other three more purely than the Pleiades.

Established. Remove **leaderlessness** and the heap-name vanishes, and something further happens: the group stops being a group and becomes a single possessed object. Six independent traditions.

Established. Remove **compactness and uncountability together** and the heap-name vanishes, replaced by shape and count: Ursa Major.

Established, and new to this rung. The three rungs so far rest on three different kinds of comparison, and the third is the strongest. Rung One compared peoples. Rung Two compared continents. **Rung Three compared two objects inside single traditions**, which removes every confound about collectors and transmission at once.

Established, and the sharpest result in the study. Greek literature contains both outcomes, produced by the same authors: three lost-Pleiad stories and no lost-Hyad story. The wound follows the committed number, not the sky and not the culture.

Still to test. Plurality itself has never been removed. Every object so far has been visibly several. Rung Four removes it: Praesepe, which is compact, leaderless and uncountable, and is not plural to any eye on Earth.

A note on evidence

No Chinese, Akkadian, Sanskrit, Arabic or Pitjantjatjara source was read directly; the Chinese material came through Baidu Baike's English pages, Wikipedia's star-name lists and a lunar-

mansion compilation, and should be checked by a sinologist before anything in Breath 9 is relied on. The Australian material rests on Daisy Bates's field notes as re-analysed by Leaman and Hamacher, which is a modern peer-reviewed treatment of a colonial-era collection. The Greek and Latin names descend in part from Allen (1899) and Olcott (1911). The correction to Chamukuy was found during this pass and is recorded rather than quietly removed. This pass is a mirror's work, held up for the author to check: it is a mirror, not a mind.

Praesepe · The Crowd That Is Not Plural

Why this is the fourth rung

Every object so far has been visibly several. Ursa Major, the Belt and the Hyades all deliver separate points of light to an ordinary eye, and the ladder has been varying what happens around that plurality rather than removing it.

This rung removes it.

Praesepe contains more than a thousand stars [431]. Galileo turned the first telescope on it in 1609 and resolved forty [375]. It is compact, around one and a half degrees. It is leaderless to an extreme degree, with no member above magnitude six. It is uncountable.

And to an unaided eye it is **one thing**. A smudge. A patch of grey. Not a group of stars at all.

The proposal that generated this study described Praesepe as the Pleiades with the brightness turned down, carrying the same three properties in a fainter form. That is wrong, and the error is useful. Praesepe does not have the Pleiades' properties attenuated. **It fails the first one outright**, and that makes it a cleaner control than it was credited with being.

So this rung asks: if an object is compact, leaderless and uncountable, but the eye cannot see that it is many, does it get a gathering-name?

THE THIRTEEN BREATHS

Breath 1. Sky

What is actually up there, and what is not

A faint nebulous patch of magnitude 3.7 in the middle of Cancer, which is otherwise one of the emptiest zodiac constellations [430, 431]. One of Ken Franklin's descriptions of Cancer was the empty space in the sky, and the cluster is the only thing in it worth looking at [426].

It sits at declination plus nineteen, close to the ecliptic, so like the Pleiades and the Hyades it is a zodiacal object that the moon occults and the sun crosses.

The key fact is the surface brightness. Praesepe's light is spread out rather than concentrated, which means it behaves optically like a small cloud rather than like a star. That single property decides this entire pass, and it comes back as an instrument at Breath 9.

Breath 2. Threshold

Property	Pleiades	Praesepe
Plural	yes, six to seven resolved	**no**, nothing resolved
Compact	2 degrees	**yes**, about 1.5 degrees
Leaderless	brightest 2.9	**yes**, nothing above 6
Uncountable	yes	**yes**, absolutely

Three held, one broken, and the one broken is the one the ladder has never removed before.

Note also that Praesepe holds leaderlessness and uncountability **more strongly** than the Pleiades does. If those two were the active ingredients, this object should be the heap of heaps.

Breath 3. Name

The words themselves

Greece. Phátnē, the crib or manger [372, 373]. And in the observational literature a second strand: Aratos, around 270 BCE, called it the little mist; Hipparchus, around 130 BCE, called it the little cloud or cloudy star [374, 375, 426, 429].

Rome. Praesepe, the manger, stall or crib [372, 373]. Pliny described it as the foggy star in the breast of Cancer [376, 432].

Arabia. al-Ma'laf, the stall. Also **al-Nathrah**, the gap or the nostril [376].

China. Jīshī 積尸, piled-up corpses, and **Jīshī qì** 積尸氣, the exhalation of the piled-up corpses. It sits inside **Guǐ** 鬼, the Ghost, the twenty-third lunar mansion [372, 374, 375, 376].

England and the modern world. The **Beehive**, from the seventeenth century onward, once telescopes had made the swarming visible [373, 389].

And the two donkeys. Flanking the cluster are Asellus Borealis and Asellus Australis, the northern and southern asses, feeding at the manger, named for at least two thousand years [427, 428, 432].

Breath 4. Family

Scored against the pre-registration

The pre-registration predicted singular-object names, specifically cloud, mist, a container or a gate, and predicted the object would be absent from many traditions entirely.

Every Mediterranean and Arabian name is a singular object. A crib. A manger. A stall. A mist. A cloud. A foggy star. A gap. A hive. There is no plural in any of them, because there is nothing plural to see.

The prediction holds, and it holds for the reason the pre-registration gave rather than the reason the original proposal gave.

And there is one counter-case, recorded as a counter-case.

The Chinese **Jīshī** contains *jī*, meaning accumulated or heaped. By the scoring rule written down in advance, which counts a name as a gathering-name wherever the literal sense is a heap, that must be scored as a hit against the prediction. It is the only heap-word this study has found outside the Pleiades, across six objects.

Both hands on it.

The hand that says score it: the word means piled up. The rule was fixed in advance precisely so that this decision could not be made after the fact to suit the argument.

The hand that says look closer: what is piled up is **corpses**, not stars. The celestial object in the name is the *qì*, the vapour or exhalation rising off the pile. The stars are the mist; the heap is the explanation offered for why there is a mist. On that reading the name belongs with Aratos and Hipparchus rather than against them, and the Chinese were doing exactly what the Greeks did, seeing a faint fog and accounting for it.

The honest finding is that this is **contested**, that it is reported rather than explained away, and that the Chinese is the single item in this study most in need of a specialist. It is also worth noting that it is in the **Ghost** mansion, which fits the vapour reading and not the pile.

Grade: the prediction is supported, with one contested exception that is recorded in full.

Breath 5. Number

Nobody counts it. Nobody. Ever.

This is the most important negative result in either book.

Praesepe was watched continuously for well over a thousand years by the best-equipped naked-eye observers in the ancient world. It is in the zodiac, so it was unavoidable. Ptolemy lists it among his nebulae in the *Almagest* [372]. Hipparchus put it in his catalogue [429]. Aratos wrote it into a poem that was memorised across the Greek-speaking world.

And not one of them ever gives a number. Not seven, not forty, not any. They describe a texture: mist, cloud, fog, nebulous mass. Then Galileo points a telescope at it in 1609 and gets forty [375], and the swarm enters the language as a Beehive shortly afterwards [373].

Hold that against the central argument of the Norris proposal and its critic. That whole debate turns on whether ancient eyes under dark skies could resolve more than modern eyes can: whether people once saw seven stars in the Pleiades where we see six.

Praesepe is the test neither side ran, and it is a better test than the Pleiades because the stakes are lower and the record is longer. If dark-sky antiquity delivered systematically sharper resolution, here is a compact cluster of forty-plus stars in the zodiac, watched by professional astronomers for a millennium, and the resolution claim predicts that somebody, somewhere, should have broken it into stars.

Nobody did. The record is unanimous in the other direction: it is a mist, in every source, from Aratos to Ptolemy.

Grade: established, from the Greek and Roman observational texts directly.

Breath 6. Neighbour

Fed to the donkeys

Praesepe has no bright star inside it, so the Hyades mechanism cannot operate. But it has two moderately bright stars just outside it, Asellus Borealis and Asellus Australis, and it is named **by its relationship to them**.

It is the manger they eat from [427, 428, 432].

So the object is not absorbed, as the Hyades was. It is **furnished**: given a function in a small domestic scene involving its neighbours. The cluster is not the actor and it is not the possession. It is the **furniture**.

Three relationships to a bright neighbour now, across three rungs:

- **Annexed**, where the group is countable: Orion's Belt is the hunter's belt, but it stays three things.
- **Absorbed**, where the group is uncountable and the neighbour is inside it: the Hyades becomes a jaw, a cart, a foot.
- **Furnished**, where the group is not plural and the neighbours are outside it: Praesepe becomes a trough.

In none of the three does the group get to be a crowd.

Breath 7. Figure

A container, which is the signature of the non-plural

Crib, manger, stall, hive. Four names in three languages, and all four are **vessels**.

This is a very specific thing to be, and it happens because of what the eye is given. A patch with no internal structure and a soft edge does not read as objects. It reads as **a volume with contents**, and the natural word for a volume with contents is a container.

A beehive is the clearest case, and it is also the most recent, and the order is instructive. The Greeks and Romans, seeing a smudge, said manger: a container, contents unspecified. The seventeenth century, seeing through a telescope that the contents were many small separate things, said hive: a container **full of a swarm**.

The container survived the discovery of plurality. The plurality was simply poured into it.

That is the best small demonstration in either book of how a name responds to what the eye is handed, because here we can watch it happen across a documented technological change.

Breath 8. Story

Almost nothing, and that is the point

There is a Greek story: two donkeys, ridden by Dionysus and Silenus in the war against the Titans, or carrying Dionysus and his nurses in flight from Typhon, placed in the sky in gratitude, with the manger set between them [428, 432].

Notice what the story is about. **It is about the donkeys.** The cluster appears in it as scenery. It has no character, no name of its own in the narrative, no role beyond being the thing the animals eat from.

Compare the Pleiades, which in the same literature carries seven named sisters, three competing explanations for a lost one, a pursuing hunter, and a genealogy.

Two zodiacal clusters, one Greek literature. One of them generates a mythology and the other generates set dressing.

The difference is that the Pleiades gives the eye six or seven separable things that can be made into characters, and Praesepe gives the eye nothing to hand a name to.

You cannot populate a fog.

Breath 9. Year

Not a calendar. An instrument.

Praesepe is a poor calendar object. It is too faint for a reliable heliacal rising: the date on which a magnitude 3.7 extended object first becomes visible in the dawn depends so heavily on haze, altitude and the observer's eye that it cannot anchor a year.

So it does something else, and it is remarkable.

Aratos, around 270 BCE, and Pliny, three centuries later, both record that when the sky is otherwise clear but Praesepe cannot be seen, a storm is coming [425, 426, 428, 429, 430, 431, 432]. Pliny gives it as a sign of violent weather; Aratos connects the dimmed cluster to a southerly [432]. The practice survived into medieval weather lore [426].

And it works. High thin cirrus, the first visible sign of an approaching warm front, is almost transparent to bright point sources and noticeably opaque to a faint extended one. A star of magnitude 1 shines through it; a magnitude 3.7 smudge of low surface brightness does not. So a sky that still shows all its usual stars while Praesepe has gone is a sky with high cirrus in it, which is a sky with a front coming [425, 426].

The ancients had a naked-eye cirrus detector, and they read it correctly, and they had no idea why it worked.

Now set this beside the first book. *The Seven Who Are Six* found that Andean communities judge the Pleiades' brightness in June to forecast the rains, that this practice was verified in *Nature*

in 2000, and that it works because El Niño years bring high cirrus that dims the cluster, months before the drought arrives.

Two civilisations with no contact. Two faint clusters. The same method: **watch whether the fuzzy thing is still there.** Both physically valid. One forecasts a storm within a day, the other a growing season eight months ahead, and the difference is only which timescale the local atmosphere encodes.

Grade: the Greek and Roman practice, established from the texts. The physical explanation, established. The parallel with the Andean practice, supported, and it is this pass's best finding.

Breath 10. Independence

Only two real votes, and that is a weakness

This is the thinnest independence profile in the ladder, and it has to be said plainly.

Greece, Rome and Arabia are substantially one tradition. The Arabic *al-Ma'laf*, the stall, sits in the same scene as the Greek manger with the same two donkeys beside it, and Arabic astronomy had the *Almagest*. Count it once.

China is the second vote, and it is genuinely independent, and it is the one that disagrees.

And that is all. This study found no Praesepe name at all from Australia, Polynesia, southern Africa, the Khoe-San, the Amazigh, Mesoamerica or the Andes.

Two votes is not enough to establish anything, and the result for this rung is therefore graded lower than the others no matter how clean it looks. What saves the rung is Breath 5, which does not depend on cross-cultural breadth at all: the failure of a thousand years of Mediterranean observers to resolve or count this object is a single-tradition result, and it is decisive on its own terms.

Grade: the naming result, supported only. The non-resolution result, established.

Breath 11. Silence

A real silence, and the rule for reading it

The Pleiades book established the rule at its sixth rung: **an absence in a vast record means something; an absence in a fragmentary record means nothing.**

Apply it here.

The absence of Praesepe from Australian, Polynesian, Khoe-San and African traditions in this sweep means **nothing**. Those records are partial, the sweep was shallow, and absence of evidence is all it is.

But the absence of a **number** from the Mediterranean record means a great deal, because that record is vast. Aratos, Hipparchus, Ptolemy, Pliny, and a thousand years of people who memorised them. The object is in the zodiac and could not be ignored. If anyone in that tradition had ever resolved it, somebody would have written it down, because they wrote down everything else about it.

And there is a second real silence. **The object has no story of its own anywhere.** Even in Greece, where it is well attested, the mythology is about the donkeys. This is the one object in the study with a name, a position, a function and no narrative, and the reason is that a fog cannot carry characters.

Breath 12. Drift

The clearest documented case of a name tracking a technology

Three stages, dated.

Before 1609. A manger, a crib, a stall, a mist, a cloud, a fog. Container and vapour. No number, no plurality, anywhere, for two thousand years.

1609. Galileo resolves forty stars [375].

After 1609. The Beehive: a container **with a swarm in it**. The vessel is kept and the contents are filled in.

Almost nowhere else in either book can a naming change be pinned to a cause with a date. Here the cause is an optical instrument, the date is known, and the shift in the name is exactly what the shift in the available perception predicts.

Which sharpens the whole argument about antiquity. Names are not inherited memories of what the sky used to look like. **Names are reports of what the eye is currently being given**, and when the eye is given more, the name changes within a generation.

Breath 13. Return

What it is for

A barometer, and a feeding trough for two donkeys.

Which is an odd pair until you see that both come from the same property. It is a trough because it has no visible parts, and it is a barometer because it has no concentrated light. **Faintness gave it both jobs**, and denied it every other job an object in the zodiac might have had.

WHAT WAS SEEN

- Singular-object names across every Mediterranean and Arabian tradition: container and vapour, with no plural anywhere.
- One heap-word, in Chinese, recorded as a counter-case and graded contested.
- A thousand years of expert naked-eye observation producing no resolution and no number.
- A working weather instrument, physically valid, structurally identical to the Andean Pleiades forecast.
- A name changing within a generation of a telescope, with the container surviving and the swarm poured into it.

WHAT WAS UNSEEN

- Any plural name, in any tradition, before 1609.
- Any count, from anybody, ever, before the telescope.
- Any story in which the cluster is a character.
- Any southern or Pacific tradition at all, which is this rung's real weakness.

THE GEOMETRY BENEATH

Low surface brightness. The single fact behind everything here. Light spread over a degree and a half rather than concentrated in points, which produces: no resolution, therefore no plurality, therefore a container name; and high sensitivity to thin cirrus, therefore a barometer.

Magnitude 3.7 integrated, nothing above 6 individually. Below the threshold where an eye separates members at that spacing, which is why the Greeks failed where they succeeded with the Pleiades at the same angular scale.

Declination plus nineteen, near the ecliptic. Unavoidable, occulted by the moon, crossed by the sun: hence the long record and the lunar mansion, and hence the silence being readable.

THE LEDGER

Claim	Grade
Praesepe is not plural to the unaided eye	established
Mediterranean and Arabian names are all singular objects	established
No ancient source gives it a number	established
No ancient source resolves it into stars	established
This constrains the claim that ancient eyes resolved more than modern ones	supported
Chinese Jishi contains a heap-word and is a counter-case	established as to the word; contested as to the reading
Greece, Rome and Arabia are one tradition here	supported
Aratos and Pliny used it as a storm sign	established from the texts
The storm sign works because cirrus dims extended sources first	established
It is structurally the same instrument as the Andean Pleiades forecast	supported
The Beehive name follows Galileo's resolution of the cluster	supported
The absence of southern and Pacific names is a gap, not a finding	established

NEAR-TRUTHS

- **"Praesepe is the Pleiades made fainter."** It is fainter and it is also a different kind of object to an eye: the Pleiades resolves and Praesepe does not. The interesting thing is not that it got fewer names but that it got a different **class** of name.
- **"The Chinese called it a heap, so the heap-name is not special to the Pleiades."** They called it the vapour above a heap of bodies, in the Ghost mansion. The heap is the explanation and the mist is the object. It is still the only counter-case in six objects, and it is recorded as one.

- **“Ancient people had much better eyesight than we do.”** They had darker skies, which is a different claim and a true one. On the specific question of resolving faint clusters, the longest continuous record we have says they could not resolve this one, and said so repeatedly, for a thousand years.

THREE ILLUMINATIONS

The First: You Cannot Populate a Fog

Greece gave the Pleiades seven sisters with names, parents, husbands, a pursuer and three competing accounts of a lost one. Greece gave Praesepe a feeding trough, and the only characters in the scene are the two donkeys standing outside it.

Same literature. Same zodiac. Same century. Fifty degrees apart.

The Pleiades delivers six or seven separable points, and separable points can take names, and names can take relationships, and relationships become a mythology.

Praesepe delivers a texture. **There is nothing in it for a name to attach to.** So the culture did the only thing available and named the whole patch as one object, and then, having no parts to work with, gave the story to the neighbours.

A mythology is not a measure of how important an object was. It is a measure of **how many handles the object offered**.

Grade: supported, and demonstrated inside a single literature.

The Second: Faintness Gives and Faintness Takes

The Pleiades is at the edge of resolution, and that is why it is called a heap in fourteen traditions, and why nobody could count it, and why the cultures that insisted on a number had to invent a lost sister.

Praesepe is past that edge, and that is why it is called a trough, and why it has no story, and why no one in a thousand years of professional observation wrote down a number for it.

And the same faintness, in both objects, made them into instruments.

The Andes watched the Pleiades’ brightness in June and forecast the rains eight months out, and *Nature* confirmed in 2000 that the method works, because El Niño brings the cirrus that dims it.

Greece and Rome watched whether Praesepe was there at all and forecast tomorrow's storm, and it works for the same atmospheric reason at a shorter range.

The property that defeats naming is the property that enables measurement. A faint extended object is useless for counting and excellent for detecting the state of the air it is seen through. Two civilisations that never met found the same use for the same defect, on two different clusters, and neither knew why it worked.

Grade: supported, and it joins the two books at their strongest points.

The Third: The Name Changed When the Eye Did, and We Have the Date

For two thousand years Praesepe was a container with unspecified contents. Manger, crib, stall.

In 1609 Galileo looked at it through a telescope and counted forty stars.

Within a few generations the English-speaking world was calling it the Beehive: the same container, now explicitly full of a swarm of small separate things.

This is the only place in either book where the entire chain is visible: a perception changes, the cause of the change is known and dated, and the name shifts to match within living memory.

It is also the quiet refutation of the thing both books have been circling. The Norris proposal asks us to believe that a name and its anomaly were carried, unchanged, for a hundred thousand years, surviving every migration and every language, because of how a cluster looked in the Pleistocene.

But here is a name that changed within a century of the eye changing, and it changed in a literate culture with a thousand-year written attachment to the old word, and nobody fought it.

Names are not memory. Names are the current report.

Grade: supported.

> ✦ **Practice: the fog that forecasts.** On a clear night in late winter or spring, find Cancer, which lies between the bright pair of Gemini and the sickle of Leo and contains almost nothing else. Low in the middle of that emptiness is a soft grey patch. Breathe gently, in through the nose, out a little longer, four or five times, and let the eyes have a few minutes in the dark without a screen. Look slightly to one side of the patch rather than straight at it, and let it come. Then ask the question Aratos asked. **Is it there tonight?** If the stars around it are sharp and the patch is gone, there is high cloud up there that you cannot see, and in a day or so the weather will change. You are

using a detector that nobody designed, for a reason that nobody understood for two thousand years, and it still works. Breathe gently, and never force or hold the breath.

WHAT THE LADDER HAS AFTER FOUR

All four properties have now been removed, one at a time.

Remove uncountability (Orion's Belt): no heap-name. Counted names instead. **Remove leaderlessness** (the Hyades): no heap-name. The group becomes a single possessed body. **Remove compactness and uncountability** (Ursa Major): no heap-name. Shape and count instead. **Remove plurality** (Praesepe): no heap-name. A container and a mist instead.

Four for four. **Every property is necessary.** The Pleiades is the only object in the near sky that holds all four at once, and it is the only object that gets the name.

New and unexpected. Two of the four controls turned out to be instruments in their own right, and the Praesepe one is the structural twin of the Andean practice from the first book. Faintness is now established as doing two jobs at once: defeating the count, and measuring the air.

New. The naming of Praesepe changed within a century of Galileo, which gives the study its only dated example of a name tracking a change in perception.

The weakness. This rung rests on two independent traditions. Every other rung has had at least five. The naming result here is graded supported and not established, and the pass says so in its own ledger.

Still to test. Nothing from the property list remains. What has not been tested is whether any of this holds in a sky that European and Asian astronomy never touched. Rung Five goes south, to the only object in the set that no literate northern tradition ever saw.

A note on evidence

The Greek and Roman weather material was read in English summaries of Aratos and Pliny rather than in the originals, and the Pliny line in particular circulates in several popular renderings. The Chinese names were read in English through Baidu Baike and secondary lists, which is exactly the weakness flagged in the gather, and the Jīshī question needs a sinologist before it is settled either way. One source used here for the Arabic stall is a popular astrology site and is graded contested on its own. No southern or Pacific source was reached at all. This pass is a mirror's work, held up for the author to check: it is a mirror, not a mind.

The Magellanic Clouds · The Pair That Are Never One

Why this is the fifth rung

Four properties, four removals, four confirmations. The account now looks solid, and that is exactly the moment to distrust it.

Because look at where the evidence came from. Mesopotamia, Greece, Rome, Arabia, India, China, Christian Europe. Literate astronomies, most of them in contact with each other for two thousand years, several of them demonstrably reading the same texts. Rung Four rested on two traditions and said so. Even the southern African and Australian material in Rung Two arrived through collectors who had read Greek.

So the honest question is whether this is a finding about perception or a finding about **the Eurasian literate tradition and the people who wrote it down**.

The Magellanic Clouds answer it, because no northern literate astronomy ever saw them.

They are below declination minus sixty-nine. Invisible from Mesopotamia, Greece, Rome, Arabia, India, China, Europe, the whole of the Mediterranean and all of the Silk Road. No Ptolemy. No *Almagest*. No Allen, no Olcott, no Hesiod. Ptolemy never catalogued them and could not have. The first European to write them down was a sailor.

Every name on this object was made by someone the rest of this study has been quoting other people about.

THE THIRTEEN BREATHS

Breath 1. Sky

What is actually up there

Two separate luminous patches in the far southern sky, well away from the Milky Way's main band, looking on a clear dark night like two torn pieces of it set adrift [390].

The Large Cloud spans about ten degrees, the Small about five. They are dwarf galaxies, each containing hundreds of millions to billions of stars, and they are the nearest galaxies of their kind to our own [401].

To the eye they are **two soft grey smudges**, and under southern skies without light pollution they are obvious: brighter and larger than Praesepe, impossible to miss, and permanently present. At most inhabited southern latitudes they are circumpolar, so like Ursa Major in the north they never set.

Breath 2. Threshold

Property	Pleiades	The Clouds
Plural	yes	**no**, two separate single patches
Compact	2 degrees	each one yes, about 5 and 10 degrees
Leaderless	yes	**yes**, completely, no star visible at all
Uncountable	yes	**yes**, nothing to count

So in the property table this object sits beside Praesepe: not plural, and therefore predicted to attract singular names.

But it adds something Praesepe did not have, and the pre-registration made a specific prediction about it. **There are two of them**, close together, obviously a pair, obviously alike. So the pre-registration predicted not only singular names but that the pair would be named more often than either member.

That prediction is the most falsifiable thing written in the whole document, and it is the thing this pass tests.

Breath 3. Name

The words themselves, from the peoples who actually looked at them

Aotearoa. Māori names for the Clouds include **Ngā Pātari-Kaihau** and **Te Reporepo**, the swamp [392]. Māori had names for both Clouds, for the Milky Way, for the Coal Sack and even for the zodiacal light, and the two Clouds were distinguished as separate things with names applied sometimes collectively and sometimes to one or the other [434].

Kamilaroi and Euahlayi country, New South Wales. Ridley recorded in 1873 that they are two **buralga**, brolgas, the tall grey cranes of the inland [395]. Parker's 1898 account makes them a mother and daughter who were pursued, caught by **Wilbaarr** the whirlwind spirit, turned into brolgas, and who went into the sky when they died [393, 395]. Howitt in 1904 recorded that the spirit of a dead man goes to a dark patch within them, called **Maianba**, reported as endless water or river [395].

Adelaide. Ngakallamurro, reported as paroquet-ashes: the white ashes of Blue Mountain lorikeets, who were gathered in that place and then treacherously roasted [394].

Western Australia. The camp of an old couple, the **Jukara**, too old to get their own food, who are supplied by other star people and cook over a fire [390, 394].

Central Australia. The Ngalia hold that spirits called the **Walanari** live in the Clouds [394]. That tradition touches restricted knowledge and nothing beyond the published line is recorded here.

European sailors. The **Cape Clouds**, used by Portuguese and Dutch crews for centuries, the name surviving until Magellan's displaced it [401].

Breath 4. Family

Scored against the pre-registration

The pre-registration predicted singular names of cloud, ash, fire, water, or a pair of animals or siblings.

Go down the list.

Fire: the campfire of the Jukara. **Ash:** Ngakallamurro, the ashes of the lorikeets. **Water:** Maianba, endless water; Te Reporepo, the swamp. **Cloud:** the Cape Clouds. **A pair of animals:** two brolgas. **A pair of siblings or kin:** a mother and daughter; an old couple.

Every single predicted category, found. And three of the four elements, fire, ash and water, appear in Australian traditions that had no contact with the people who wrote the prediction or with each other's recorders.

And no gathering-name. None. Nowhere.

Two objects made of hundreds of millions of stars each, the most star-rich things any of these peoples ever looked at, and not one person in any of these traditions called either of them a crowd, a heap, a herd, an assembly or a many.

Grade: established, and this is the rung's primary result.

Breath 5. Number

Two, and never more

Nobody counts the stars. There are nearly thirty billion of them across the two objects and not a single tradition registers that there is more than one thing in each patch.

But everybody counts the patches. Two brolgas. An old couple. A mother and a daughter. Two clouds.

So counting is happening, vigorously and accurately, at exactly the level where the eye can do it, and not at all below that level. The Clouds are **two**, and what is inside each of them is **not a number**, it is a substance: ash, smoke, water, cloud.

That is the entire argument of this study, said by people who never met, about an object the people in the rest of this study could not see.

Grade: established.

Breath 6. Neighbour

The pair is its own neighbour

The Clouds have no bright star in them and no bright star beside them. The Hyades mechanism cannot run, and the Praesepe arrangement with the two donkeys cannot run either.

So they furnish each other.

This is the finding the pre-registration half-predicted and did not fully anticipate. When an object has no bright neighbour to be absorbed by, annexed to or fed to, and there happens to be a second object just like it nearby, the two of them **become a relationship**, and the relationship is what gets named.

A mother and a daughter. An old man and an old woman. Two birds. The naming goes straight past the individual patches to the bond between them.

And look at what kind of bonds they are. In the Kamilaroi account the two are kin who were **chased together, caught together, transformed together and died together** [393, 395]. In the Western Australian account the two are a couple who cannot feed themselves and **depend on others together** [390, 394].

Nobody names one of them alone. The pair-prediction holds across every tradition reached.

Grade: established.

Breath 7. Figure

Substance, not structure

Ash. Smoke. Fire. Swamp. Endless water. Cloud.

Every one of those is **a material without parts**. Not a container like Praesepe, which at least implies a boundary and contents, but something looser: stuff.

This is a name-family the ladder has not produced before, and it comes from a property the ladder has not had before: these patches are **larger** than Praesepe and have **softer edges**. Praesepe is a degree and a half with a reasonably definite limit, so it reads as a thing in a place, hence a trough. The Large Cloud is ten degrees and fades out gradually, so it reads as a region of stuff, hence a swamp, a smoke, a spill of ash.

Angular size and edge definition, between them, decide whether a fuzzy object becomes a container or a substance. That is a new refinement and it belongs to this rung.

Breath 8. Story

Rich, and about the pair, and never about loss

The Kamilaroi story is a full narrative: two women, mother and daughter, chased by men, seized by the whirlwind spirit Wilbaarr, turned into brolgas, and placed in the sky at their deaths [393, 395].

Stop on that, because it contains the Pleiades motif almost exactly. **Women, pursued, transformed, placed in the sky.** It is the sisters-and-the-hunter structure, landed on a different object.

And what happens to it when it lands here?

The count changes to two, because there are two patches. **Nothing goes missing**, because two is countable and both are present. **No explanation is required**, because nothing needs explaining.

This is the Rung Two finding, repeated independently. The structure travels, the number is read off the object. On Ursa Major the hunt has seven members. On Orion's Belt it has three. On the Magellanic Clouds the pursuit has two women.

And on the Pleiades it has seven, which is more than the eye delivers, and **only there does somebody have to go missing.**

Grade: the Kamilaroi material, established on the modern re-analysis of Ridley, Parker and Howitt. The structural reading, supported, and it is the strongest independent replication of Rung Two in the ladder.

Breath 9. Year

Not a calendar. A compass, a barometer, and a road for the dead.

No calendar, and for the Ursa Major reason: at most southern latitudes where these traditions live, the Clouds are circumpolar. They never set, so they never return, so there is no date in them.

A compass, and this is the one use the whole Pacific agrees on. Polynesian and Australian peoples used the Clouds as navigational markers, and Polynesian navigators built an entire system of star paths and star houses in which the brightest fixed features of the southern sky are the furniture [390, 436]. The depth of that system is visible in the shared Polynesian star vocabulary, where the Pleiades is Mataliki in Tongan, Matariki in Māori and Makali'i in Hawaiian [437], and in the surviving Hawaiian and Māori name-lists for the southern sky [433, 435]. The Clouds are large, permanent, unmistakable and far south, which makes them exactly the kind of landmark a wayfinder wants.

A weather sign. They were taken as predictors of the winds [390]. Whether this works for the Praesepe reason, high cirrus dimming an extended object before it dims point sources, is not established here and is an obvious thing to test. **Open**, and flagged.

And a destination. Howitt's Kamilaroi account has the dead going to Maianba within the Clouds [395]. The Ngalia have spirits living in them [394].

So the Clouds get every job in this study except the one job the Pleiades always gets. They cannot be a calendar, for a geometric reason, and no amount of cultural importance overrides it.

Grade: the navigational and spiritual uses, established. The wind-forecasting mechanism, open.

Breath 10. Independence

The best independence profile in either book

This is the rung's whole purpose, so it is worth being exact.

Aotearoa Māori, Austronesian, arriving in the thirteenth century by sea. **Kamilaroi and Euahlayi**, Pama-Nyungan, inland New South Wales. **The Adelaide people**, South Australia. **Western Australian peoples**, several thousand kilometres away. **Ngalia**, Central Australia. **Portuguese and Dutch sailors**, sixteenth century, who named what they saw with no reference to any prior astronomy because there was none.

Six traditions, five of them from peoples the Eurasian literate world had no astronomical contact with, separated from each other by deserts and oceans, and none of them with access to a *Almagest*, a Hesiod, an Allen or an Olcott.

And the result is identical to the result from Babylon, Greece, China and Arabia. A non-plural object gets singular names. A countable pair gets counted. A pursuit story landing on a two-object sky produces two women and no missing one.

This is the pass that tells us the study is about eyes and not about libraries.

Grade: established.

Breath 11. Silence

What is not said, and what must not be asked

There are two silences here and they are of completely different kinds.

The first is the northern silence, and it is total and it means nothing. Mesopotamia, Greece, China and India say nothing about the Magellanic Clouds because the Magellanic Clouds are below their horizon. No inference of any sort can be drawn. This is the purest example in either book of an absence that is purely geometric.

The second is a silence that is chosen, and it is to be respected. The Ngalia tradition of the Walanari concerns consequences for revealing secret knowledge [394]. Several of the traditions

touching these objects are living and held, and the Seven Sisters material in Australia contains restricted content, as the Pleiades book recorded.

This study reports what the keepers of these traditions have themselves published and does not go behind it. Where a tradition has chosen what to make public, that choice is the boundary, and a researcher who treats a published fragment as a gap to be filled has misunderstood what they are looking at.

That is a methodological statement and it belongs in the ledger as a commitment rather than a claim.

Breath 12. Drift

Replacement by a sailor's name, within one lifetime

The Portuguese and Dutch called them the Cape Clouds, after the Cape of Good Hope, for a couple of centuries [401]. Then they became the Magellanic Clouds, after a man who sailed past them once in 1520 and did not discover them, since several thousand generations of people had been looking at them.

Meanwhile the brolgas, the ashes, the swamp and the old couple are still there, in the languages that made them, and most English-speaking southerners have never heard any of them.

That is the ordinary drift mechanism of this study, naming-by-empire, visible at close range and recently enough to be documented: **two names in five hundred years, neither of them from anyone who had lived under that sky.**

It is worth noticing which name this book is obliged to use in its own title and headings, and that the alternative would be to pick one of six living traditions and impose it on the rest.

Breath 13. Return

What they are for

A way home across water. A place the dead go. A fire two old people cook over. Two birds who were once a mother and a daughter.

And, in every tradition reached, **a pair**. Never one thing, never many things. Two.

WHAT WAS SEEN

- No gathering-name, in six traditions, five of them with no contact with literate northern astronomy.
- Singular substance-names throughout: ash, smoke, fire, swamp, endless water, cloud.
- The pair named far more often than either member, exactly as pre-registered.
- A pursuit-and-transformation story identical in structure to the Pleiades motif, with the count set to two and nothing missing.
- Navigation, spirit-destination and weather, but never a calendar.

WHAT WAS UNSEEN

- Any recognition that the patches contain many stars, from anyone, which is correct, since nothing in them resolves.
- Any name for one Cloud that does not imply the other.
- Any missing member, anywhere.
- Any northern tradition at all, for the purely geometric reason that the object is below the horizon.

THE GEOMETRY BENEATH

Declination below minus sixty-nine. Invisible from everywhere the rest of this study's evidence came from, which is why this rung can test for library-contamination.

Ten degrees and five degrees, with soft edges. Too large and too diffuse to be a container, so they become substances rather than vessels. This is the refinement this rung adds.

No resolvable star in either. The most extreme leaderlessness and the most extreme uncountability in the set, and still no heap-name, because the first property is missing.

Circumpolar at southern latitudes. Never set, therefore never return, therefore no calendar, exactly as with Ursa Major in the north. The same geometry produces the same refusal in two hemispheres among peoples who never met.

Two of them, about twenty degrees apart. Countable, obviously paired, obviously alike. Hence the relationship-naming.

THE LEDGER

Claim	Grade
The Clouds attract no gathering-names in six traditions	established
Their names are substances, not containers and not groups	established
The pair is named more often than either member	established, as pre-registered
Five of the six traditions had no contact with literate northern astronomy	established
Therefore the study's results are not an artefact of the Eurasian literature	supported, and this rung is the reason
The Kamilaroi account is a pursuit-and-transformation story with the count set to two	established
A travelling story takes its number from the object it lands on	supported, replicating Rung Two
The Clouds are used for navigation across the Pacific and Australia	established
They were taken as wind predictors	established as a reported practice
Whether the wind-prediction works by the Praesepe cirrus mechanism	open
Large angular size with soft edges produces substance-names rather than container-names	supported, new at this rung
The Australian material rests on Ridley, Parker and Howitt, colonial-era collectors	established, and the standard caution applies

NEAR-TRUTHS

- **"Magellan discovered the Magellanic Clouds."** He sailed under them in 1520. Portuguese and Dutch sailors had been calling them the Cape Clouds already, and the peoples of Australia and the Pacific had been naming them for tens of thousands of years. The name records who wrote it down in a language that won.
- **"They are the richest star fields visible to the naked eye, so they must have seemed full of stars."** They contain something like thirty billion stars and not one of them resolves. Every tradition that looked at them correctly reported a substance. Richness is not perceptible; separation is.

- **"Indigenous Australian astronomy is about stories."** The traditions here carry a navigational system, a weather sign, a spirit geography and an accurate account of what the objects look like. The story is the carrier, not the content, and the Pleiades book found the same thing at every rung.

THREE ILLUMINATIONS

The First: The Study Is About Eyes, Not Libraries

This was the real risk, and it had to be taken seriously. Nearly everything in both books came from traditions that could read each other: Babylon to Greece to Rome to Arabia to medieval Europe, with India and China in contact at the edges, and most of the surviving records filtered through nineteenth-century collectors who had been taught Latin.

A sceptic could have said, reasonably, that this is not a finding about human perception. It is a finding about one enormous interconnected scholarly tradition and the people who transcribed everything else into its categories.

The Magellanic Clouds cannot be that. **They are below the horizon of every single source in that chain.** Ptolemy never saw them. Neither did Hipparchus, al-Sufi, Hesiod, the Shijing, the Rigveda, or anybody who wrote anything the rest of this study quotes.

And the peoples who did see them, in Aotearoa and across the width of Australia, produced exactly the result the northern traditions produced: a non-plural object gets singular names, a countable pair gets counted correctly, and nothing goes missing.

The account survives the test that could have made it provincial. It is about what an eye does with light, and eyes are the one thing every tradition in both books genuinely shares.

Grade: supported, and it is the most important thing this rung does.

The Second: When There Is Nothing Brighter, the Pair Becomes the Thing

Across three rungs the ladder has watched what a bright neighbour does to a faint group: the Hyades is **absorbed** into a jaw and a foot, Praesepe is **furnished** as a trough for two donkeys, Orion's Belt is **annexed** as a hunter's gear but keeps its three.

The Clouds have no bright neighbour at all. There is nothing in that part of the sky to be owned by.

So they take hold of each other.

Mother and daughter. Husband and wife. Two brolgas who were chased and transformed together. In every tradition reached, the naming jumps straight past the individual patches and lands on **the bond**.

Which suggests something about perception that neither book went looking for. The eye does not seem willing to leave a faint object standing alone. It will attach it to the brightest thing available; and if nothing bright is available, it will attach it to the nearest thing like itself.

A faint thing is never named by itself. It is named by what it is with.

Grade: supported, on six traditions.

The Third: Here Is the Sisters Story, With the Wound Removed

The Kamilaroi have two women, a mother and a daughter, pursued, seized by a spirit, transformed into birds, and set in the sky [393, 395].

Pursued women, transformed, placed among the stars. That is the Pleiades motif, element for element.

And there is no lost one. Nobody is hiding. Nobody is ashamed. Nobody has fallen. Both of them are up there and anybody can see them, and the story has no gap in it to repair.

Why? Because there are two patches, and the story says two women, and two is what the sky delivers. The arithmetic closes.

Set that beside Greece, where the same motif carries seven sisters and the sky delivers six, and where three different authors wrote three different explanations for the shortfall. And beside the Cherokee, with seven boys and a pine tree. And beside Māori, with nine and a recovery.

Four peoples, one structure, four different counts, and **the wound appears only and exactly where the count exceeds what the eye can find.**

The first book argued this from thirteen peoples and three hundred sources. This rung shows it on a different object, in a tradition the first book never asked, under a sky no literate astronomer ever recorded.

The sisters were never carried. **The structure was carried, or reinvented, and every sky filled in its own number, and only one sky in the world set a number its own stars could not meet.**

Grade: supported, and it is the clearest single statement of the whole project.

> ✦ **Practice: the two that are never one.** This one needs a southern sky. If you are north of about twenty degrees north you cannot do it, and that fact is itself part of the lesson. On a clear dark night away from towns, look well south and find two soft grey patches, one noticeably larger than the other, sitting apart from the band of the Milky Way. Breathe gently, in through the nose, out a little longer, four or five times, and give the eyes several minutes without any light. Now notice two things in turn, one breath apart. **That you cannot see a single star in either of them**, and that there are something like thirty billion of them in your eye at this moment. **And that you cannot look at one without the other.** Try it. The eye keeps going back and forth. They are a pair before they are two objects, and every people who ever lived under this sky said so. Whatever you are moved to call them, notice that it is a word for stuff: smoke, ash, water, cloud. You have just arrived, unaided and in under a minute, at the same word six unrelated peoples arrived at. Breathe gently, and never force or hold the breath.

WHAT THE LADDER HAS AFTER FIVE

Established, and this is the rung's job. The account is not an artefact of the Eurasian literate tradition. Five traditions with no contact with it produce the same results on an object it never saw.

Established. All four properties are necessary, and the fifth rung confirms the plurality requirement independently of Praesepe and on a much better evidence base.

Established, as pre-registered. The pair-prediction, the most specific thing in the pre-registration, holds in every tradition reached.

Supported, replicating Rung Two on a new object and a new continent. A travelling or reinvented story structure takes its number from the object it lands on. Seven on Ursa Major, three on Orion's Belt, two on the Clouds, and the wound appears only where the number exceeds the sky.

New. Angular size and edge definition decide whether a non-plural fuzzy object becomes a container or a substance. Praesepe is a trough; the Clouds are smoke and ash.

New. With no bright neighbour available, a faint object is named by its relationship to the nearest thing like itself. A faint thing is never named alone.

Still untested. Compactness has only ever been removed alongside something else: with uncountability at Ursa Major, and not at all elsewhere. Rung Six removes compactness on its own, holding plurality, leaderlessness and uncountability, which is the last combination the ladder has not seen.

A note on evidence

The Australian material in this pass rests on Ridley (1873), Parker (1898) and Howitt (1904), nineteenth and early twentieth-century collectors, read through the modern re-analysis by Fuller, Hamacher and Norris, which is the better source and is what is cited. The Adelaide and Western Australian items come through a research blog rather than a peer-reviewed paper and are graded accordingly. No Gamilaraay, Kaurna or Te Reo source was read directly. The Hawaiian and Tongan name-lists consulted did not yield usable Cloud names and are not cited for any. Where a tradition is living and has chosen what to publish, nothing beyond that is recorded here, and nothing restricted was sought. This pass is a mirror's work, held up for the author to check: it is a mirror, not a mind.

Coma Berenices · What Cannot Be Gathered

Why this is the sixth rung

One combination remains untested.

Compactness has been removed once, at Ursa Major, and it came away with uncountability attached, so that rung could not say which of the two mattered. Every other object in the ladder has been compact. This is the last gap in the design.

Coma Berenices fills it.

It is **plural**: a dozen or so stars resolve on a good night. It is **leaderless** to an extreme, with nothing in the constellation brighter than magnitude 4.26 and the star cluster itself fainter still [379]. It is **uncountable**, with members fading off past the limit and no edge anywhere.

Three properties held, and all three are the Pleiades' own, two of them held more strongly.

One is broken. **It is not compact.** The Coma Star Cluster fans out across roughly five degrees and the wider scatter runs further, so its members are nowhere near each other by the standard of anything else in this study.

This is therefore the nearest thing the ladder has to a pure test of compactness alone. And it is also, by some distance, the weakest rung in the book, for reasons set out at Breath 10.

THE THIRTEEN BREATHS

Breath 1. Sky

What is actually up there

A faint, loose fan of stars below the tail of Leo, in a region with no bright star of any kind. The brightest thing in the whole constellation is Beta Comae Berenices at 4.26, a star very like the sun [379]. The constellation contains no bright stars at all, and is known instead for what lies beyond it: the North Galactic Pole and one of the richest galaxy clusters known [379, 380].

To the naked eye in a dark sky it is a diffuse glimmer that resolves, with patience, into a scattering of faint points fanning out below Gamma Comae [380].

It is the faintest and most dispersed object in this study, and it sits in the emptiest patch of the northern spring sky.

Breath 2. Threshold

Property	Pleiades	Coma Berenices
Plural	yes	**yes**, about a dozen resolve
Leaderless	brightest 2.9	**yes, more so**, nothing above 4.26
Uncountable	yes	**yes, more so**, no edge at all
Compact	2 degrees	**no**, about 5 degrees and fanning

One variable, and the direction of the error again runs the right way. Coma is **more** leaderless and **more** uncountable than the Pleiades. If those were doing the work, this object should be a heap in every language that saw it.

Breath 3. Name

The words themselves

Mesopotamia, and this is the important one. The stars here, with the tail of Leo and part of western Virgo, formed the asterism **Sissinnu**, an Akkadian word meaning the frond, spadix or branch of a date palm [438, 440]. It belonged to the goddess **Erua**, later Sarpanitum, who is drawn holding her date-palm branch [439, 441]. A Late Babylonian citation places the Date-Frond in her right hand [438]. Gavin White reads the Frond and the neighbouring Furrow as the two staple crops of Babylonia, dates and barley [441].

The All Skies Encyclopaedia states the position plainly: in Mesopotamia what stood in this place was the panicle of Erua's date palm, and it was neither a tuft of hair nor a queen's curl [377].

Greece, in two stages. Aratos, around 275 BCE, treats these stars as part of **Leo's tail** [442]. Then around 241 BCE Konon of Samos, court astronomer to Ptolemy III, named them for the hair of Queen Berenice II, which she had dedicated and which vanished from the temple: *plókamos*, *bostrukhon Berenikes*, the lock of Berenice [377, 379, 424]. Ptolemy kept them on Leo's tail in the *Almagest* [378]. The constellation then more or less vanishes from use until Kepler in 1629 [424].

Arabia. al-Dafīra, **al-Hulba**, **al-Du'āba**, **al-Ẓafīra**: the tuft, the braid, the tail-tuft, placed on the tail of Leo [378, 380, 382].

China. Lángwèi 郎位, the seats or positions of the court attendants, inside the Supreme Palace enclosure [377, 381]. The surrounding region is administrative throughout, with ministers, feudal lords and enclosure walls across the whole quadrant [381]. The Chinese system developed on its own line from at least the fifth century BCE, which makes it a genuinely separate observer here [443].

And the one Pacific trace. A Tongan term, *Fatanalua*, is listed against Coma Berenices and marked as speculative by the compilers themselves [437]. It is recorded here and scored at nothing.

Breath 4. Family

Scored against the pre-registration

The pre-registration predicted names of **dispersal**: hair, veil, dust, chaff, scattered things, and predicted gathering-names absent because the thing is not gathered.

The prediction holds, and the best evidence for it is the one that cannot have come from the Greek.

A **panicle** or **spadix** is the botanical term for a branching flower-cluster: a stem that divides and divides again and ends in many small scattered florets. It is, precisely, **many small things spread out on a frame**. Babylon looked at a dozen faint stars fanning out across five degrees of empty sky and called it a date-palm frond.

And Greece and Arabia, independently of Babylon but not of each other, called it **hair**: a tuft, a braid, a lock, a tail-tuft. Hair is the same perception in a different vocabulary. Many fine strands, spread out, no two of them the thing itself.

A frond and a lock of hair are the same idea. **Many fine parts, attached loosely, going outwards.**

No heap. No crowd. No assembly. Nothing gathered, in any tradition reached.

Grade: supported. Not established, and Breath 10 says why.

Breath 5. Number

Nobody counts it, and nobody misses anything

No tradition reached commits to a number for Coma. Not Babylon, not Greece, not Arabia. The Chinese asterism has a count of stars as all Chinese asterisms do, but it is a roster of posts rather than a claim about the object.

And nothing is missing from it anywhere. No lost strand. No absent frond. No explanation.

The correlation established across the first book and five rungs of this one holds again, now at the sixth object: **no committed count, no missing member.**

Grade: established.

Breath 6. Neighbour

Annexed to the lion, by everyone who saw it

Coma has no bright star of its own, and the nearest bright thing is Denebola, the tail of Leo, at magnitude 2.1.

And three unrelated traditions all attach the faint stars to it.

Babylon puts the Frond with Leo's tail stars [438, 444]. **Greece** before Konon has them as part of Leo's tail [442]. **Arabia** has them as the lion's tail-tuft [378, 382].

The same move as the Hyades, one step weaker because Denebola is not inside the group and is only moderately bright. The faint stars are not absorbed into Denebola; they are made into **an appendage hanging off it**.

So the ladder now has four grades of this, and they sort by how bright the neighbour is and where it sits.

Neighbour	Result	Object
Very bright, inside the group	absorbed; the group becomes a body or possession	Hyades
Moderately bright, outside, adjacent	appendage; the group becomes a tuft or frond on it	Coma
Moderate, outside, flanking	furnished; the group becomes the thing between them	Praesepe
Bright, but the group is countable	annexed; the group becomes gear and keeps its number	Orion's Belt
None	the pair becomes its own relationship	Magellanic Clouds
None, and bright enough itself	named for itself	Ursa Major, Pleiades

That table is the real result of the ladder's middle rungs, and it did not exist before this pass.

Breath 7. Figure

Many fine parts on a frame

A frond. A braid. A lock. A tuft. A spray.

Every one of those is **a bundle of filaments**, and a bundle of filaments is what you get when you see several faint things spread over a wide angle with nothing dominant and no boundary.

Compare the two other non-heap fuzzy outcomes the ladder has produced:

- **Compact with a hard edge** gives a **container**: Praesepe's manger and crib.
- **Large with a soft edge** gives a **substance**: the Clouds' ash and smoke and swamp.
- **Spread out but with resolvable points** gives a **bundle of strands**: Coma's frond and hair.

Three different fuzzy objects, three different name-families, and the difference between them is angular size, edge definition and whether anything resolves. Not culture. Not history. **Optics.**

Breath 8. Story

A real story, and it is about a woman's hair and not about the stars

Berenice II, wife of Ptolemy III, vowed her hair for her husband's safe return from the Syrian war. She cut it and dedicated it in a temple. It disappeared overnight. Konon, the court astronomer, told her it had been taken into the sky, and pointed at some faint stars near Leo's tail [377, 379, 424].

This is the only named, dated, single-authored constellation origin in either book. We know who, when, where and why: a courtier covering a politically awkward theft in Alexandria in 241 BCE.

And it is worth holding beside the Pleiades proposal for one moment.

Here is a star-group whose name has a documented origin, an author with a name, a precise date, and a specific political motive. And the thing that strikes you is how **thin** it is. The constellation then drops out of use for nearly nineteen centuries and has to be revived by Kepler [424].

An invented name with a court behind it barely survived two thousand years in the tradition that invented it. The proposal under test asks us to believe that an anomaly in a count was carried, undamaged, for a hundred thousand years by people with no writing.

Grade: the Berenice story, established from Eratosthenes onward. The comparison, offered as a comment and graded symbolic.

Breath 9. Year

Nothing. And this is the first time.

Coma does no calendar work anywhere in this sweep. No planting sign, no new year, no festival, no rite, no weather use.

It is the only object in either book with no function at all.

Thirteen peoples used the Pleiades to run the year. Ursa Major is a compass across Eurasia and America. Orion's Belt is a calendar across the tropics and a *qibla* pointer in Java. The Hyades is rain in Greece, Babylon, China and England. Praesepe is a barometer from Aratos to the Middle Ages. The Magellanic Clouds are a road for the dead and a navigational mark across the Pacific.

Coma Berenices is a tuft on a lion.

And the reason is geometric, and it is the same reason as all the others. **It is too faint and too diffuse to deliver an event.** A heliacal rising needs a thing that appears; a group with no edge and no star above magnitude four does not appear, it gradually becomes available. There is no date in it.

So the function column, which has been full in some form for every object in both books, is finally empty, and it is empty exactly where the optics predict.

Grade: established as an absence in the traditions reached; see Breath 11 on how far that can be read.

Breath 10. Independence

Two votes, one of them disputed, and this rung says so

This is the weakest evidence base in the ladder and the pass is graded accordingly.

Greece and Arabia are one tradition. Ptolemy put these stars on Leo's tail; Arabic astronomy worked from Ptolemy; the Arabic names are tufts on a lion's tail [378]. Counting the Greek hair and the Arabic tuft as two independent arrivals at a dispersal-name would be exactly the self-deception the pre-registration warned about. **One vote.**

Babylon is the second vote, and it is genuinely independent, and it is the one that matters. The Date-Frond is attested in Babylonian star lists in Akkadian, with its own goddess and its own agricultural logic pairing it with the Furrow [438, 439, 441], and the specialist encyclopaedia states outright that what stood there was the palm panicle and not a queen's hair [377]. Nobody is translating anybody.

China is a third vote and it is ambiguous. Lángwèi is the seats of the court attendants. Is a body of officials an assembly, and therefore a gathering-name scoring against the prediction?

Two hands, and the pre-registered rule decides it.

The rule says score a gathering-name only where the literal sense is a heap, crowd, group, herd, assembly, many, or together. **位 wèi means a position, a seat, a rank.** The name is a set of **individually ranked offices**, and the surrounding Chinese sky is administrative throughout, with named ministers and lords filling the whole enclosure [381]. That is individuation, not heaping: each star gets a post and a number.

And that reading is not a convenience. It is what Rung Two predicted. Where stars are separable, they become a cast rather than a crowd, and Coma's stars are spread across five degrees and are extremely separable. The Seri gave three stars three species; China gave a dozen stars a dozen offices. Same move.

Scored as not a gathering-name, with the ambiguity recorded and the item left open for a sinologist.

So: **two clear independent votes and one ambiguous third.** That is not enough to establish anything, and the naming result at this rung is graded **supported** and no higher.

Grade: the independence analysis, established. The naming result it supports, supported only.

Breath 11. Silence

A vast silence, and most of it cannot be read

Nothing from Australia, Polynesia, southern Africa, the Khoe-San, the Amazigh, the Americas, India or Japan. The Tongan item is marked speculative by its own compilers [437].

By the rule from the first book, almost all of that is unreadable. These records are fragmentary and the sweep was shallow, and an object of magnitude 4 and below in an empty patch of sky is precisely the kind of thing a survey misses even where a name exists.

But one silence here is readable, and it is the same kind as the Praesepe one.

Mesopotamia and China between them produced the two most complete star-naming systems of the ancient world: thousands of years of records, every patch of visible sky assigned, nothing left blank. Both of them reached this region and both of them gave it a name, and **neither of them gave it a heap-name**, and neither gave it a function.

That is an absence in a vast record, and the first book's rule permits reading it.

Grade: the Eurasian silence on function, readable and established. All other silences at this rung, unreadable.

Breath 12. Drift

Invented, abandoned, revived, and nearly lost

Invented, in 241 BCE, by a named man for a named queen. **Not adopted**: Ptolemy left the stars on Leo's tail and did not take up Konon's constellation [378, 442]. **Abandoned** for the better part of nineteen hundred years. **Revived** by Kepler in 1629 [424]. **Made official** by the IAU in the twentieth century, and the brightest star in it now carries the name Diadem, the band or fillet of a queen's crown [382].

Set against the Pleiades, whose name is attested continuously in every tradition it belongs to for as long as those traditions have written anything, this is a constellation that barely held on.

The lesson is the one from Rung One, from the opposite direction. There, Benetnasch survived a thousand years by becoming meaningless. Here, Berenice's hair nearly died because it never stopped meaning something specific: a particular woman's hair, in a particular court, in a particular political crisis. **A name tied to an event has to be remembered. A name tied to what the eye sees does not.**

That is why *Subaru*, gathered together, is still the name of a car company and *plókamos Berenikes* is a footnote.

Breath 13. Return

What it is for

Nothing, in any tradition reached. It is the only object in either book of which that can be said.

And so what it is for, in this study, is to mark the lower boundary. **Below a certain brightness and above a certain spread, the sky stops handing out jobs.** Every other object in both books was given work by somebody. This one was given a decoration and then forgotten for nineteen centuries.

WHAT WAS SEEN

- Dispersal-names in every tradition reached: a frond, a spadix, a lock, a braid, a tuft.
- Babylon arriving at a botanical spray independently of the Greek, which is the rung's one solid vote.
- China assigning individual ranked offices rather than a crowd, which is the Rung Two prediction holding at a sixth object.
- No committed count and nothing missing.
- No calendar, no rite, no weather use, no function of any kind.

WHAT WAS UNSEEN

- Any heap, crowd or assembly name.
- Any use. Anywhere.

- Any southern, Pacific, African or American tradition, which is this rung's defining weakness.
- Any continuity: the Greek constellation was abandoned for nineteen centuries.

THE GEOMETRY BENEATH

Five degrees and fanning, with no boundary. Too spread to be one thing, so no container and no substance. The parts stay visible as parts, so the name becomes a bundle of filaments.

Nothing above magnitude 4.26. No leader, by a wider margin than the Pleiades, and still no heap-name, because compactness is missing.

And faint enough to deliver no event. No sharp heliacal rising is possible for a diffuse magnitude-4 scatter, so there is no date in it, so there is no calendar, so there is no rite, so there is no story that needed it. The empty function column at Breath 9 follows from the photometry alone.

THE LEDGER

Claim	Grade
Coma attracts no gathering-names in the traditions reached	supported
Its names are dispersal-names: frond, spadix, hair, braid, tuft	established
Babylonian Sissinnu is a date-palm frond and is independent of the Greek	established
Greek and Arabic names are one tradition, not two	supported
Chinese Langwei names ranked offices rather than an undifferentiated many	supported; open for a sinologist
No tradition commits to a count, and nothing is missing	established
The object has no calendar, rite or weather function anywhere reached	established as an absence in the Eurasian record
The reason is that a diffuse magnitude-4 scatter delivers no heliacal event	supported
Konon invented the constellation in 241 BCE for Berenice II	established
Ptolemy did not adopt it; Kepler revived it in 1629	established
This rung rests on two clear independent votes	established, and it is why the headline result is graded supported

NEAR-TRUTHS

- **"Coma Berenices is an ancient constellation."** The stars are ancient and Babylon named them. The constellation is a Hellenistic court invention of 241 BCE that was ignored by Ptolemy and forgotten until Kepler.
- **"Three cultures independently saw hair in these stars."** Two of them are one culture reading the other's book. The third saw a date-palm frond, which is the same perception in a different economy: many fine parts spread out on a stem.
- **"Faint objects get ignored."** They get named and given nothing to do. Coma has names in at least three major traditions and a function in none of them, which is a different and more interesting fact.

THREE ILLUMINATIONS

The First: Babylon Said Frond, Greece Said Hair, and They Are the Same Sentence

Two literate traditions, no contact in this naming, two different economies, two different goddesses, two different millennia.

Babylon: the panicle of a date palm, held by Erua, paired with the Furrow as dates are paired with barley. Greece: the cut hair of a queen, dedicated in a temple and taken up into the sky.

A palm spadix and a lock of hair have nothing in common as objects. One is agricultural and one is cosmetic. One belongs to a harvest goddess and one to a specific woman who lived and was murdered.

But they are the same perception, exactly. Many fine things, attached loosely at one end, spreading outward, none of them individually the point, and no boundary where they stop.

Each culture reached into its own life for the nearest thing of that shape. Babylonia, which ate dates, found a frond. Alexandria, which had a political problem involving a haircut, found hair.

The vocabulary is local and the perception is not. That is the whole method of this study, stated in two words from two dead languages.

Grade: supported, on the strength of the Babylonian independence.

The Second: The Fuzzy Objects Sort Themselves by Optics

Three objects in this ladder are too faint to resolve properly, and they get three completely different name-families, and nobody chose which.

Praesepe: compact, about a degree and a half, reasonably hard edge. A **container**. Manger, crib, stall, hive. **The Magellanic Clouds**: large, five and ten degrees, soft edges fading out. **Substances**. Ash, smoke, swamp, endless water, cloud. **Coma Berenices**: spread over five degrees but with points that resolve. A **bundle of strands**. Frond, spadix, braid, tuft, lock.

Three fuzzy things, three families, and the sorting variable is angular size, edge definition and whether anything separates out. The traditions involved span Babylon, Greece, Rome, Arabia, China, Aotearoa and four Australian language groups.

This was not predicted. The pre-registration lumped all the non-plural and dispersed objects into one expectation of singular names, and the record is finer-grained than the prediction was.

A fuzzy patch does not simply fail to be a crowd. It becomes a specific other thing, and which other thing is decided by its optics.

Grade: supported, and it is new at this rung.

The Third: The Sky Hands Out Jobs, and This One Got None

The Pleiades runs the year for thirteen peoples. The Bear gives direction across two continents. The Belt marks the seasons across the tropics and points to Mecca. The Hyades brings rain in four traditions. Praesepe forecasts tomorrow's storm. The Clouds carry the dead and steer canoes.

Coma Berenices does nothing, for anyone, anywhere this study could reach.

And it is not because nobody noticed it. Babylon named it, Greece named it twice, Arabia named it, China gave it a dozen court offices. It was seen, repeatedly, by the most attentive sky-watchers in history.

They just had no use for it, because a diffuse scatter of fourth-magnitude stars with no edge does not produce an event, and a sky-object without an event cannot anchor a date, and an object that cannot anchor a date gets no rite, no festival, no proverb and no story that needs it.

Which closes something the first book left slightly open. *The Seven Who Are Six* found the calendar column full for the Pleiades and concluded that the function was older than the story. This rung supplies the control: **here is an object where the function was never possible, and it has no story either.**

Function first, then story, and when there is no function there is almost nothing at all.

Grade: supported.

> ✦ **Practice: the thing with no edge.** On a clear spring night, well away from towns, find Leo in the southern sky and follow his body back to Denebola at the tip of the tail. Then look to the east of it, into what seems to be an empty patch. Breathe gently, in through the nose, out a little longer, four or five times, and give the eyes a full ten minutes with no light at all. This one needs patience that the Pleiades does not. Something will begin to be there. Not a shape, not a knot, not a patch, but a faint granular glimmer that spreads. Now try, honestly, to find its edge. There is not one. It simply becomes fewer, in every direction, until it is nothing. Two dead languages

reached for the only objects in their world that behave that way: a palm frond, and a woman's loosened hair. Notice that you have no word for it either, and that the one you reach for will come from your own life. Breathe gently, and never force or hold the breath.

WHAT THE LADDER HAS AFTER SIX

The design is complete. Every property has been removed, and compactness has now been removed on its own.

Remove plurality (Praesepe, the Clouds): container-names and substance-names. No heap. **Remove compactness** (Coma): dispersal-names. No heap. **Remove leaderlessness** (the Hyades): the group becomes a single possessed body. No heap. **Remove uncountability** (Orion's Belt): counted names. No heap. **Remove two at once** (Ursa Major): shape and count. No heap.

Six objects, six removals, no heap-name anywhere, with one contested Chinese exception at Praesepe recorded in full.

All four properties are necessary. The Pleiades is the only object in the near sky that holds all four, and it is the only object that gets the name.

And the ladder has produced three things nobody predicted. A taxonomy of what a bright neighbour does, from annexation to absorption. A sorting of fuzzy objects into containers, substances and bundles by optics alone. And a demonstration, at this last rung, that an object with no possible function acquires almost no culture at all.

What remains is to walk the six together, and to ask what the whole thing says.

A note on evidence

This is the thinnest rung in the book and its headline is graded supported rather than established for that reason. The Babylonian material was read in English through the All Skies Encyclopaedia, a journal article on the Date-Frond, a popular guide to the Babylonian constellations and a star-lore compilation; no cuneiform was read and no Assyriologist was consulted. The Chinese reading of Lángwèi is this study's and is explicitly left open. One source consulted for the Babylonian text is an amateur etymological blog whose wider claims this study does not endorse and which is cited only for the star-list line it quotes. The Tongan item is marked speculative by

its own compilers and is scored at nothing. This pass is a mirror's work, held up for the author to check: it is a mirror, not a mind.

PART THREE

The Whole

Thirteen Breaths of the Six

What was done

A book ended with a question, and the question was whether its own main finding meant anything.

The Seven Who Are Six had found that fourteen traditions in at least nine unrelated language families named the Pleiades for the fact that it is a gathering, and had explained it by three properties: plural, compact, leaderless. The trouble with that explanation was that it was built from one object. An account assembled from the thing it explains is not an account. It is a description wearing a hypothesis as a coat.

So six predictions were written down and fixed before any searching, each one naming an object that breaks a different property, and each one saying in advance what would falsify it. Then the six were walked, thirteen breaths each, in an order where every rung was the hardest available test of what the rungs below it had established.

One result arrived before the first search. Orion's Belt is plural, compact and leaderless, and it is never called a heap by anyone, which meant the original three were wrong as stated. A fourth property had to be added: the object must also be **past the point where counting is easy**. That refinement was written into the pre-registration before any evidence was gathered for it, which is why it counts.

What follows is the six held together.

THE THIRTEEN BREATHS OF THE SIX

Breath 1. Sky

Seven objects, counting the Pleiades as the thing being explained.

Object	Extent	Brightest member	What an eye gets
Pleiades	2°	2.9	six, sometimes seven, flickering
Orion's Belt	3°	1.69	three, instantly
Hyades	5°	0.9	one orange star and a haze
Praesepe	1.5°	nothing above 6	a smudge
Coma Berenices	5° and fanning	4.26	a granular glimmer with no edge
Magellanic Clouds	10° and 5°	nothing	two soft patches
Ursa Major	25°	1.76	seven, in a shape

Everything in this book comes out of that table.

Breath 2. Threshold

Object	Plural	Compact	Leaderless	Uncountable	Heap-name
Pleiades	yes	yes	yes	yes	**yes, 14 traditions**
Orion's Belt	yes	yes	yes (most)	**no**	no
Hyades	yes	yes	**no**	yes	no
Praesepe	**no**	yes	yes	yes	one contested
Magellanic Clouds	**no**	yes	yes	yes	no
Coma Berenices	yes	**no**	yes	yes	no
Ursa Major	yes	**no**	yes	**no**	no

One row holds all four. One row has the name.

Six removals, six confirmations, with the single contested Chinese case at Praesepe recorded in full rather than explained away.

All four properties are necessary. The Pleiades is the only object in the near sky that holds all four at once.

Breath 3. Name

What each object actually gets called, gathered.

The Pleiades: a heap, a herd of camels, the Stars, a crowded bunch, an army of scattered detachments, a marketplace, an assembly, to gather together, gathered together.

Orion's Belt: three pigs, three zebras, three tortoises, three kings, three Marys, three brothers, three paddlers, three young men, three vertebrae, a yardstick, an ell, a scale, a line, a belt, a three-jointed arrow, and among the Seri a mule deer, a pronghorn and a bighorn sheep.

The Hyades: the jaw of the bull, the crown of Anu, the face of Taurus, little sows, the little she-camels, the cart of Rohiṇī, the Net, the left foot of Kambugudha, the April Rainers.

Praesepe: a manger, a crib, a stall, a little mist, a little cloud, a foggy star, a gap, a beehive.

The Magellanic Clouds: two brolgas, an old couple, a mother and daughter, paroquet-ashes, endless water, the swamp, the Cape Clouds.

Coma Berenices: the frond of Erua, a palm spadix, a lock of hair, a braid, a tuft, the seats of the court attendants.

Ursa Major: a wagon, a plough, a dipper, a saucepan, a ladle, a bushel, a bier, a bear, a camel, seven oxen, seven sages, seven gods, the drinking gourd.

Read that list and the sorting does itself. **Only one of those seven objects is ever a crowd.**

Breath 4. Family

The name-families, and which optical condition produces each.

Condition	Name family	Object
plural, compact, leaderless, uncountable	**gathering**	Pleiades only
countable	**a count**, or a thing with units	Orion's Belt, Ursa Major
a bright star inside	**a body or a possession**	Hyades
not plural, compact, hard edge	**a container**	Praesepe
not plural, large, soft edge	**a substance**	Magellanic Clouds
plural but spread, points resolving	**a bundle of strands**	Coma Berenices
not compact, with a strong outline	**a shape**	Ursa Major

Seven conditions, seven families, and the mapping is one to one.

Nobody chose any of it. The traditions filling that table include Sumerian, Akkadian, Egyptian, Greek, Latin, Arabic, Hebrew, Sanskrit, Chinese, Japanese, Turkic, Slavic, Amazigh, Khoikhoi, Nama, /Xam, Jul'hoan, Sotho, Tswana, Karanga, Nahuatl, Quechua, Yucatec, Seri, Cherokee, Haudenosaunee, Lakota, Malay, Hawaiian, Tongan, Māori, Kokatha, Kamilaroi, Euahlayi, Kaurna, Ngalia, Torres Strait and the languages of the Western Desert.

The vocabulary is local in every single case. The family is not local in any of them.

Breath 5. Number

The correlation established in the first book, now tested on six further objects.

Where an object can be counted, the count is correct and nothing is missing. Orion's Belt is three, everywhere on Earth, and no tradition has a lost one. Ursa Major is seven, in Rome, India, Mongolia, China and across Eurasia, and no tradition has a lost one. The Magellanic Clouds are two, in five Australian and Māori traditions, and no tradition has a lost one.

Where an object cannot be counted and no number was committed, nothing is missing either. The Hyades: no number, no loss, in six traditions, including a Greek literature that could not decide between five, six and seven and never once asked where the others were. Praesepe: no number from anybody, in a thousand years of professional Mediterranean observation. Coma: no number anywhere.

And where an object cannot be counted and a number was committed anyway, something is always missing. The Pleiades: seven traditions committed to seven or more, and all seven generated an explanation, eight explanations in six traditions, no two alike.

Six objects, no exceptions, and the correlation is now complete across two books and nineteen rungs.

The lost sister is not a memory. It is the residue of an arithmetic failure.

Breath 6. Neighbour

This is the breath that did not exist before the ladder was walked, and it is the ladder's best structural result.

What a bright neighbour does to a faint group depends on how bright it is, where it sits, and whether the group can be counted.

Neighbour	What happens	Object
Very bright, **inside** the group	**absorbed**: the group becomes a body, a limb, a possession	Hyades
Moderately bright, **adjacent**	**appendage**: the group becomes a tuft or frond hanging off it	Coma Berenices
Moderate, **flanking on both sides**	**furnished**: the group becomes the thing between them	Praesepe
Bright, but the group is **countable**	**annexed**: the group becomes gear and keeps its number	Orion's Belt
None, and nothing like it nearby	**self-named**	Ursa Major, Pleiades
None, but a twin nearby	**paired**: the relationship is what gets named	Magellanic Clouds

Six outcomes, and in not one of them does the faint group get to be an anonymous crowd.

And the last row is the surprise. When the Magellanic Clouds had no bright neighbour to attach to, they attached to **each other**, and six unrelated peoples named the bond rather than either object: a mother and daughter, an old couple, two birds who were chased together.

A faint thing is never named by itself. It is named by what it is with. The Pleiades is one of only two objects in this study bright enough to escape that, and the other one has a shape.

Breath 7. Figure

What the objects become, sorted by what the eye is handed.

Resolvable separate points become **characters**: three pigs, seven sages, a mule deer and a pronghorn and a bighorn sheep, a male zebra with two females, a dozen ranked court officials.

An unresolvable texture becomes **a material or a vessel**: a mist, a fog, ash, smoke, a swamp, a manger, a crib.

Points that resolve but will not cluster become **filaments**: a frond, a spadix, a braid, a lock.

And a texture that is almost resolvable, flickering at the limit becomes **a many**: a heap, a crowd, an assembly, a herd.

That last line is the Pleiades, and it is the only object in the sky that lands there.

A crowd, it turns out, is not a large number of things. **A crowd is the experience of a number that will not resolve**, and there is exactly one naked-eye object that reliably produces it.

Breath 8. Story

The first book argued that the Pleiades sisters do not look like an inherited myth. The ladder supplied, unexpectedly, a positive control for what one does look like.

The **Cosmic Hunt** has a bounded distribution across northern Eurasia and the Americas with edges that can be drawn, interior gaps where it was lost that have been mapped, systematic variation in the prey animal by region, a published phylogeny, and a relative in sub-Saharan Africa that landed on a different constellation.

And here is what the ladder could see that a study of one object could not.

The Cosmic Hunt lands on Ursa Major in the north, and the hunt has seven members. It lands on Orion in southern Africa, and the hunt has three. A pursuit-and-transformation story lands on the Magellanic Clouds in New South Wales, and it has two women. It lands on the Pleiades in Greece and Australia, and it has seven, and only there does somebody have to go missing.

Nobody carried a number. What travelled, or was reinvented, was a **structure**: some beings pursuing some other beings and ending up in the sky. Every single sky filled in its own arithmetic from what was actually overhead.

The story supplies the grammar. The object supplies the number. And the wound appears only where the two disagree.

Breath 9. Year

The first book found the calendar column full: thirteen peoples for thirteen, every one running the year on the Pleiades. It concluded that the function is older than the story.

The ladder supplies the controls, and the function turns out to be handed out by visibility geometry with no cultural discretion at all.

Object	Does it set?	Function
Pleiades	yes, with a sharp 40-day absence	**calendar**, in 13 of 13 peoples
Orion's Belt	yes, and from everywhere on Earth	**calendar and pointer**, across the tropics
Hyades	yes, near the ecliptic	**rain sign**, in four traditions
Praesepe	too faint for a usable rising	**barometer**
Magellanic Clouds	no, circumpolar in the south	**compass**, and a road for the dead
Ursa Major	no, circumpolar in the north	**compass and clock**
Coma Berenices	too faint and too diffuse	**nothing, anywhere**

An object that disappears and returns becomes a calendar, for everybody. An object that never leaves becomes a compass, for everybody, in both hemispheres, among peoples who never met. An object too faint to deliver an event becomes an instrument or gets no job at all.

No culture in either book ever overrode this. The Pleiades calendar is not a shared human insight. It is what happens to an object four degrees from the ecliptic with a sharp heliacal rising, when people stay outdoors.

Breath 10. Independence

How much of this is real, counted honestly.

Orion's Belt: at least eight independent naming events on four continents and across the Pacific. The strongest evidence base in either book.

The Hyades: six independent traditions, four of them non-European, one of them with no contact with literate astronomy at all.

The Magellanic Clouds: six traditions, five of them with no contact whatever with the Eurasian literate world, on an object no northern astronomer ever saw.

Ursa Major: about five or six independent naming events after the European wagon-and-plough family is collapsed to one vote.

Praesepe: two. And the rung says so, and grades its headline supported rather than established.

Coma Berenices: two clear and one ambiguous. The thinnest rung in the book, graded accordingly.

That is the honest profile: two rungs that are strong, two that are very strong, and two that are weak and labelled weak. The headline result does not rest on the weak ones, because Orion's Belt alone establishes it.

Breath 11. Silence

Three kinds, and the first book's rule sorts them.

Geometric silence, which means nothing. Nobody north of about twenty north names the Magellanic Clouds. Nobody south of forty south names Ursa Major. Ptolemy never catalogued the Clouds because they are below his horizon. Not a single inference can be drawn from any of it.

Fragmentary silence, which also means nothing. No Australian, Polynesian, African or American name for Praesepe or Coma was reached. That is a gap in the sweep, not a fact about those peoples.

And silence in a vast record, which means a great deal. Mesopotamia and China assigned every patch of visible sky over thousands of years of continuous records. Both reached Coma Berenices and both gave it a name and neither gave it a job. The Mediterranean watched Praesepe continuously for a millennium, in the zodiac, unavoidably, and **never once gave it a number**.

That last one is the single most useful negative result in either book, and it is addressed to a live argument. The whole Norris debate turns on whether ancient eyes under dark skies resolved more than modern ones. Praesepe is the test neither side ran, and the record is unanimous: Aratos saw a mist, Hipparchus saw a little cloud, Ptolemy saw a nebulous mass, and then Galileo pointed a telescope at it and counted forty.

Breath 12. Drift

Four mechanisms, all ordinary, all documented in this ladder.

Local substitution. Three of whatever your life contains: pigs in Lesotho, zebras in the Kalahari, deer and pronghorn among the Seri, canoe paddlers in Polynesia. A plough in Britain, a wagon in Germany, a ladle in Malaysia, a bushel in China.

Replacement by empire. Three Kings and Three Marys across Europe, the Americas, the Philippines and Afrikaans southern Africa, with the Spanish introduction documented in the Philippine case. The Cape Clouds becoming the Magellanic Clouds, after a man who sailed past them once.

A word outliving its picture. Benetnasch, the daughters of the bier, still printed in the IAU catalogue, carrying a funeral nobody mourns. *Mintaka* still meaning belt, for a hunter almost nobody believes in.

And a name tracking a change in the eye, with a date. For two thousand years Praesepe was a manger: a container with unspecified contents. In 1609 Galileo resolved forty stars in it. Within a few generations it was the Beehive: the same container, now full of a swarm.

That last one matters more than its size. **A name changed within a century of the eye changing**, in a literate culture with a thousand-year written attachment to the old word, and nobody fought it. Names are not memory. Names are the current report.

Breath 13. Return

What the six are for, in their own terms.

The Belt is for being three. The Bear is for knowing where you are. The Hyades is for rain, and for showing what a bright star does to its neighbours. Praesepe is for telling you that weather is coming before you can see it. The Clouds are for crossing water, and for the dead to go to. Coma is for nothing, and marks the lower boundary of what a sky will bother to employ.

And the Pleiades, which is the reason for all of them, is for telling the time.

WHAT WAS SEEN

- Six removals, six confirmations. All four properties are necessary.
- No heap-name on any object but the Pleiades, with one contested Chinese case recorded.
- Where an object can be counted, nothing is ever missing, across every tradition reached.
- A travelling story takes its number from the object it lands on: seven, three, two.
- Function is handed out by visibility geometry and no culture overrides it.
- A faint object is never named alone, and there are six distinct ways it gets attached.
- Fuzzy objects sort into containers, substances and bundles by optics.
- The account survives on an object no literate northern tradition ever saw.

WHAT WAS UNSEEN

- Any culture choosing a function against its object's geometry.
- Any lost member on any countable object, anywhere.

- Any stable count on any uncountable object, including in literatures that wrote the numbers down.
- Any southern or Pacific material for Praesepe and Coma, which is the study's standing gap.

THE GEOMETRY BENEATH

Everything in both books reduces to four measurements and one threshold.

Angular separation, which decides whether members resolve, which decides whether they can be counted, which decides whether anything can go missing.

Magnitude range within the group, which decides whether the group exists as a group or dissolves into somebody's belongings.

Angular extent and edge definition, which decide whether an unresolvable patch becomes a container, a substance or a bundle of strands.

Declination against latitude, which decides whether an object sets, which decides whether it is a calendar or a compass or nothing.

And the resolution threshold of the human eye, at roughly one arcminute under good conditions, degrading with brightness, which is the single number this entire study is about. The Pleiades sits on it. That is all that is unusual about the Pleiades.

THREE ILLUMINATIONS

The First: There Is Exactly One Crowd in the Sky

Seven objects. Thirty-odd traditions. Six continents and the Pacific.

The Belt gets counted. The Bear gets counted and gets a shape. The Hyades gets eaten by its bright star. Praesepe gets a trough. The Clouds get ash and smoke and a mother and a daughter. Coma gets a frond.

And one object, and one object only, gets called **many**.

The Pleiades is not special because it is beautiful, or ancient, or important, or because anything happened to it a hundred thousand years ago. It is special because of a coincidence of angles: it is

the only naked-eye object that is simultaneously several, close together, with nothing in charge, and **just past the point where you can count it**.

Every other object in the near sky fails at least one of those, and the moment it fails even one, the crowd-word becomes unavailable and some other word arrives instead, and which word arrives is predictable from the photometry.

So the gathering-name is not a universal human insight about togetherness. **It is the sound a language makes at one particular angular separation**, and there happens to be one object in the sky sitting at it, and fourteen unrelated peoples all walked outside and made the same sound.

That is smaller than the Norris proposal and, held the right way, considerably stranger.

Grade: established.

The Second: The Sky Hands Out the Jobs, and the Culture Supplies the Words

Nineteen rungs across two books and not one exception.

An object four degrees from the ecliptic with a sharp heliacal rising becomes a calendar, for thirteen peoples out of thirteen. An object that never sets becomes a compass, in the Arctic north and the Pacific south, among peoples who never met and never could have. An object too faint to deliver an event becomes a barometer, or gets no job at all, and Coma Berenices has had no job for anybody in four thousand years of being looked at.

And the instruments are the sharpest case. The Andes watched the Pleiades' brightness in June and forecast the rains eight months out, and *Nature* confirmed in 2000 that it works, because El Niño brings the cirrus that dims it. Greece and Rome watched whether Praesepe was there at all and forecast tomorrow's storm, and it works for the same atmospheric reason at a shorter range.

Two civilisations that never met, two faint clusters, one method: **watch whether the fuzzy thing is still there**. Both physically valid. Neither knew why.

So the property that defeats counting is the property that enables measurement. Faintness took the Pleiades' number away and gave the Andes a rainfall forecast. Faintness took Praesepe's plurality away and gave the Mediterranean a cirrus detector.

The culture does not choose. The culture names what it was handed, in whatever words its own life supplies, and the words are a frond in Babylonia and a lock of hair in Alexandria and

a manger in Rome and a swamp in Aotearoa, and underneath every one of them is the same photon count arriving at the same organ.

Grade: established.

The Third: The Thing We Share Is Not the Story. It Is the Threshold.

The question that began the first book was whether the Pleiades sisters are humanity's oldest inheritance, carried intact with their anomaly for a hundred thousand years.

The answer was no, and the answer is now no from six further directions.

But something is shared, and the ladder has made it precise, and it is older and more exact than any story.

Every human being who has ever walked outside and looked up has been carrying the same instrument. An eye that resolves to about one arcminute in good light and worse in poor. A visual system that separates points when they are far enough apart and fuses them into texture when they are not. A brain that counts small numbers instantly and effortlessly, and fails at larger ones, and makes a noise like **many** when it fails.

That instrument has not changed in any way that matters since before anybody left Africa. It is the oldest thing we actually have in common, older than every language, every migration, every myth, and it is sitting behind the reader's eyes right now, unchanged.

And so when fourteen unrelated peoples look at one particular patch of sky and all reach for a word meaning heap, they are not remembering anything. **They are reporting the same measurement, taken with the same instrument, from the same object.**

That is why the finding holds in Sumerian and in Jul'hoan, in Nahuatl and in Belarusian, among people who wrote on clay and people who wrote on nothing. Not because a story survived. Because the eye did.

The first book's last line said that for as long as there have been people, everyone who walked outside and looked at that patch of sky saw the same thing first: that there were many of something, together, in one place.

Six objects later, that can be said more exactly, and it is better for being exact.

They all saw the one place in the sky where counting fails.

Grade: established in its parts; offered as a whole as the study's reading.

THREE QUESTIONS

The first book ended with three questions. One of them has now been answered, and it has produced three more.

The First: Does the threshold hold where it can actually be measured?

Everything here rests on a claim about where human vision stops separating points, and that claim has been inferred from naming rather than measured.

It is directly testable, and nobody appears to have done it. Take the six objects in this study, generate matched synthetic star fields at controlled separations and magnitudes, and show them to observers from several language communities with instructions only to describe what they see. The prediction is sharp: **descriptions should switch from counting to mass-nouns at a specific angular separation**, the switch should happen at the same place regardless of the observer's language, and the Pleiades' actual geometry should sit right at the boundary.

If the switch point is the same across languages, the whole account is confirmed experimentally rather than inferred from folklore. If it varies by language, this study is wrong in an interesting way and linguistic relativity is doing more work than optics.

The Second: How much of the record is the collectors?

The first book asked this and this one has not answered it. It has got worse, if anything, because the ladder has shown how reliably name-families track optics, which means a systematic distortion in the record would be very hard to see from inside.

The test is the same as before and now more urgent. Code every published account of all seven objects for its name-family, date it, classify the recorder, and look for a gradient between pre-contact and post-contact collections. If the gathering-names for the Pleiades cluster in collections made by people who had read Hesiod, this book has a problem. If they are flat across recorder type, it does not.

Until somebody runs that, every cross-cultural result in both volumes carries an asterisk that this study has not earned the right to remove.

The Third: What happens at the threshold in a brain that cannot see?

This one is new and it is the question the whole ladder has been walking towards without noticing.

The claim is that the gathering-name comes from a specific perceptual event: a number that will not resolve. If that is right, then the heap-word is tied not to the sky but to **the failure of enumeration**, wherever that failure occurs.

So: does the same word-family arrive at the same threshold in other senses? Is there a point where a number of simultaneous sounds stops being counted and becomes a noise, a murmur, a din? Where a number of touches becomes a swarm? Where a crowd of people becomes a crowd?

And if the thresholds differ by sense but the vocabulary is the same, then the gathering-name is not about stars at all. It would be a report about the limits of counting itself, which the sky happens to supply one perfect specimen of.

The Pleiades would then be not the subject of this study but its best instrument: **the one place in the natural world where the edge of human enumeration is nailed to a fixed point and has stayed there, visible to everybody, for the whole of human history.**

That is a question for someone other than an astronomer, and the study has no way to answer it, and it is the one it would most like to know.

> ✦ **Practice: the edge of counting.** This is the practice all the others were going towards, and it needs only a clear night and ten quiet minutes. Go outside. Breathe gently, in through the nose, out a little longer, five or six times, and let the eyes have the dark without a screen. Find three things in turn, and after each one, one slow breath before moving on. **Something you count without trying.** Orion's Belt, or the Plough, or a pair of headlights. Notice that the number arrives before you decide to look for it, and that it is correct, and that you did nothing. **Something you cannot count at all.** The Milky Way, or a bright cloud, or if you are south enough, the Magellanic Clouds. Notice that no number comes and none is wanted, and that the word that arrives is a word for stuff. **And then the Pleiades.** Small, misty, up and to the right of Orion. Stay with it. Notice the number trying to form and failing. Five, then six, then something at the corner of your eye that might be seven, and gone when you look straight at it. That flicker is the whole subject of two books. It is the only place in the sky where it happens. And every person who has ever lived has stood where you are standing and felt exactly that, and reached for a word, and the word they found

meant **many**. You are not remembering them. You are running the same instrument. Breathe gently, and never force or hold the breath.

A note on evidence

This study was assembled by an AI working almost entirely from published English-language sources, under the author's method and with his grading, over a single working session. It is a mirror, not a mind.

The pre-registration was written and fixed before the first search, and that is the only reason the confirmations in it are worth anything. A reader who wants to check this book should read that file first and score the six objects themselves.

No primary language was read: not Akkadian, Sumerian, Greek, Latin, Arabic, Sanskrit, Classical Chinese, Setswana, Juǀ'hoan, Te Reo, Gamilaraay or any Western Desert language. Berezkin was read in English. The Chinese material came through English-language encyclopaedia pages and needs a sinologist, and two of the study's three problem cases are Chinese. Two of the six rungs rest on only two independent traditions and say so in their own ledgers. Several European and Asian names descend from Allen (1899) and Olcott (1911) and are graded contested throughout.

One error was found during the work and is recorded rather than removed: the first gather reported the Maya word Chamukuy as a name for the Hyades, and it is the name of a single star inside it.

Where the reasoning ran ahead of the sources it is graded lower. Where a result went against a prediction, at Praesepe, it is printed as a counter-case and left standing. The author reads everything and decides what goes on the page.

APPENDICES

Appendix A: The Pre-Registration

Written 22 November 2026, before any searching for names. Nothing in it was edited after the first search. It is printed here in full so that the confirmations reported in this book can be checked against what was actually predicted, rather than against what was found.

Written 22 November 2026, BEFORE any searching for names. Nothing below may be edited after the first search. Corrections go in a separate block at the end, dated.

The hypothesis being tested

"The Seven Who Are Six" found that fourteen traditions in at least nine unrelated language families named the Pleiades for the fact that it is a GATHERING. The explanation offered was that the object is plural, compact and leaderless, and that those properties have one meaning in any language.

That explanation was built from the Pleiades alone. It is therefore retrospective, and it is worth nothing until it predicts something it was not built on.

The refinement (made before searching, from an object already in the book)

Orion's Belt is plural, compact and leaderless, and it attracts COUNTED names in every tradition already recorded in the book: three male tortoises (/Xam, Pass 9), three zebras (Sotho-Tswana, Pass 8), the Seg and Utimal of Tagai (Torres Strait, Pass 2), the three kings and three Marys (Europe), the yoke and the scale beam.

So the property set must include a fourth term: BEYOND READY COUNTING. Three is countable. The gathering-name is what a language reaches for when counting has already failed.

Revised rule: gathering-names attach to objects that are plural, compact, leaderless AND uncountable at a glance.

The predictions

Scored only on traditions found AFTER this document was written. Names already cited in the proposal that prompted this (Jaw of the Bull, Beehive, Manger, Berenice's Hair, the Net) are EXCLUDED from scoring. They are the reason for the test, not evidence in it.

Object 1. The Hyades

Plural, compact, LEADERED (Aldebaran at magnitude 0.9 dominates), uncountable at a glance. PREDICT: gathering-names rare or absent. Names should instead be of a FACE, HEAD, JAW, or an animal with a bright eye, or should name Aldebaran and treat the rest as its attachment. FALSIFIED IF: heap, crowd, assembly, herd or group names appear at a rate comparable to the Pleiades in unrelated families.

Object 2. Praesepe, M44

NOT plural to the unaided eye. A single misty patch. Leaderless, compact. PREDICT: singular-object names. Cloud, mist, smoke, breath, a nest, a manger, a wound, a gate. Also predict it is ABSENT from most traditions entirely, because a faint smudge near no bright star is easy not to name at all. FALSIFIED IF: it attracts heap and assembly names across unrelated families. NOTE: this object also tests the eyesight question from the other side. Any tradition that counts Praesepe is reporting exceptional seeing or a telescope.

Object 3. Coma Berenices

Plural, leaderless, NOT compact (roughly five degrees of loose scatter), uncountable at a glance. PREDICT: names of DISPERSAL. Hair, veil, dust, chaff, spilled grain, scattered things, foam. Predict specifically that gathering-names are absent or rare, because the thing is not gathered. FALSIFIED IF: heap and assembly names appear at Pleiades-like rates.

Object 4. Orion's Belt (the control that generated the refinement)

Plural, compact, leaderless, COUNTABLE. PREDICT: counted names, overwhelmingly three-something. Gathering-names absent. FALSIFIED IF: heap and assembly names are common. This prediction is partly postdicted from the book and is flagged as such. It scores only on traditions not already in "The Seven Who Are Six".

Object 5. The Magellanic Clouds (southern hemisphere only)

NOT plural. Two separate singular misty patches. Leaderless. PREDICT: singular names, probably of cloud, ash, fire, water, or a pair of animals or siblings. Predict the PAIR is named more often than either member. FALSIFIED IF: heap and assembly names appear.

Object 6. Ursa Major / the Big Dipper (the second control)

Plural, NOT compact, has a SHAPE, countable at seven. PREDICT: shape names. Wagon, plough, bear, ladle, coffin, seven of something counted. Gathering-names absent. This is the strongest control in the set, because it is the most widely named object in the northern sky and its names are abundantly documented. If it attracts gathering-names, the whole property account collapses.

Scoring rule, fixed in advance

For each object, count traditions in UNRELATED language families and record the name family: gathering, face/head, dispersal, singular-object, shape, counted.

The hypothesis SURVIVES if gathering-names are concentrated in the Pleiades and absent or rare in all five controls, and if each control's own predicted name-family dominates it.

The hypothesis FAILS if gathering-names are spread roughly evenly across objects, which would mean they are a general feature of star-naming and say nothing about the Pleiades.

The hypothesis is WEAKENED but survives if the controls behave as predicted in some families and not others, which would mean the property account is one factor among several.

Known hazards, written down in advance

1. Most published star-name lists are compiled by Europeans and over-report what resembles European names. The Pleiades book already flagged this for the sisters motif.
2. Richard Hinckley Allen's "Star Names" (1899) is the source behind most popular lists and is unreliable on non-European languages. Anything resting only on Allen is graded contested.
3. Praesepe and Coma Berenices are faint. Absence of a name may mean nobody named them OR that nobody recorded it. Absence can only be read where the record is vast (the Mesopotamian rule established in Pass 6).

4. I will be tempted to score ambiguous names as confirming. A name is scored as gathering ONLY where the literal sense is a heap, crowd, group, herd, assembly, many, or together. “Beehive” is NOT a gathering-name, it is a container-name.

Appendix B: The First Gather

The short sweep that preceded the six deep passes, printed as it was written on 22 November 2026, before the ladder was walked. Two of its readings were superseded by the passes that followed: the Hyades name Chamukuy, corrected at Rung Three, and the independence count for Coma Berenices, tightened at Rung Six.

Why this exists

The Seven Who Are Six ended with three questions. The first was this: what do the other clusters get called?

The book's principal finding was that fourteen traditions in at least nine unrelated language families named the Pleiades for the fact that it is **a gathering**, and that the reason is geometric. The object is plural, compact and leaderless, and those three properties have one meaning in any language.

That explanation was built from the Pleiades alone. Which means it is retrospective, and a retrospective explanation is worth very little. It becomes worth something only when it predicts the naming of objects it was not built on.

So the predictions were written down first, in a pre-registration dated before any searching, and fixed. Six objects were chosen, five of them controls. Each control breaks exactly one of the Pleiades' properties, so that the property can be seen doing its work by being absent.

This is the first gather. It is not yet a deep pass and it does not pretend to be. It reports what a first sweep found, grades it, and says where it is thin.

The refinement, made before any searching

One result arrived before the first search, from an object the original question did not list.

Orion's Belt is plural, compact and leaderless. All three properties. By the rule as the book stated it, the Belt should attract heap and assembly names across unrelated languages.

It never does.

The book's own passes already record it: three male tortoises in /Xam [294 to 312], three zebras across the Sotho-Tswana languages [275 to 293], the Seg and Utimal in the Torres Strait [146 to 177]. Europe adds the three kings, the three Marys, the yoke, the scale beam, the plough handle. Every one of them **counts it**.

So the rule as stated was incomplete. There is a fourth property, and the Belt is the proof of it:

> Gathering-names attach to what is plural, compact, leaderless **and past the point where counting is easy**.

Three is countable. Six or seven blurred together is not. Which reframes the book's central finding in a way that is worth saying plainly: the heap-name is not a description of a crowd. **It is what a language reaches for when counting has already failed.**

That is the hypothesis this gather went out to test.

Object One. The Hyades: the leadered gathering

Properties. Plural, compact, uncountable at a glance, and **leadered**. Aldebaran sits at magnitude 0.9 in the same line of sight and dominates the group completely. It is a foreground star and not a cluster member, but no naked eye has ever known that [399]. Its own Arabic name, **al-Dabarān**, means the follower, because it comes up behind the Pleiades [399]: the brightest star in this part of the sky is itself named for its relationship to a cluster.

Predicted. Gathering-names rare or absent. Face, head, jaw or bright-eyed-animal names instead.

Found. No gathering-name anywhere in the sweep, and the face-prediction confirmed in the two oldest literate astronomies. In Mesopotamia the group was **is-lê**, the jaw of the bull, and also **AGA An-na**, the crown of the sky god Anu [369, 370]. The Greeks read the same stars as the **face** of Taurus [369]. The Greek name itself is weather and not shape: *Hyades* is usually derived from the verb to rain, and the cluster's dawn and dusk settings fall in the wet parts of May and November [364]. In Latin it became **Suculae**, the little sows, by a misreading of that Greek [364, 368], and also **Sidus Hyantis**, the raining stars, after the tears the Hyades were said to have wept for their dead brother Hyas [365, 366]. Greece did make them daughters of Atlas and so half-sisters to the Pleiades, but unlike the Pleiades their individual stars were never named for them [366]. England kept the weather and dropped the animal: the **April Rainers** [371].

And something the prediction did not reach. Three unrelated traditions name the Hyades not as a thing but as **the property of its bright star**.

- Arabic: **al-Qilās**, the little she-camels, driven along in front of the great camel, which is Aldebaran [364, 367].
- Sanskrit: **Rohiṇī śakaṭa**, the cart of Rohiṇī, where Rohiṇī is Aldebaran [370].
- Babylonian: the crown worn by Anu, and the jaw belonging to the bull [369, 370].

Camels driven, a cart drawn, a crown worn, a jaw owned. In every case the cluster is the **possession, vehicle or body part of something brighter**, and it has no name of its own at all.

That is stronger than what was predicted. The prediction said a leader turns a crowd into a face. What the record shows is that a leader turns a crowd into **a belonging**.

One Mesoamerican outlier. The Yucatec Maya name is **Chamukuy**, a small bird [371]. Neither a gathering nor a face. The source is a modern star-name list and the Maya reading needs a specialist; graded open.

And the controlled comparison, which is the best thing in this gather

Australia supplies something no amount of Mediterranean material could: **one people, one story, one night, both clusters.**

In a Kokatha tradition from the Great Victoria Desert, recorded by Daisy Bates at Ooldea and re-analysed by Leaman and Hamacher, the hunter **Nyeeruna** is Orion and desires the **Yugarilya** sisters, who are the Pleiades. Standing between them is **Kambugudha**, who blocks him. Kambugudha is the Hyades, and Aldebaran is **her left foot** [397, 398]. The same tradition encodes the variability of Aldebaran and Betelgeuse in Kambugudha's and Nyeeruna's fire-magic, and notes correctly that Betelgeuse varies faster [396, 400].

Hold the two clusters side by side in that one tradition.

The Pleiades is **a group of sisters**. Plural, named plural, counted as several.

The Hyades is **one woman**. Not a group that happens to have a leader. A single person, with the bright star as a part of her body.

Same people. Same sky. Same night. Same story. The cluster with the bright star in it collapsed to a singular being, and the cluster without one stayed plural, and nothing about Greece, Ptolemy, Babylon or any possible line of transmission is anywhere near it.

This is the Pass Nine move from *The Seven Who Are Six*, where the Khoikhoi and the San shared one sky and differed, used the other way round: one people, two objects, and the difference between the objects does the work.

Grade. The prediction is **established**. No gathering-name was found anywhere. The collapse of the Hyades into a single owner or a single body is **established** on four unrelated traditions, Babylonian, Sanskrit, Arabic and Kokatha, and it is a new finding of this gather rather than a confirmation of an old one.

Object Two. Praesepe: the crowd that is not plural

Properties. Compact, leaderless, uncountable. And, to an unaided eye, **not plural at all**. It is a single misty smudge of magnitude 3.7. Only a telescope makes it a crowd; Galileo resolved forty stars in it in 1609 [375].

The original proposal called Praesepe the Pleiades with the brightness turned down. It is not. It fails the first property outright, which makes it the sharper control: if gathering-names track **perceived** plurality rather than actual multiplicity, Praesepe must not get them.

Predicted. Singular-object names. Cloud, mist, breath, a nest, a container. And predicted absent from many traditions entirely, because a faint smudge near no bright star is easy not to name.

Found. Singular-object names, almost without exception, and from two directions at once.

The **container** reading: Greek **Phátnē**, the crib, becoming Latin **Praesepe**, the manger or stall [372, 373], and Arabic **al-Ma'laf**, the stall [376]. The two flanking stars are the **Aselli**, the donkeys, so the whole scene is two animals feeding from one trough. English later replaced the trough with another container and called it the **Beehive** [373].

The **mist** reading: Aratos called it the little mist, around 270 BCE; Hipparchus called it the little cloud; Ptolemy called it a nebulous mass in the breast of the Crab [374, 375].

Nothing in the sweep counts it. That is the prediction's sharpest confirmation, and it answers the eyesight argument from an unexpected side. **If ancient eyes under dark skies were systematically better than ours, Praesepe is where it would show**, and it does not. The best observers of the ancient world looked straight at it and reported a smudge.

The one complication, and it is real. China called it **Jīshī**, piled-up corpses, and **Jīshī qì**, the exhalation of piled-up corpses [372, 374, 375, 376]. *Jī* means accumulated or heaped. By the

scoring rule fixed in advance, that is a heap-word, and it must be recorded as a hit against the prediction.

Two hands on it. The literal sense is a heap, and the rule says score it. But the heap in the name is a heap of **bodies**, and what the stars are is the **qì**, the vapour rising off them. The mist is the celestial object; the corpses are what the mist is explained by. On that reading the name belongs with Aratos rather than against him.

The honest recording is that this is **contested**, and that it is the only heap-word this gather found outside the Pleiades.

Grade. The prediction is **supported with one contested exception**. The failure of plurality to survive faintness is **established** from the Greek observational record.

Object Three. Coma Berenices: what cannot be gathered

Properties. Plural, leaderless, uncountable, and **not compact**. Its brightest star is magnitude 4.3 and the scatter runs across roughly five degrees of sky. Nothing in it is near anything else.

Predicted. Names of dispersal. Hair, veil, dust, chaff, scattered things.

Found. Hair, in every Mediterranean tradition, and a frond in Mesopotamia.

The Greek is **plókamos** or *bostrukhon Berenikes*, the lock of Berenice, invented by Konon of Samos around 241 BCE for the Ptolemaic court [377, 379]. The Arabic names are **al-Dafīra**, **al-Hulba**, **al-Du'āba** and **al-Ẓafīra**, the tuft, the braid and the tail-tuft, placed on the tail of Leo [378, 380, 382].

But Greek and Arabic are not independent here, and this has to be said rather than scored. Ptolemy placed these stars on Leo's tail in the *Almagest*, and the Arabic astronomers worked from Ptolemy [378]. One tradition, counted twice, is the commonest way a star-name survey fools itself.

The genuinely independent evidence is Mesopotamian: **Sissinnu**, the date palm frond or spadix of the goddess Erua [377]. A frond is a spray. It is a dispersal-name reached independently, and it is the best single piece of evidence this object produced.

The Chinese case needs work. The stars are **Lángwèi**, the seats of the court attendants [377, 381]. A body of officials is arguably an assembly, which would be a gathering-name on a scattered object and would count against the prediction. But the Chinese naming of this region is

administrative throughout, with ministers, lords and enclosures across the whole quadrant, so the name may be a position in a bureaucratic sky-map rather than a response to what the eye sees. Graded **open**, and flagged as the item in this gather most likely to change under a sinologist.

Grade. The prediction is **supported** on the Babylonian evidence and **not independently supported** on the Greek and Arabic, which are one source. The Chinese case is open.

Object Four. Ursa Major: the hardest control

This is the one that could have collapsed everything. It is the most widely named object in the northern sky, its names are abundantly documented in dozens of unrelated traditions, and it is plural and leaderless. If gathering-names were simply a general feature of how people name star groups, they would be here in quantity.

Properties. Plural, leaderless, **not compact**, **countable at seven**, and possessing a strong and unmistakable **shape**.

Predicted. Shape names and counted names. Gathering-names absent.

Found. Not one gathering-name in the entire sweep. Every name falls into one of the two predicted families, and most fall into both at once.

Shape: the Plough in Britain and Ireland; the Great Wagon in Germany, Charles's Wain in older English, Karlavagnen across Scandinavia, Odin's or Wodan's wagon in the Norse reading [383, 387, 388, 389]; the Big Dipper and the Drinking Gourd in the United States, the Saucepan in France, the Ladle in Malaysia as Buruj Biduk [385, 387, 389]; a bushel or corn-measure in China, with the tail as its handle [386]; the Long Chariot on the Assyrian tablets, and a bier or coffin in the Arabic funeral reading that still sits inside the modern star names [386, 389]; and camel, shark, skunk and sickle elsewhere [384].

Count: Roman **Septentrio**, the seven plough-oxen [384]; the Hindu **Saptarishi**, the seven sages [385, 386]; the Seven Gods in Mongolia [387]; and in India also seven bears, seven antelopes, seven bulls [386].

Three things follow.

The count is used, and it is used without difficulty. Seven stars, seven oxen, seven sages, seven gods. Nobody in this entire record struggles to count Ursa Major, and nobody needs an eighth to be missing. That is the mirror image of the Pleiades, and it is the clearest demonstration in the

whole study that **the lost sister is an arithmetic problem and not a memory**. Where the eye can count, the count is simply correct and no story is required to fix it.

Shape displaces everything. This is the one object in the set with an unambiguous outline, and the outline takes over the naming entirely across traditions that share nothing else.

And the bear is a separate problem. Both Greece and much of Native North America see a bear in these stars, which has been read as evidence of a tradition carried across the Bering land bridge [384, 385]. That is the same argument as the Norris proposal, transplanted, and this study has no view on it yet. Graded **open**, and noted as the obvious next question.

Grade. The prediction is **established**. This is the strongest single result in the gather.

Object Five. The Magellanic Clouds: the pair that is not one

Properties. Two separate misty patches, each **not plural** to the eye, leaderless, uncountable, and visible only from the southern hemisphere. The one object in the set whose record is overwhelmingly non-European.

Predicted. Singular names. Cloud, ash, fire, water, or a pair of animals or siblings. And predicted specifically that **the pair would be named more often than either member**.

Found. Every predicted category, and the pair-prediction confirmed almost everywhere.

Fire and ash. In Western Australia they are the camp of an old couple, the **Jukara**, who can no longer get their own food and cook over a fire what other star people bring them [390, 394]. The Adelaide people called them **Ngakallamurro**, reported as paroquet-ashes: the white ash of Blue Mountain lorikeets who were gathered there and roasted [394].

Water. Howitt recorded that the Kamilaroi called a dark patch in them **Maianba**, endless water or river, and that the spirit of a dead man goes there [395]. In Aotearoa the Māori names include **Te Reporepo**, the swamp, and **Ngā Pātari-Kaihau** [392].

A pair of birds. Ridley was told in 1873 by King Rory that they were two **buralga**, brolgas, a name still current for them [391, 395]. Parker's 1898 account makes them a mother and daughter, chased, caught by the whirlwind spirit **Wilbaarr**, turned into brolgas, and placed in the sky when they died [393, 395].

And cloud, from the sailors. Portuguese and Dutch crews called them the **Cape Clouds** for centuries before Magellan's name stuck [401].

No gathering-name anywhere. And the pair-prediction holds across unrelated traditions: an old couple, a mother and daughter, two brolgas. The two patches are named **together, as a relationship**, far more often than either is named alone.

One thing worth flagging. These are two of the most star-rich objects in the sky, each containing millions of stars, and not one tradition in this sweep treats them as many. Perception is not about what is there. It is about what separates.

Grade. The prediction is **established**, including the pair-prediction, which was the most specific thing written into the pre-registration. The Australian material rests on Ridley (1873), Parker (1898) and Howitt (1904), colonial-era collectors, and carries the caution stated throughout *The Seven Who Are Six*; the modern re-analysis by Hamacher and colleagues is the better source and agrees [395].

What the six objects say together

Object	Plural	Compact	Leaderless	Uncountable	Name family found
Pleiades	yes	yes	yes	yes	**gathering**
Hyades	yes	yes	**no**	yes	one body, or the leader's possession
Praesepe	**no**	yes	yes	yes	container and mist
Magellanic Clouds	**no**	yes	yes	yes	cloud, ash, fire, water, a pair
Coma Berenices	yes	**no**	yes	yes	hair and frond
Orion's Belt	yes	yes	yes	**no**	counted
Ursa Major	yes	**no**	yes	**no**	shape and counted

One row has all four properties. One row has the gathering-name. No other object in the set attracts one, with the single contested Chinese exception at Praesepe.

The hypothesis survives its first real test. Each control breaks one property, and each control's naming shifts in the direction that property's absence predicts. That is five independent confirmations from objects the explanation was not built on, and the one object that breaks no property is the one object that gets the gathering-name.

And the geometry underneath has become more exact than the book stated it. Break **leaderlessness** and the group stops being a group at all: it becomes a single body, or the belongings of something brighter. Break **plurality** and it becomes a container, a cloud, an ash, a swamp. Break **compactness** and it becomes hair. Break **uncountability** and it simply gets counted, correctly, with nothing missing.

The Pleiades is not special because it is beautiful or because it is ancient. It is special because it is **the only object in the near sky that breaks none of them.**

Three illuminations

The First: The Leader Does Not Lead, It Owns

The prediction was that a bright star turns a crowd into a face. The record says something sharper. In Arabic the Hyades are camels **driven by** Aldebaran. In Sanskrit they are a cart **pulled by** Rohiṇī. In Babylonian they are a crown **worn by** Anu and a jaw **belonging to** the bull.

And in the Great Victoria Desert the Hyades is not a group at all. It is **Kambugudha**, one woman, and Aldebaran is her foot [397, 398].

Four unrelated traditions, and in all four the cluster loses its own existence. It is not a group with a leader. It is a leader with equipment, or a body with a limb.

Which says something about perception that is not obvious: a bright star does not organise the faint ones around it into a shape. **It absorbs them.** The eye stops seeing many and starts seeing one thing with attachments, and the language follows the eye exactly.

And the Kokatha case shows it happening twice in one night. In that single tradition the Pleiades are a group of sisters and the Hyades is one sister, with the same teller, the same sky and the same story holding both. The only difference between the two objects is that one of them contains a bright star.

Grade: established, on four unrelated traditions, one of which is a controlled comparison inside a single people.

The Second: Praesepe Closes the Eyesight Argument

The whole Norris debate turns on whether ancient eyes were better than modern ones. One side says the stars moved; the other says people saw more clearly under darker skies.

Praesepe is the test neither side ran. It is a compact cluster of forty-plus stars at the edge of naked-eye resolution, sitting in the zodiac, watched continuously by the best-equipped observers of the ancient Mediterranean for a thousand years.

Aratos saw a mist. Hipparchus saw a little cloud. Ptolemy saw a nebulous mass.

Not one of them resolved it, and not one of them counted it. If dark-sky ancient eyes could pull sevens out of sixes, Praesepe is where that power would have left a record, and the record is unanimous that it did not.

Grade: established from the Greek observational texts, and it constrains both sides of the argument rather than either one.

The Third: Where the Eye Can Count, There Is Nothing Missing

Ursa Major is counted correctly by everybody. Seven oxen, seven sages, seven gods, seven stars. Orion's Belt is counted correctly by everybody. Three kings, three zebras, three tortoises. Across every tradition in this gather and the book before it, not one of them has a lost member, and not one of them needs a story to explain an absence.

The Pleiades alone carries a wound, and it carries it in exactly the traditions that committed to a number the eye could not deliver.

The book argued that from inside the Pleiades. This gather shows it from outside, which is the only place it could ever have been shown from. **A missing star is not something a sky does. It is something a number does.**

Grade: established.

> ✦ **Practice: the four questions of a cluster.** On a clear night, find any group of stars you do not have a name for. Breathe gently, in through the nose, out a little longer, four or five times, until the looking settles. Then ask it four things, slowly, one breath apart. *Are you many? Are you close? Is one of you brighter? Can I count you?* Do not reach for a name. Let the four answers sit. Then notice what word arrives on its own, and notice that it was decided before you chose it. Breathe gently, and never force or hold the breath.

What this gather does not have

- **No deep pass.** Thirteen breaths have not been walked on any of these six objects. This is the equivalent of the first Pleiades gather, not of the ladder.
- **Northern bias, still bad.** Only the Hyades and the Magellanic Clouds were reached in southern material. Polynesian, Bantu, Khoe, San, Amazigh and American names for Praesepe and Coma Berenices were not reached at all, and those are the traditions that carried the book's main argument. Until they are, the account rests on an evidence base that is mostly literate, mostly northern and partly interconnected.
- **Allen and Olcott.** Several Hyades and Ursa Major names here trace to *Star Names* (1899) and *Star Lore of All Ages* (1911), which are the ultimate source of most popular star-name lists and are unreliable on non-European languages. Every claim resting only on them is graded contested in the ledger above.
- **Two source families, counted once.** The Greek and Arabic names for Coma Berenices come through Ptolemy and are one tradition, not two. The same hazard has not been checked for the Hyades, where Arabic astronomy also had the *Almagest*.
- **Nobody has checked the Chinese.** Both of this gather's problem cases, Jīshī at Praesepe and Lángwèi at Coma, are Chinese, and both were read in English.

A note on evidence

This gather was assembled by an AI working from published, mostly English-language sources, under the author's method and with his grading. It is a mirror, not a mind. The pre-registration was written and fixed before the first search, which is the only reason the confirmations above are worth anything, and a reader should check that file before trusting this one. Where the reasoning ran ahead of the sources it is graded lower, and where a result went against the prediction it is printed rather than smoothed.

Appendix C: What Remains Open

Gathered from the six ledgers, so a reader can find the soft ground quickly.

The three questions

Set out in full in Part Three, and listed here.

1. **Does the threshold hold where it can be measured?** Everything in this book rests on a claim about where human vision stops separating points, inferred from naming rather than measured. Show matched synthetic star fields at controlled separations and magnitudes to observers from several language communities, with instructions only to describe what they see. The prediction is sharp: descriptions should switch from counting to mass-nouns at a specific angular separation, the switch should fall in the same place regardless of language, and the Pleiades' actual geometry should sit at the boundary.
2. **How much of the record is the collectors?** Code every published account of all seven objects for its name-family, date it, classify the recorder, and look for a gradient between pre-contact and post-contact collections. If gathering-names for the Pleiades cluster in collections made by people who had read Hesiod, this book has a problem.
3. **What happens at the threshold in other senses?** If the heap-name is tied to the failure of enumeration rather than to the sky, does the same word-family arrive at the same kind of threshold in hearing and touch: a number of sounds becoming a din, a number of touches becoming a swarm?

Items flagged in the passes

- **The Chinese problem, and it is the biggest.** Two of this study's three difficult cases are Chinese and all the Chinese was read in English through encyclopaedia pages. **Jīshī** at Praesepe is the only heap-word found outside the Pleiades across six objects, and whether it names a pile of stars or the vapour above a pile of bodies decides whether this book has one counter-example or none. **Lángwèi** at Coma Berenices was scored as ranked offices rather than an assembly, and that scoring is this study's and is left open. A sinologist could settle both in an afternoon.
- **Are the three lunar-station systems related?** Carried over unresolved from the first book, and now sharper. Babylon, India and China all built lunar-station systems, all

placed the Pleiades and Hyades region early, and all three attach **rain** to the Hyades. That convergence is either a fourth independent arrival at the same seasonal sign or a trace of one transmission. Disputed since Bezold.

- **Does Praesepe's storm sign still work, and does the Clouds' wind sign work at all?** The Praesepe practice is physically explicable and nobody appears to have tested it with modern records. The Magellanic Clouds were taken as wind predictors in Australia and Polynesia, and whether that runs on the same cirrus mechanism is entirely open.
- **The Greek and North American bear.** Both see a bear in Ursa Major. Berezkin and others argue inherited descent across Beringia; the alternative is convergence on a prominent northern animal, with nineteenth-century collection by classically trained recorders as a live contaminant. Open, and it is the same argument as the Norris proposal transplanted.
- **Berezkin, again, and in English again.** The Cosmic Hunt is the positive control that makes the whole of Breath 8 work, and it was read in the Folklore EJF paper and a Tartu conference paper, in English. His conclusions are reported, not checked. A reader with Russian should go through Rung One before any of it is printed.
- **The Arabic independence question.** *al-Qilās*, the Hyades as little she-camels driven by Aldebaran, was graded supported as independent of Ptolemy on the grounds that the Greeks had no camels. That is a reasonable argument and not a demonstration. An Arabist could settle it.
- **Alcor.** Traditions across Eurasia and North America treat it as hidden, lost, small or a test of sight, and it sits twelve arcminutes from Mizar, right at the resolution limit. This study reads that as the Pleiades finding reproduced in miniature under controlled conditions. The reading is this study's and is graded supported.
- **The Seri, the !Kung and individuation.** The claim that a countable group resists the heap-name *because* its members can be individuated rests on two beautiful cases, the Seri naming three stars as three species and the !Kung as a male with two females, plus the instability of the Greek Pleiad rosters. It needs more than two.
- **Praesepe and Coma below the equator.** No Australian, Polynesian, African, Khoe-San, Amazigh or American name for either object was reached. Those are the traditions that carried the first book's main argument, and until they are reached, Rungs Four and Six rest on two votes each and are graded supported rather than established.

Limits of this study as a whole

- **No primary language was read.** Not Akkadian, Sumerian, Greek, Latin, Arabic, Sanskrit, Classical Chinese, Setswana, Sesotho, Jul'hoan, Seri, Malay, Te Reo, Gamilaraay, Kaurna or any Western Desert language.
- **The star-name lists descend from Allen and Olcott.** *Star Names* (1899) and *Star Lore of All Ages* (1911) are behind most popular compilations and are unreliable on non-European languages. Everything resting only on them is graded contested in the ledgers.
- **Several Australian items rest on colonial-era collection**: Ridley 1873, Parker 1898, Howitt 1904, Daisy Bates's field notes. The modern peer-reviewed re-analyses by Hamacher, Leaman, Fuller and Norris are the better source and are what is cited, but the underlying material is what it is.
- **Two sources used here are of poor quality** and are cited only for single specific lines, with their wider claims disowned in the passes: a popular astrology site for the Arabic name of Praesepe, and an amateur etymological blog for one Babylonian star-list line.
- **The work was done in a single session.** Six objects, eighty-one new sources, and roughly forty thousand words, which is not enough time per object for a study making claims this general.
- **And nobody outside this room has read a word of it.** Until a reader with independent expertise in Assyriology, sinology, archaeoastronomy, Australian Indigenous astronomy, Khoe-San studies or Russian folkloristics has been through it, every grade in this book is provisional. That was true of the first volume and it is true of this one.

Appendix D: Sources

Sources 364 to 444, numbering continued from *The Seven Who Are Six*, which ended at 363. Back-references to sources 1 to 363 in the text point to that volume.

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In Harmony, Small Things Grow Towards Unity.