

Soundstalker Expeditions

Cultural Systems Path

Lesson 1: The Voice That Traveled

How do you send a message when your voice can't carry it?

00:52



Talking Drums & Trade Networks of West Africa

SOUNDSTALKER EXPEDITIONS · MODULE 1 — THE DISTANCE PROBLEM

LIVE ROUTES



ETHNIC GROUPS

Yoruba

Dùndún



Dagomba

Luŋa



Hausa

Kalangu



Akan

Fontomfrom / Atumpan



Fon

Gbedu / Sato



Igbo

Ekwe / Udu



Serer

Tama



FILTER BY TRADE GOOD

Gold

Kola Nuts

Salt

Cloth/Textiles

Horses

Palm Oil

Ideas/Drums

Atlantic Trade

DETAILS

Click a region or route to explore

MAP LAYERS

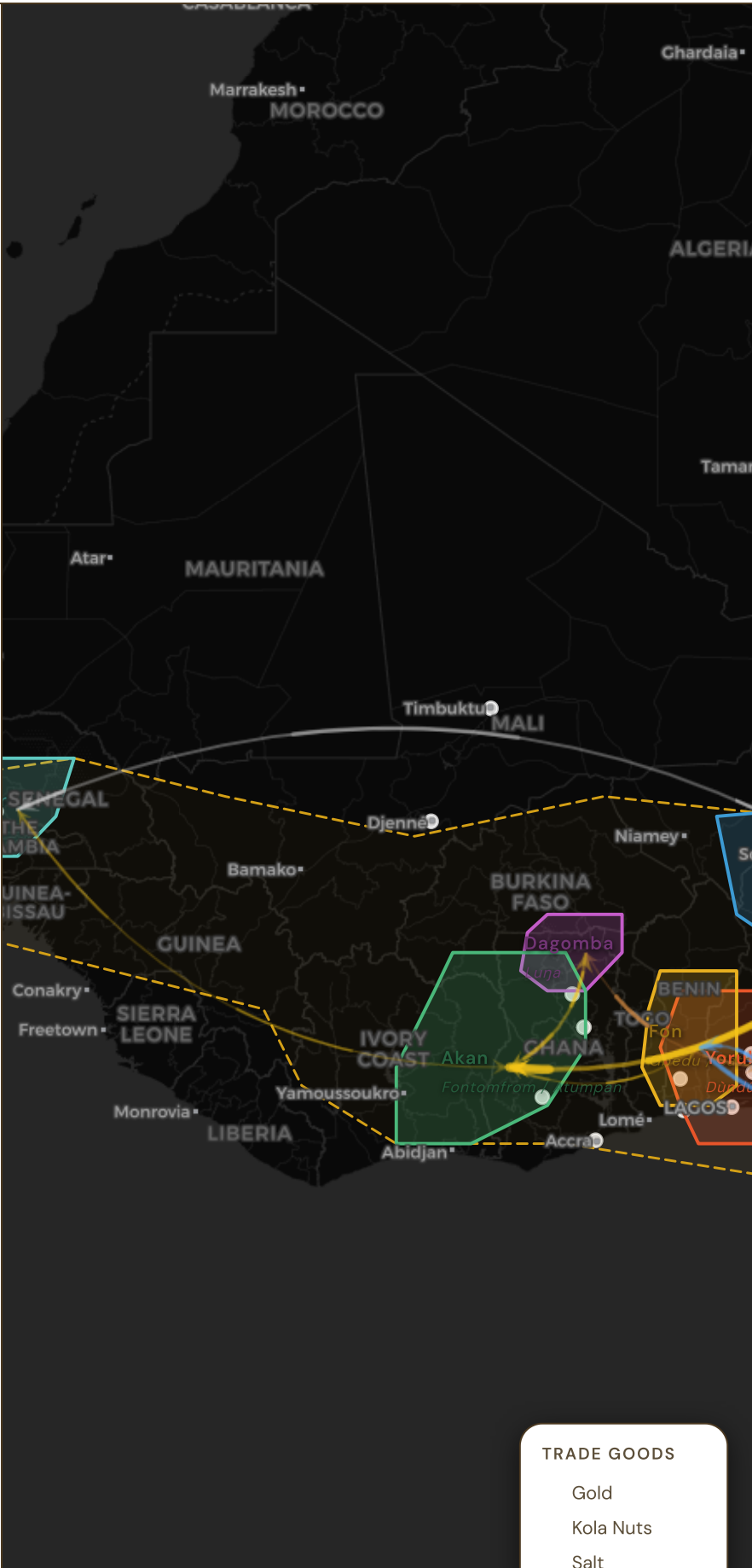
Ethnic Regions

Trade Routes

Key Cities

Drum Belt

Labels



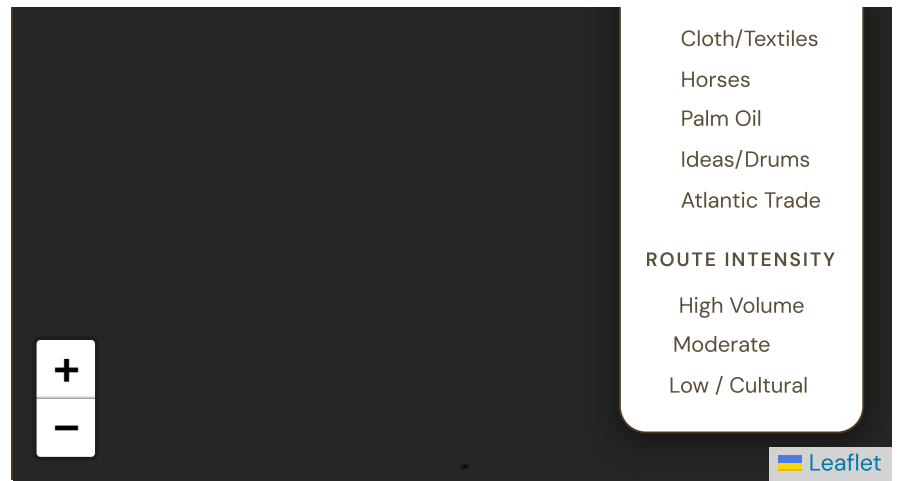
TRADE GOODS

Gold

Kola Nuts

Salt

Pulsing arrows show active trade routes. Thicker, brighter pulses = higher trade volume. Click any arrow or region to learn more. Filter by trade goods using the grid above.



ES: “You now understand what this tool is made of and how those materials produce sound. The physics hasn’t changed in 3,000 years. What changed was everything around it.”

“This path is where the story gets complex. We’re leaving the lab and entering the field. Your mission: trace this technology’s journey through history — from ancient origins, through kingdoms that used it to govern, to cultures that adapted it to different languages and needs.”

“Be careful. It’s easy to get lost in the stories. Remember to connect every event back to the materials you studied in the first path. The physics didn’t change. The people did. And that’s the whole point.”

“We start at the beginning — 3,000 years before the first kingdoms.”

Activity 1: The Deep Roots

ES: “Before there were kingdoms, before there were empires, there was a shared technology and a shared word for it. Your mission: understand how deep the roots go — and what that depth tells us about how innovation spreads.”

“A field scholar doesn’t just ask who invented something. They ask how old it is, where it’s from, how far it traveled, and why it survived. That’s exactly what you’re about to do.”

“But here’s your first field problem, before we go in. The talking drum has been used in West Africa for at least 3,000 years. But it’s made of wood and skin — materials that decay in tropical climates, leaving nothing for an archaeologist to dig up. So how would you prove this technology is 3,000 years old if there are no physical artifacts? Write down your approach. We’ll come back to it.”

[Write your response and click **Submit** to save your answer.]

M1L1.CS-A1a-Notes

How would you prove this technology is 3,000 years old if there are no physical artifacts?

Submit

READING: The Word That Traveled

A Technology Without a Beginning

Here's a problem historians face: some technologies are so old that no one recorded their invention. The wheel, the control of fire, the bow and arrow — these emerged in prehistory, before writing. We can't point to a person or a moment and say "this is where it began."

The hourglass talking drum is one of these technologies.

We know it existed across West and Central Africa for thousands of years. We know it was used by dozens of ethnic groups speaking different languages. We know it was essential for communication, governance, and ritual. But we cannot say with certainty who invented it, or when, or where.

What we can say is something more interesting: this technology is older than the kingdoms that used it.

How Do We Know?

Historian Patrick Manning, in his study “Drums on the Move,” argues that drumming traditions in the Niger-Congo language area may be 5,000 years old — possibly older. His evidence isn’t archaeological (drums are made of wood and skin, which decay quickly in tropical climates). It’s linguistic.

Here’s the key insight: when the same word appears across many distantly related languages, it suggests the thing that word describes existed before those languages separated.

Consider the word *ngoma*:



The Word for Drum — *ngomo* across Niger-Congo Languages

SOUNDSTALKER EXPEDITIONS · MODULE 2 — THE LANGUAGE OF THE DRUM

● LANGUAGE MAP



MAP LEGEND

-  Niger-Congo language family region
 Countries — West & Central Africa
 *ngoma* — exact cognate for "drum"
 *ngom-* root — closely related variant
-
- Major river
 ----- Equator

LANGUAGES SHARING
NGOMO / NGOMA

- **Kikongo** — *ngoma*
Congo Basin, DRC, Angola, Congo
- **Lingala** — *ngoma*
DRC, Republic of Congo
- **Duala / Bakweri** — *ngomo / ngoma*
Cameroon coast
- **Luba / Tshiluba** — *ngoma*
Southeast DRC, Katanga
- **Fang / Beti** — *ngom*
Gabon, Eq. Guinea, S. Cameroon
- **Mongo / Nkundo** — *ngoma*
Central DRC rainforest
- **Ewondo** — *ngom*
Southern Cameroon
- **Swahili** — *ngoma*
East Africa & coastal Central Africa
- **Kinyarwanda / Kirundi** — *ingoma*

WHY SO MANY LANGUAGES SHARE THIS WORD

The word **ngoma** (variants: *ngomo*, *engoma*, *ingoma*) is a **Bantu cognate** — inherited from Proto-Bantu, spoken in eastern Nigeria and western Cameroon roughly **3,000–5,000 years ago**.

As Bantu-speaking peoples expanded south and east across sub-Saharan Africa, they carried their word for drum with them. Today, **over 200 languages** across Central, East, and Southern Africa share some form of **ngoma* — one of the most geographically widespread instrument words on Earth.

The shaded region shows the **Niger-Congo language family** in West and Central Africa — the broader family containing Bantu. The *ngom-* root is densest in the **Bantu branch**, sweeping from Cameroon through the Congo Basin

	ngoma Rwanda, Burundi · also “Royal Drum” ○ Rundi — ingoma Burundi (Kirundi dialect continuum) ○ Ganda / Luganda — engoma Uganda (Buganda kingdom, Lake Victoria)	from Cameroon through the Congo Basin and outward.
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Soundstalker Expeditions · Language data: Comparative Bantu Online Dictionary, Ethnologue, Glottolog · Geographic boundaries approximate

Look at that map again. Six languages. Thousands of miles apart. One word. That’s not coincidence. That’s evidence. A historian looks at that table and sees a technology older than the kingdoms that used it.

These languages belong to the Niger-Congo language family — the largest language family in Africa, spanning thousands of miles from West Africa to the Great Lakes region. They are related, but distantly. They diverged from a common ancestor thousands of years ago.

And yet they all share a word for “drum.”

What “Ngoma” Tells Us

Imagine you’re a linguist, and you find the same word for “telephone” in English, Spanish, and Japanese. What would that tell you? It would tell you that telephones existed before those languages separated. Otherwise, each language would have invented its own word.

The same logic applies to ngoma. Current linguistic estimates place the divergence of major Niger-Congo language branches at roughly 3,000 to 5,000 years ago. This means the drum — or at least the cultural practice of drumming — is likely at least that old.

Innovation as Diffusion, Not Invention

This changes how we think about innovation.

We tend to imagine invention as a single moment — someone has a flash of genius, builds something new, and the world changes. But the evidence from ngoma suggests a different story:

this technology wasn't invented once. It was a shared technology that spread across a vast region over thousands of years, carried by migrating peoples, traded along rivers and savannahs, adapted to different environments and languages.

The hourglass talking drum wasn't the property of one kingdom or one ethnic group. It was infrastructure — a technology so useful that it became universal across a continent.

And that universality is itself evidence of its value. Technologies that don't solve real problems don't spread. Technologies that do, do.

Write that down. It's a principle that applies to every technology you'll examine in this program — and every one you'll encounter in your lifetime.

NOTES:

Write your answers in the boxes below. When you're finished, be sure to click **Submit** at the bottom so your work is saved and your parent can review it.

M1L1.CS-A1-Notes

Come Back To It

You wrote down how you'd prove a technology is 3,000 years old without physical artifacts. Now you know the actual method — linguistic evidence, the word ngoma spread across distantly related languages. How close was your approach? What did you assume that historians replaced with something else entirely?

Investigate

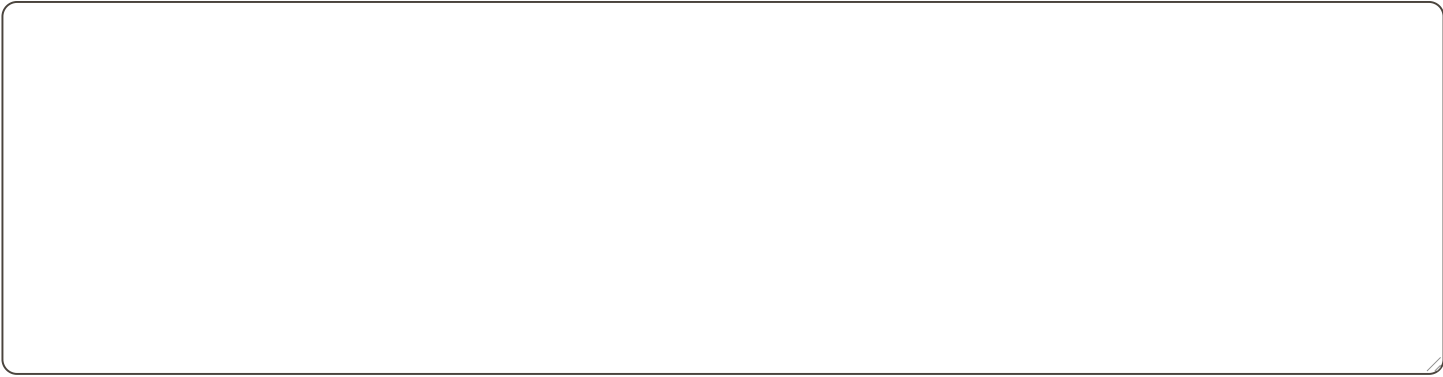
Based on the reading, answer two questions: How many years ago does the linguistic evidence suggest drumming traditions in this region may have begun? What is the significance of the word ngoma? Why does its existence across multiple languages suggest a shared, ancient heritage?

Synthesize

In your own words, write one paragraph (3–4 sentences) explaining why the ngoma evidence suggests the history of this technology is much older than the first historical kingdoms.

Map the Heritage

On your blank map of Africa: Lightly shade in the general area where the Niger-Congo language family is predominantly spoken. (A quick search for "Niger-Congo language map" will guide you – see the reference map below for approximate boundaries.) In the ocean space next to your map, write the word NGOMA and a brief note explaining its significance. This map is your field document for the entire path. You'll add to it in each activity.


Submit

This map is your field document for the entire path. You'll add to it in each activity.

[\[Downloadable blank map\]](#)

[Reference map: Approximate outline showing Niger-Congo language family spread — for student reference only]

Activity 2: The Voice of the Kingdom

ES: “A shared technology is one thing. A tool of statecraft is another. The moment a technology becomes essential for the functioning of a kingdom, it transforms from a tool into infrastructure.

“Here’s a question to write down before we start: what makes a technology indispensable? Not useful — indispensable. There’s a difference. Think about it carefully. The moment a technology becomes essential for the functioning of a kingdom, it transforms from a tool into something else entirely. Write down what you think that something else is.”

“Your mission: understand how the Bono people took an ancient technology and turned it into the voice of their kingdom.”

M1L1.CS-A2a-Notes

What makes a technology indispensable?

Submit

READING: When the Tool Governed

The Bono Kingdom

In the forests and savannahs of what is now central Ghana, the Bono people established one of the earliest Akan kingdoms — oral traditions and historical records place its founding in the 1300s, though the roots of Bono civilization stretch back much further.

The Bono were not the largest kingdom in West Africa. They were not the most militarily powerful. But they were among the first in this region to develop something critical: centralized governance over a large territory. And governance over distance requires communication.



The Bono Kingdom — Bonoman, Birthplace of the Akan

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HISTORICAL MAP



MAP LEGEND

- Modern-day Ghana (borders)
- Bono Kingdom (Bonoman) — historical territory, c. 1295–1723
- Capital / major Bono city
- Modern regional capital
- Neighboring country capital

River / Black Volta
Lake Volta

KEY BONO SITES

- Bono Manso — *royal capital***
Founded c. 1295; destroyed by Asante 1722/23. Near modern Techiman.
- Begho (Hani) — *trade capital***
Major market linking forest gold to Saharan trade routes; visited by Mande traders.
- Techiman — *successor capital***
Capital from 1740; spiritual heart of Bono identity today. Bono East Region capital.
- Sunyani — *modern capital***
Capital of modern Bono Region; within the heartland of historical Bonoman.
- Kumasi — *Asante capital***
Capital of the Asante Empire that conquered Bono Manso in 1723. Ashanti Region capital.
- Accra — *national capital***

ABOUT THE BONO KINGDOM

Bonoman (c. 1295–1723) was the first and most powerful of the Akan states, centered in what is now the Bono and Bono East regions of central Ghana. It is considered the **ancestral homeland of the Akan peoples** — Asante, Fante, Akwamu, and many others trace their origins to migration out of Bonoman.

The kingdom grew wealthy through control of **gold mining and trade**, linking forest-zone gold to the trans-Saharan trade networks via the city of Begho. At its height, Bono Manso was one of the great urban centers of medieval West Africa, visited by Portuguese traders as early as 1471.

The Bono were among the earliest Akan

	 Accra <i>fontomfrom</i> Modern capital of Ghana. On the Gulf of Guinea coast.	to develop the talking drum (<i>fontomfrom</i>) as a royal instrument of power and communication — a tradition that spread with Akan expansion across the Gold Coast. In 1722/23, Asante forces under Opoku Ware I destroyed Bono Manso. The Bono regrouped at Techiman, where their cultural identity endures today.
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Soundstalker Expeditions · Sources: Wikipedia (Bono people), Britannica (Akan states), Modern Ghana · Historical boundaries are scholarly approximations · Geographic outlines approximate

The Fontomfrom

The Bono are credited with developing the Fontomfrom — a set of large talking drums used in the royal court. These were not portable instruments carried by travelers. They were large, imposing drums kept at the royal palace and played by specially trained court drummers. They were symbols of royal authority as much as they were communication devices.

But they were communication devices. And that's what matters.

What the Drums Did

The Fontomfrom served several functions in the kingdom:

- **Royal Announcements** — When the king made a decision, the drummers encoded it into rhythmic and tonal patterns heard across the capital and surrounding villages. Laws, proclamations, judgments — all transmitted by drum.
- **Mobilization** — In times of war or emergency, the drums could call warriors to assemble at specific locations. The message wasn't just "come" — it was "come to this place, at this time, with these preparations."
- **Ceremonial Authority** — The drums accompanied the king in public appearances, reinforcing his authority through sound. Drum language praised the king's lineage, recalled his victories, and reminded listeners of his right to rule.

- Coordination of Trade — The Bono kingdom sat at the edge of the forest-savannah transition zone, rich in gold, kola nuts, and other resources. Market days, trade routes, and commercial agreements were coordinated through drum signals.

The Infrastructure Principle

Here's what makes the Fontomfrom important: it represents the moment when the talking drum stopped being a community tool and became infrastructure.

Infrastructure is the hidden machinery that makes a society work — roads, bridges, water systems, communication networks. You don't see it until it breaks. But without it, nothing above it functions.

Write that down: **a technology that enables a social structure is not a tool — it is infrastructure.**

When it disappears, the structure it supports can collapse with it.

The Fontomfrom was infrastructure. It didn't just send messages — it enabled the king to govern a territory larger than what a single voice could reach. It allowed coordination across distances that would take runners hours to cover. It made centralized authority possible.

Think about what that means. Without this drum, the Bono kingdom as we know it may not have existed. The technology didn't just serve the kingdom — it enabled it.

Why Drums, Not Bells?

A bell can signal "something is happening." A horn can signal a few things — "attack," "retreat," "assemble." But the information is limited to a handful of fixed meanings.

A talking drum can transmit sentences. It can encode who is speaking, what they want, when they want it, where. It can convey urgency, authority, and specificity. The information capacity of a talking drum is orders of magnitude greater than a bell or a horn.

This is the same reason you use a smartphone instead of a walkie-talkie. Both transmit sound. But one transmits vastly more information than the other.

You just thought like a systems analyst. You didn't ask what the tool does — you asked how much information can it carry. That's the right question.

The Bono didn't just need noise. They needed meaning transmitted over distance. And only the drum could do that.

M1L1.CS-A2b-Notes

Come Back to It

At the start of this activity, you wrote down what a technology becomes when it's indispensable to a kingdom. Now you have the word: infrastructure. How close was your answer? What's the difference between a useful tool and infrastructure? Give a specific example of each from your own life.

Investigate

Based on the reading, answer these questions in your Field Notes: What was the primary function of the Fontomfrom drums in the Bono kingdom? How did they help the king rule his territory more effectively? The reading lists four functions of the Fontomfrom. Which one do you think was most essential for maintaining the king's power? Why?

Connect to the Physics

In the Material Science Path, you learned how the hourglass shape and tension cords allow the dundun to produce clear, modulated pitches that carry over distance. Now explain: how do those physical properties make the drum useful for governance? Why wouldn't a simpler instrument — like a horn or a bell — serve the same purpose?

Add to Your Map

On your Africa field map: Find and label the approximate location of the ancient Bono kingdom (in modern-day Ghana) Draw a small icon of a drum next to your label Write three keywords around this icon summarizing the drum's function for the Bono (e.g., "governance," "mobilization," "trade") Draw a line from the Niger-Congo shaded area to your new Bono kingdom label — this shows the zoom from ancient shared heritage to specific political application

Systems Thinking

Think about the Encoder → Transmitter → Decoder model from the Material Science Path. In the Bono kingdom's formal drum communication system, the Encoder is the court drummer, the Transmitter is the drum. Who is the Decoder — and what training does that person need? What happens to the system if the Decoder doesn't have that training?

Submit

Activity 3: Adaptation and Legacy

ES: “A single technology does not behave the same way everywhere. Here’s a question to sit with: does a technology change when the culture around it changes — or does the culture change to fit the technology? Keep that question in mind. You may find your answer shifts before we’re done.”

“A brilliant innovation is one flexible enough to solve different problems for different people. The hourglass drum is a perfect example. Your mission: trace how the same instrument was shaped by different languages, different needs — and how it survived into the modern world.”

READING: One Tool, Many Voices

The Language Shapes the Tool

You’ve learned that the talking drum can mimic the tonal contours of speech. But here’s the crucial question: what happens when the drum meets a language that doesn’t use tone the same way?

The answer reveals something profound about technology. A tool doesn’t just solve a problem — it adapts to the problem. And when the problem changes, the tool changes too.



Adaptation — Yoruba & Serer Drum Traditions

SOUNDSTALKER EXPEDITIONS

● LANGUAGE MAP



MAP LEGEND

- Yoruba cultural region — SW Nigeria & Benin
- Serer cultural region — Senegal
- Cultural exchange / adaptation corridor
- Key city / cultural center

TWO REGIONS

Yoruba

Southwest Nigeria and the Republic of Benin. One of Africa's largest ethnic groups (~50 million), with a rich drum tradition centered on the *dùndún* (talking drum) and *bàtá* ceremonial drums. The Yoruba drum speaks tonal language directly.

Serer

West-central Senegal and the Gambia. An ancient people predating the Mali Empire, the Serer maintain their own distinct drum tradition including the *sabar* and ceremonial *tama* (talking drum). The Serer resisted Islamization, preserving deep animist music traditions.

ADAPTATION

Separated by over 3,000 km of West African geography — Sahel, savanna, and forest — the Yoruba and Serer represent independent but parallel adaptations of the same deep principle: **the drum as voice**.

Both cultures developed **talking drums** capable of mimicking the pitch and rhythm of speech. Both use drums in royal ceremony, initiation rites, and spirit communication. The similarities are not the result of direct contact, but of **independent convergent adaptation** to the possibilities of tonal language and percussive resonance.

This map shows that the talking drum is not a single invention — it is a **recurring human solution** to the problem of long-distance communication across a continent built for the drum.

The Yoruba Model: Speech Surrogacy

Yoruba is a tonal language. The pitch of a word isn't just emphasis — it's meaning. The word *igba* can mean "two hundred," "time," or "locust" depending on pitch pattern.

This property makes Yoruba unusually compatible with the talking drum. The drum's tension mechanism produces rising and falling pitches that directly mirror the tonal contours of spoken Yoruba. A skilled drummer doesn't just approximate speech — they reproduce it. This is called **speech surrogacy** — the drum acts as a surrogate for the human voice, encoding the same acoustic information that speech would carry.

But speech surrogacy requires something important: shared context. The drum transmits the shape of the word. The listener's brain fills in the meaning — but only if it already knows the language.

The Serer Model: Rhythmic Signals

The Serer people of Senegal also use an hourglass tension drum — called the *tama*. But Serer is not a tonal language like Yoruba. The pitch of a word doesn't change its meaning the same way.

So how does the *tama* "talk" in a non-tonal language? Differently.

Instead of mimicking speech contours, the Serer *tama* uses rhythmic patterns — established sequences of beats and pitches that carry conventional meanings within the community. A specific rhythm might mean "the chief is arriving" or "danger approaches" or "the ceremony begins." The meaning isn't in the pitch contour of a word — it's in the pattern itself, which everyone in the community has learned to recognize.

This is a fundamentally different communication strategy. The Yoruba *dùndún* encodes the sounds of language. The Serer *tama* encodes the messages of the community.

Both work. Both solve the Distance Problem. But they solve it differently because the languages — and the cultural needs — are different.

The Adaptation Principle

Here's the deeper insight: the same physical technology can support different communication systems depending on cultural context. The hourglass drum, with its pitch-modulating tension cords, is flexible enough to serve both strategies.

Write that down: **a successful technology doesn't just solve a problem — it's flexible enough to solve different problems for different people.**

The physics doesn't change. The culture shapes how the physics is used. By now you should be finishing that sentence before I do. That's not repetition — that's a pattern becoming instinct.

The Living Legacy

The talking drum did not vanish when the telegraph arrived. It adapted.

In West Africa today, the talking drum serves new functions:

- Music — The dùndún is a central instrument in Yoruba popular music styles like Jùjú and Fújì, where the same pitch-bending technique that once sent messages across savannahs now creates musical expression
- Education — Some schools in Ghana use talking drums instead of electric bells to signal class changes — a deliberate choice to maintain cultural continuity while serving a practical function
- Cultural Identity — For diaspora communities around the world, the talking drum has become a tangible connection to ancestral traditions of innovation

Watch a busy marketplace in Lagos today. No drums. No runners. No signal fires. But the same problem is being solved: coordinating human activity across distance and noise. The technology has changed — smartphones, loudspeakers, written signs — but the fundamental problem remains. The pattern persists across millennia.

The tool changed. The problem didn't. The pattern persists. That's what Soundstalker looks for.

The Language Connection

Complete the comparison table based on the reading:

FEATURE	YORUBA (DÙNDÚN)	SERER (TAMA)
Language Type	Tonal	Non-Tonal
Communication Strategy		
Key Skill for Drummer		
Shared Context Required		

M1L1.CS-A3-Notes

The Language Connection

Complete the Table above by either re-creating it in the space below or by writing sentences.

Map the Adaption

On your Africa field map: Find and label the traditional regions of the Yoruba people (modern-day Nigeria and Benin) and the Serer people (modern-day Senegal) Next to the Yoruba label, write "Speech Surrogate" Next to the Serer label, write "Rhythmic Signals" Draw a dotted line connecting the two regions. Above the line, write "ADAPTATION"

The Living Legacy

Identify two ways the talking drum has found new life in the modern world, based on the reading. For each one, explain what need it fulfills.

Finalize Your Map

Draw a star on Lagos. Write "MODERN LEGACY" next to it. Draw a line connecting the Yoruba region to Lagos, representing the direct line from ancient technology to modern metropolis. Your map now tells the entire 3,000-year story: deep roots → kingdom infrastructure → cultural adaptation → living legacy.

Submit

Cultural Systems Path — Close

ES: “3,000 years of roots. Kingdoms that built entire governance systems around a communication technology. A language encoded in pitch, carried across hundreds of miles in hours, unintelligible to anyone who wasn’t part of the community that built it.”

“You now know what this tool could do — and what the people who understood it recognized about its power.”

“I wonder what you think happened when that power met the most violent disruption in African history.”

“Record your field notes. Select the Transformational Impact Path.”



Next, [Transformational Impact Path](#)

References, Resources and Acknowledgements

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L1 – Material Science Path

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