

Sand Talk

*How Indigenous Thinking
Can Save the World*



Tyson Yunkaporta

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So I turn the lens around.

I'm not reporting on Indigenous Knowledge systems for a global audience's perspective. I'm examining global systems from an Indigenous Knowledge perspective. The symbols that follow help to express this core concept as a hand gesture:



A reader might understand the physical gesture as a living text by mimicking this image, with the left hand sideways with closed fingers, representing a page or screen or print-based knowledge in general, and the right hand with fingers spread out like a rock art stencil, representing the oral cultures and knowledge of First Peoples. The gesture involves placing the splayed hand in front of the eyes, providing the lens through which to view the closed hand.

This is the basic perspective we will use in this book.

This is my method, and I call it *umpan* because that is our word for cutting, carving, and making—it is also the word now used for writing. My method for writing incorporates images and story attached to place and relationships, expressed first through cultural and social activity. My table of contents is visual, and it looks like this:



Each chapter will include some “sand talk,” invoking an Aboriginal custom of drawing images on the ground to convey knowledge. I can’t share a lot of the symbolic knowledge because it is either restricted (by age, birth order, gender, mastery levels) or appropriate only for a specific place or group—for example, while Brolga lore might be relevant for me as an Apalech clan member or for others with the same totem, it is not generalizable for all readers. So the knowledge I will share in the sand-talk section in each chapter will be entry-level. It may reference some stories but won’t tell them completely. However, I will tell parts of a big story, a metastory that connects and extends all over Australia through massive songlines in the earth and sky, a Star Dreaming that Juma Fejo from the Larrakia People wants to share with all peoples. It goes everywhere that turtles go—and there are turtles all over the world, even in desert country, so it connects everybody.



The two symbols within the hexagon represent different things, more than their recent mathematical meanings. Separately, they are signs of marsupials (<) and birds (>) as different totemic categories of meat, based on the direction their legs bend at the knee. Together (<>) they represent the only two placental mammals native to this continent, humans and dingoes. They form a shape that shows the rules of marriage in a kinship system; on a different angle they can form a Men's Business symbol. They also show a point of impact, a creation event associated with the Orion constellation (always a hunter or warrior everywhere in the world), a big bang caused by Echidna fighting with Turtle. The trauma of this event caused the sky camp and earth camp to separate, and the universe to begin deep cycles of expansion and contraction, like breathing, in a pattern shaping everything.



“Why can’t you see the flowers?” the young girl said to me. I was teaching her this image in the sand, teaching her about time and deep time, and she humbled me, made me see a different way, a beautiful way that was right now, where now-time was all-time and filled with joy. Oldman Juma made me see it a different way too, put my cheek to the ground and see the “ant’s view,” the topography of Country in the image on the sand, all the valleys and ridges. Time and place the same. But those three circles—creation time to Ancestors’ time to contemporary time—the pattern repeats in the micro as well, with three generations, life stages, and even three parts within a day, a task, a moment.

It comes up off the ground at you, this image, in 3-D, and it is a moving, swirling energy system. And at the outside, a new circle that is really just the one in the middle again, because it all goes back, feeds back into that system in time and place, endless cycles of increase and renewal. We don’t die; we go back to Country, then come around again, third time around. Creation time isn’t a “long, long ago” event, because creation is still unfolding now and will continue to unfold if we know how to know it.

It all comes out from that central point of impact, that big bang expanding and contracting, breathing out and in, no start or finish but a constant state where past, present, and future are all one thing, one time, one place. Every breath ever taken is still in the air to breathe. I breathe the breaths of the Ancestors, and everybody else's too. Always was, always is, always will be. And there are flowers here, and they make me smile.



This is both a map and a kind of compass, but it is not aligned with magnetic north. In the old way, direction is dynamic and based on seasonal solar movement from your point of view from where and when you are standing, walking, or camping at any given moment.

Time and place are usually the same word in Aboriginal languages—the two are indivisible. At the center of the compass is the point of impact during a creation moment or site; this and the other points represent seven spirit families and their sacred places.

The first man and first woman are at the east and west, with their lines of travel shown, creating different kinship groups and sites as they move through Country. The travel lines on the inside arcs of the symbol form the shape of the first man's canoe. The lines of travel on the outer arcs show how he paddles to turn it, as the sun turns, making direction more dynamic than the modern magnetic version. This is enough to hurt your mind. "What? North is not a fixed magnetic point? East can be north? It changes depending on the seasons?" I recommend being dismissive at this point, unless you want to take a couple of days off work to lie

down and reset your brain. That seems to happen to a lot of people in this particular bit of sand talk.

It gets worse when Oldman says that this view of the symbol is a flipped image that you can only see properly if you send your mind under the ground to look at it from beneath.

Together, all the lines in the sand-talk map show the shape of the Australian continent, which is an upside-down version of the Mercator version we all know today. In many non-Western languages, including Maori, Middle Eastern, and Aboriginal languages, north is down, and south is up. Early maps of the world were like this too, before Europeans began their empire-building and inverted the charts to place themselves at the top. They also stretched the top half of the map to make themselves look bigger, so that the equator is actually lower than it should be and tiny Greenland looks like a continent. If you don't believe me, look at any map and see where the equator is. It is not in the center, but below it. In Oldman Juma's map, Tasmania is at the top of the world, and it is a lot bigger.

Later I do a workshop with those Western Australian children on the monetary system, reminding them of what the Elder showed us. I get them to make a pattern from this symbol:



The pattern over the next hour spreads intricately over a massive sheet of paper, in between reading, viewing videos, and talking about the structure of the monetary system. At the end of the lesson, they have to find patterns in the random, complex image on the paper and align these with patterns they discern in the monetary system. They are a little alarmed at the sustainability issues that emerge in their analysis.



The circle on the left represents the abstract world of mind and spirit, and the circle on the right represents the concrete world of land, relationships, and activity. The lines above and below show the lines of communication between these worlds, which occur through metaphors. These metaphors include images, dance, song, language, culture, objects, ritual, gestures, and more. Even written words are metaphors that help carry communication between the abstract and practical realms (although that communication usually only goes one way and does not complete the loop shown in this image). Metaphors are the language of spirit. They go around, top and bottom, because you need to close the feedback loop—you can't just sit in the abstract space, because you need to take the knowledge back to apply it in the real world, and vice versa. This can be seen in a secular view of reality as a relationship between theory and practice.

The sand-talk symbol shows a basic model of the Turnaround event of creation, the enormous revolving force that produced the separation of earth and sky worlds. "Turnaround" is an Aboriginal English word that was used to describe creation events and times

before the term “Dreamtime” was invented by settlers. Creation is not an event in the distant past, but something that is continually unfolding and needs custodians to keep co-creating it by linking the two worlds together via metaphors in cultural practice. Story Places or sacred sites are places of overlap between the two worlds, which is why people need protection when entering these places—calling out for the old people and putting armpit sweat or smoke or water on those entering. Ceremony creates a similarly powerful overlap between the worlds. Ceremonies and interactions with sites on Country in this way keep creation in motion, causing increases in natural and social systems that are necessary for good health.



This is a symbol I use to mark a way of thinking I call story-mind. There is more to narrative than simply telling our stories. We have to compare our stories with the stories of others to seek greater understanding about our reality. It is a test of validity and rigor for new knowledge. The symbol shows two people sitting, bringing their stories together to share through sand talk to extend their knowledge. False narratives do not stand up well to this kind of analysis. Story-mind is a way of thinking that encourages dialogue about history from different perspectives, as well as the raw learning power of narrative itself.

Narrative is the most powerful mechanism for memory. While isolated facts go only to short-term memory, or to midterm memory with repetition (as with study for exams), story goes immediately to long-term memory. If you can make up a story connecting metaphors, locations, and language triggers to help you remember something you are studying, it will save time and increase your long-term recall.

Stories are also called yarns, but “yarning” as a verb is a different process altogether. The symbol represents the yarning process as well as narrative, because this

is the process by which stories come together and begin to have meaning. Without yarning, stories are just something to put children to sleep. There has to be an exchange of stories if you want to be awake and grown.



This symbol represents either a wooden dish (coolamon) or a wooden shield. There are two interpretations, to connect with both women's and men's cultural activity. The three lines represent pathways to high levels of knowledge and engagement that can be attained through the intense states of concentration required to make and use these cultural items. They may be used in diverse activities such as dancing and food preparation, requiring a deep connection to spirit and the boundless energy and discipline involved in Aboriginal cultural activity. Muscular memory and even cellular memory (inherited memory) may be activated in these tasks.

The demands of the clock become irrelevant as true "blackfella time" kicks in and we become immersed in the activity. We may attain similarly heightened mental states in sleep (or even in trance) as our minds organize terabytes of information in dreams. Even walking can produce this trancelike state of deep thought—often walking and yarning for extended periods with others stimulates high levels of learning and memory because of this mental state, which I call ancestor-mind.

The shield reminds us to protect our knowledge and

our minds from the white noise of civilization, that constant background hum of machinery that has been found to cause brain damage and lower IQ. On another level, there is cultural white noise as well that is damaging to knowledge and ways of living. Engaging with this ancestor-mind way of thinking is a protective practice that reverses this damage. The coolamon may be used to hold an infant, ocher, or nourishing food. It represents the holding of knowledge and the nurturing of our children's minds, undomesticated minds that are exactly the same as the minds of our Ancestors, uncolonized and vibrantly connected to the worlds around us.



Kinship-mind is a way of improving and preserving memory in relationships with others. If you learn something with or from another person, this knowledge now sits in the relationship between you. You can access the memory of it best if you are together, but if you are separated you can recall the knowledge by picturing the other person or calling out their name. This way of thinking and remembering is not limited to relationships with people.

The kinship-mind symbol shows the connectedness between two things—places or people or knowledge or any combination of these. Maybe even synapses. The two distinct entities form a pair, connected by a relationship represented by the line at the center. Additionally, each entity is connected out to a multitude of other pairs, and so the relationship is dynamic, responsive to shifting contexts. There is a tension and balance maintained between the individuality of each entity in each pair and their interdependence in a network of pairs.

In Aboriginal worldviews, relationships are paramount in knowledge transmission. There can be no exchange or dialogue until the protocols of establishing

relationships have taken place. Who are you? Where are you from? Where are you going? What is your true purpose here? Where does the knowledge you carry come from, and who shared it with you? What are the applications and potential impacts of this knowledge on this place? What impacts has it had on other places? What other knowledge is it related to? Who are you to be saying these things?

In our world nothing can be known or even exist unless it is in relation to other things. Critically, those things that are connected are less important than the forces of connection between them. We exist to form these relationships, which make up the energy that holds creation together. When knowledge is patterned within these forces of connection, it is sustainable over deep time.

Kinship-mind is one of five different ways of thinking us-two have examined together so far in our yarns. It might be helpful to summarize these ways and define them.



This is the image for **kinship-mind**, which is about relationships and connectedness. In Aboriginal worldviews, nothing exists outside of a relationship to something else. There are no isolated variables—every element must be considered in relation to the other elements and the context. Areas of knowledge are integrated, not separated. The relationship between the knower and other knowers, places, and

senior knowledge-keepers is paramount. It facilitates shared memory and sustainable knowledge systems. An observer does not try to be objective but is integrated within a sentient system that is observing itself.



This is the image for **story-mind**, which is about the role of narrative in memory and knowledge transmission. It is the most powerful tool for memorization, particularly when connected meaningfully to place. This is how songlines have worked in Australia for millennia to store knowledge in stories mapped in the land and reflected in the night sky. It includes yarning as a method of knowledge production and transmission. Today it is also about challenging grand narratives and histories.

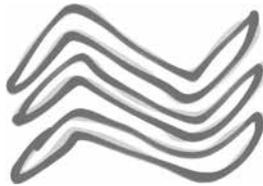


This is the image for **dreaming-mind**, which is all about using metaphors to work with knowledge. The circle on the left represents abstract knowledge, and the circle on the right represents tangible knowledge. The lines above and below represent communication between these physical and non-physical worlds, which occurs through metaphors. These are images, dance, song, language, culture, objects, ritual, ges-

tures, and more. Feedback loops between the worlds must be completed with practical action.



This is the image for **ancestor-mind**, which is all about deep engagement, connecting with a timeless state of mind or “alpha wave state,” an optimal neural state for learning. We can reach this state through most Aboriginal cultural activities. It is characterized by complete concentration, engagement, and losing track of linear time. Ancestor-mind can involve immersive visualization and extra-cognitive learning such as revealed knowledge in dreams and inherited knowledge in cellular memory.



This is the image for **pattern-mind**, which is about seeing entire systems and the trends and patterns within them, and using these to make accurate predictions and find solutions to complex problems. There are three lines with three sections. Each section represents the line from the kinship-mind symbol, which is two elements linked by a relationship. You can see at each point a new pair begins, linked by a new relationship. It is about truly holistic, contextual reasoning.



In these sand-talk yarns we have so far looked at five ways of thinking. Let's blend them now into one symbol and one way of thinking, which we can use to create dialogue between scientific and Indigenous Knowledge systems.

In this symbol you can see the shapes of five other symbols for story-mind, kinship-mind, dreaming-mind, ancestor-mind, and pattern-mind. They are not capitalized because I don't want them to become buzz-words absorbed into the marketplace. There are no trademarks in this knowledge. It is not specific to any single cultural group; instead, it belongs to everyone. You should come up with your own words for these ways of thinking if you decide to use them. You should alter them to match your own local environment and culture. This is all open-source knowledge, so use it like Linux software to build what you need to build for a sustainable life. If you want to do this you can use the symbol and your hand now to work through a logic sequence that will help you understand holism and enable you to come to Turtle story later on.

Try pressing your little and ring fingers flat into the desk, or ground, or belly, or any surface where you are

reading this—maybe on your arm or on the book itself. Imagine those two fingers are making an emu footprint. Now take the next two fingers and do the same again, but imagine it as a kangaroo footprint. Imagine that each pair of fingers represents a different family group and that the two groups are connected through marriage.

Imagine your little finger now as a child. The child has a singular purpose when it is young—to relate. It relates completely to people and land. This puts children at the center of the family and society, the ones who make relationships happen, tying everything together in a kinship system. So this finger represents kinship-mind—a way of thinking and learning that depends on linking knowledge to relationships with people and with places.

Imagine the ring finger now as a mother. That pair, those two together, mother and child, are the pivotal relationship of any stable society. All other relationships radiate out from, and feed into, this central pair. The first knowledge transmission we experience is through this relationship. So imagine that ring finger now as a mother, telling stories to her small child. This represents story-mind. This way of thinking uses narrative as a device to carry and transmit knowledge and memory in oral cultures.

Imagine the middle finger as a man, belonging to the woman there beside him. He represents dreaming-mind. So the little finger is kinship-mind, using relationships to carry and transmit knowledge, and the

ring finger is story-mind, using narrative to do the same. But the middle finger, dreaming-mind, uses metaphors—images, songs, dances, words, objects.

Imagine the pointing finger as the man's brother's child. The man is teaching the child using dreaming-mind, by drawing images in the sand. The woman is telling yarns, transmitting knowledge to the other child using story-mind. Her child is taking on knowledge using kinship-mind—through the relationship and Country the two share together. But the man's nephew or niece, the index finger, is working with ancestor-mind. This means tapping into ancestral knowing that is intuitive and inherent, stored in the body and the land and in spirit, accessed through a peak mental state that allows new knowledge to be absorbed at a phenomenal rate. Ancestor-mind can be achieved through cultural activities like carving, painting, weaving, dancing, and any preparations for ritual or ceremony. It makes you completely open to new and old knowledge.

Now look at your thumb. Wriggle it like a serpent and imagine it sliding across the landscape, forming hills, valleys, rivers, ridges. It connects spiritually to the man, woman, and children. This represents pattern-mind, which is the skill of seeing the whole and not just the parts, a big-picture understanding of how things work. If you can see the whole system and you have a map of it in your head, then you can see the cause-and-effect relationship between every tiny detail. It is the most difficult kind of mind to master.

Now touch the tip of your thumb to the tip of each of your fingers in turn, starting with the smallest finger: kinship-mind, story-mind, dreaming-mind, ancestor-mind. Pattern-mind, your thumb, connects with each of these in turn. Think about what that means for each—the vast complexities in our kinship systems and Country; the way our stories form intricate webs like maps across Country; the images, objects, and other metaphors we use to communicate across multiple cultural groups; the ancestral practices and phenomenal feats of concentration required to achieve all of this.



Now do combinations. Touch your thumb together with the mother and child fingers simultaneously and think about the big-picture meaning of kinship-mind and story-mind together as an intellectual practice. Now touch the man and woman fingers together with the thumb and think about the pattern and purpose of that relationship, of the generative link between dreaming-mind and story-mind, with story as an extended metaphor. Then with the next pair reflect on the link between dreaming-mind and ancestor-mind,

the way cultural activities in peak mental states give rise to metaphors that make meaning and transmit that knowledge with integrity and intensity.

On the back of your hand you will find three joints on each finger. These may help you recall the way our kinship systems can go in cycles of three generations, the way time itself runs in these cycles. In each section of each finger, you may use the creases there to help represent and store increasingly deeper layers of knowledge and understanding about each of these five ways of thinking.

Now make a fist, wrapping your thumb across those fingers and squeezing tight as you think about the way all of these kinds of thinking are intertwined. What is it they form when you put them all together? Don't think too directly about it. Just squeeze your hand in that fist and feel a corresponding squeeze in your belly, and let the question sit with you.



Our kinship systems are based on pairs—uncle-nephew, grandmother-granddaughter, and so on. Knowledge is kept and passed along within these pairs, which have totems relating to them and connecting to land and particular places. A mother might have sparrow hawk totem, which means she also has bushfire totem as the hawk carries burning sticks to spread the fire in that cold season. There are Story Places connected to these relationships and knowledge, and she passes it all along the right kinship pairs to the appropriate relatives.

The dot at the center of this symbol is the child, and the circle around it is the mother. This kinship pair is the center of our society. That circular symbol is one of the oldest in human history and can be found etched and painted on rock all around the world. The purpose of any sustainable society is to protect and nurture this most important of relationships. That is the main role of men as brothers, uncles, fathers, cousins, and grandfathers.

The triangle is the man, who supports the women in his life. But he cannot abuse that trust. Around every woman there are three generations of females: the

man's in-laws, who protect the woman and who have power of life and death over her husband. These are her sisters/cousins, mothers/aunties, and grandmothers, represented by the three "c" shapes enclosing the sides of the triangle. In some places a man in mourning for his wife or mother cannot cut his hair until those women send word that it is time to do so, or he will be punished. He is not even allowed to speak to his mother-in-law directly but must practice respectful avoidance. Those three generations form the sustainable structure of kinship, in which there are checks and balances to ensure equality and prevent abuse.



These two symbols show creation events unfolding from impact points at their centers. The woman and child symbol we looked at earlier, the circle with the dot at the center, shows a point of impact creating the child. After that, the circle divides, creating the two semicircles of the symbol on the left here. This is a Turnaround event, an action within creation of separating spirit and physical worlds, earth camp and sky camp, to make our reality. This symbol is Sunrise and Sunset Dreaming, showing the continual interaction between night and day, of worlds coming together and moving apart in cycles of creation, beginning and ending, expanding and contracting, like breathing in and out.

It may also refer to the Seven Sisters story of the Pleiades constellation, where one sister is left behind on the earth and returns to the sky periodically. It is an eternal enactment of a drama between male and female. The symbol on the right shows the male side, a diamond shape from the Orion constellation, split by an impact at the center. He is chasing those sisters. You can see the seven spirit families again in the points of this symbol. These two male and female Dreamings

interact with each other in a dance of tension and balance, separation and unity. This action happens both within them and between them. Man-woman pair together making fire in the universe. Stories about man-woman transgressions and struggles warn us about what to avoid, to punish, to grow beyond.



There is a pattern to creation. In this image you can see the way that pattern is expressed through Turtle story. A giant Turtle Spirit is hit with massive force at the center of his smooth shell. The impact makes a round section that cracks out to form another, and another. The interconnected pressure of all these round parts together forms them into hexagons, like in a sugar bag (honeybee hive). I couldn't believe it when Oldman Juma told me the sequence—one became two, then three, then five in a row along the center of the shell. Then, at the eight points where each part met, eight new parts formed. The sequence goes: 1, 2, 3, 5, 8, 13, and so on.

I laughed and said that's the Fibonacci sequence, "discovered" by an Italian mathematician around eight hundred years ago. Might add a couple of zeros to that date—it's been around longer than that. It's the pattern of creation, forming what some call the "golden ratio" that all nature is built upon, from flowers and trees to your body and even DNA.

With the impact at the center, all the pieces move outward but eventually move back inward again. This action includes the movement of people. In this story,

people were created from the center of Australia, and many groups spread throughout the world from there. At this point in history, all those groups have returned to these shores and all the peoples are represented here again. The families have all come back together in this place, awaiting the next impact.



There is no carving for this chapter, because the mnemonic device is my hand. Your hand. Us-both hand. Yup, it's literally in our hands. We can put that image anywhere, printed in the sand or in ocher on a rock or tree or object, in more numerous copies than there could ever be of this book. Here's how we can resolve the mass distribution limitations of having Indigenous Knowledge coded into carved objects—most people have hands, so if we put all the knowledge into them, anyone can carry it around. I considered 3-D printing the carvings for each chapter and providing that code with the book so everybody could hold them, but that would just be lazy and unsustainably resource-intensive. So we're going to work with our hands.

I have met a lot of Elders who encode knowledge in their hands as a kind of memory aid. Oldman Juma has stories buried in every crease and knuckle. Noel Nannup in Perth has sites and creation Ancestors in each finger so that he can stand in one place and stretch out his hand with each digit pointing in the direction of five different sacred sites in the landscape. He taught me how to touch them together in different combinations and find new connections between knowledges and places.

Hands are part of my own totemic system, and they

are a sacred symbol all over Australia. You may have seen handprints and stencils on rock art here, and even in cave paintings from around the world. In all the different Aboriginal languages, this word—“hand”—is one that often sounds the same—usually starting with the sound *ma*. Strangely, this is also the start of the Latin word for hand, *manus*. Oldman Juma says, “See?” The hand is a symbol that is sacred to every culture, a meaning remembered everywhere; just like the Seven Sisters constellation that carries the same name across the globe—a remnant of a common origin and a call to come home.

It is the cultural lens that we carry everywhere with us. Remember when I showed you a hand gesture demonstrating that perspective, carrying the message that Indigenous Knowledge is not about the what, but the how? It is about process, not content. Your culture is not what your hands touch or make—it’s what moves your hands.