The Picture Is Right, the Scale Is Wrong: Scalar Calibration in Katherine MacLean's "Pictures Don't Lie"

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The Picture Is Right

Katherine MacLean's "Pictures Don't Lie" begins from an apparent triumph of first contact. A terrestrial scientist receives extraterrestrial broadcasts, reconstructs them into intelligible images, identifies humanlike bodies, recognizes gestures and emotional expression, and eventually establishes two-way communication. The alien visitors are not mute, unknowable, or resistant to interpretation. Their signals can be decoded; their appearance can be seen; their intentions can be inferred; their arrival can be coordinated. Yet the encounter ends catastrophically. MacLean's story stages an unusually precise failure. The problem is not that the alien cannot be understood, but that successful understanding has omitted one relation necessary for material contact. The humans know what the visitors look like, what they intend, where they believe themselves to be, and when they have landed. What they do not know is the scale at which any of that information becomes physically commensurable with their own world.

Brian Stableford already identifies "Pictures Don't Lie" as one of the exemplary puzzle structures of MacLean's early fiction. He describes her method as embedding a striking idea within a problem whose solution the protagonists must discover, calling "Pictures Don't Lie" a classic instance and noting that the scientists' otherwise successful analysis depends upon an "entirely understandable but ultimately disastrous assumption." Stableford correctly identifies the story's architecture, but his phrase "entirely understandable but ultimately disastrous assumption" names rather than theorizes the mechanism (Stableford 489). The assumption itself deserves greater precision. The fatal error is not simply a mistaken guess about the aliens' bodily dimensions. It is the tacit conversion of representational resemblance into material commensurability: because the visitors look human, move intelligibly, use recognizable technology, and communicate successfully, human magnitude silently becomes the standard against which their physical existence is interpreted. The story's puzzle is not that the aliens are unexpectedly small; it is that no one recognizes scale as something requiring calibration until every other interpretive procedure has already succeeded.

This distinction bears on the broader tradition of alien-encounter science fiction. Carl Malmgren argues that encounters with the alien are necessarily structured relationally: alien difference becomes meaningful only against a human background, since the question of what the alien is "other than" cannot avoid returning to human norms. MacLean does not reject that anthropocentric structure so much as expose one of its least visible dimensions. Her aliens are strikingly legible within the categories through which first-contact narratives typically measure difference. They possess bodies that can be described as "Very human"; their gestures appear meaningful; their technology can be understood as technology; their communication can be

translated. Instead of making alien opacity the obstacle to encounter, MacLean makes similarity itself dangerous. The more readily the visitors become intelligible as humanlike subjects, the less likely the observers are to notice that intelligibility has already imported a human standard of measure. Malmgren's governing question (alien to, or "other than," what?) matters here because MacLean makes the human norm measurable rather than merely ideological (Malmgren 17). Her intervention is not that humans inevitably interpret alterity from a human position, but that one apparently neutral component of that position, bodily magnitude, can pass unnoticed as the condition of interpretation.

That concern is consistent with what Jane Donawerth identifies as the structural role of scientific knowledge in MacLean's fiction. Donawerth notes both the relative critical neglect of MacLean's scientifically grounded fiction and the structural force of its science: scientific information organizes the problem-and-solution logic rather than merely decorating it ("Katherine MacLean" 53–54, 58). Her account of women in Golden Age SF likewise situates MacLean within a magazine culture whose conventions women writers appropriated and revised; here, the familiar technoscientific first-contact scenario becomes the very machinery of miscalibration ("Women" 232). "Pictures Don't Lie" makes calibration perform precisely this structural function. The story repeatedly foregrounds technical adjustments (signal speed, scanning, color, sound, motion, ratios) before the final revelation makes clear that magnitude has escaped the same scrutiny. MacLean thus distributes the eventual error throughout the process by which the alien becomes visible and intelligible. The ending does not suddenly introduce scale into an otherwise unrelated narrative. It reveals that scale has been the unexamined condition under which every prior act of interpretation has taken place.

I use scalar calibration to name that missing operation: the establishment of a relation through which represented magnitude becomes materially commensurable with an observer's frame of reference. Scale names the relation; calibration names the epistemic procedure by which that relation is established across representational systems. Miscalibration names the failure of that procedure: not a missing measurement but a misapplied one, a scale imported from elsewhere and treated as given. As a critical term, scalar calibration identifies not measurement alone but the transfer of scale across representational systems. It marks the point at which internally coherent relations are converted into assumptions about material commensurability.

In "Pictures Don't Lie," first contact succeeds at familiar first-contact coordinates (signal reception, visual reconstruction, recognition of intelligence, linguistic exchange) and fails at the point where those successful representations must be translated into shared physical space. MacLean's human observers repeatedly confront the need to calibrate the information they receive, but they mistake the relational consistency of their reconstructed alien world for evidence that this world already shares their own material scale. The story's title is more exact than its twist initially suggests. The pictures do not need to deceive anyone. Their observers need only treat what the pictures preserve as though it included what they never establish. The failure of first contact occurs not because alien difference remains inaccessible, but because similarity conceals the ruler by which difference has already been measured.

Relations Without Scale

Nathen's confidence in the universality of pictures is immediately complicated by the labor required to make the alien transmission visible at all. The image does not arrive as an image. It must be extracted from a signal whose scanning rhythm has to be discovered, synchronized, and converted into a display; even after this procedure succeeds, the colors on the screen are assignments rather than recovered properties. MacLean therefore places a technical contradiction beneath Nathen's claim that pictures are "understandable in any language" (MacLean 105). The visual field that appears to escape translation is itself the product of translation-like operations. Ronald Giere's account of scientific observation clarifies the point without reducing it to skepticism: an instrument responds selectively to its input, and its output depends upon both the phenomenon and the configuration through which that phenomenon is detected. As Giere puts it, "no instrument is perfectly transparent," and careful calibration can reduce but never eliminate the instrument's contribution to its output (13–14). Calibration can constrain mediation; it cannot turn technologically produced observation into an unmediated copy of the world. MacLean dramatizes that danger when the laboriously reconstructed display comes to function as an apparently immediate "window," making the distant figures seem present and readable (107–09). Nathen's screen is reliable because it has been calibrated, not because mediation has disappeared.

Donna Haraway sharpens this distinction through technologically extended vision. Scientific images do not become objective by escaping apparatus: technological "eyes" build "translations and specific ways of seeing," not an "unmediated photograph" (Haraway 583). MacLean's receiver literalizes that problem. Its reconstructed pictures remain usable even though scanning speed, color, and sound are technically imposed. The issue is therefore not whether mediation falsifies the image, but which relations survive mediation and which properties remain uncalibrated. Nathen's confidence also recalls the historical authority Daston and Galison associate with mechanically produced scientific images: mechanical objectivity made the minimization of human intervention central to evidentiary authority even though artifacts, incidental oddities, and atypical specimens could remain (41–44). Their account functions here as an analogue rather than a genealogy of MacLean's fictional apparatus.

Jacob exposes that mistake most clearly when he asks Nathen how the colors were established. Nathen has not decoded an alien equivalent of terrestrial color; he has selected values that make the image look plausible. Yet this does not render the display arbitrary. The dependable information lies in the relations among the values: gradations, contrasts, and similarities persist even when the absolute color assigned to any one band remains uncertain. Jacob immediately recognizes that sound may pose the same problem. The pitch produced by the receiver can preserve differences within the signal without establishing the pitch at which an alien would hear or produce it. MacLean has separated two epistemic achievements that Nathen initially treats as one. A representation may preserve an ordered system of differences while failing to establish how that system maps onto an external standard. The distinction is crucial because it makes the later error about size continuous with, rather than exceptional to, the story's earlier scientific work.

Color and pitch already teach the scientists that internally coherent relations do not automatically determine absolute values.

Bas van Fraassen supplies a precise vocabulary for this distinction. Pictorial representation is selective: a picture can represent an object successfully with respect to some features without determining every property of what it depicts. Accuracy in one respect therefore does not imply exhaustive specification. That principle matters in "Pictures Don't Lie" because the alien image preserves enough structure to sustain recognition. Bodily proportions remain coherent; figures occupy stable positions relative to one another; gestures can be followed; visual contrasts persist. None of those achievements requires the screen to establish the absolute magnitude of the bodies represented on it. The error is consequently not that Nathen trusts an inaccurate image. It is that he treats accuracy with respect to preserved relations as though it also supplied a conversion between the image and human material scale. What the screen gives him is relationally adequate representation. What he silently adds is commensurability. Van Fraassen's later account of scaling makes the point still sharper: what can remain significant across a scale transformation is precisely what is invariant under rescaling (160–61). MacLean's image preserves relations well enough to support recognition while leaving the conversion to absolute magnitude unspecified.

MacLean makes the omission harder to dismiss as accidental by placing ratio explicitly inside the scientists' conceptual world. Their discussion turns to "universal constants as ratio" (MacLean 111), a formulation that foregrounds the very logic necessary to recognize the problem. Ratios permit relations to remain stable across changes in absolute value; they make comparison possible without requiring identity of magnitude. The scientists possess the conceptual machinery needed to distinguish relational regularity from absolute equivalence. They apply that machinery to the signal, to color, to sound, and to physical behavior. What they do not ask is which ratio would connect the represented alien body to a terrestrial standard of length. Perspective identifies a position from which something is represented; scalar calibration establishes how represented quantities become commensurable with an external standard. MacLean's scientists repeatedly correct the former while leaving the latter implicit.

The story begins applying pressure to that omission before the landing. Jacob notices that something is wrong with the visitors' "weight-to-speed-to-momentum ratio" (MacLean 112), while Nathen experiments with playback rate. Neither faster nor slower reproduction restores the expected physical coherence. MacLean is not simply withholding the one fact needed for a surprise ending. By this point the story has already taught Nathen that Earth-likeness is true only "in relative terms" (103), that color and pitch can preserve relations without fixing absolute values (110–11), and that ratio itself is a universal comparative form (111). After scan rate, color, pitch, playback speed, and ratio have all been tested or revised, magnitude remains the conspicuous variable that never enters the calibration sequence. The failure is not a refusal to revise (Nathen revises repeatedly) but a failure to recognize the human body as part of the measuring system, a standard so familiar that it remains invisible while everything around it is adjusted. The final revelation does not introduce scale as the solution to the puzzle; it identifies scale as the variable the story has taught its observers to test everywhere else.

"Very Human"

The scalar assumption that survives these repeated recalibrations has already been installed before Nathen begins testing the transmission. When the first stable image appears, the judgment is immediate: "Very human" (MacLean 102). Yet MacLean almost immediately qualifies the apparent Earth-likeness as true "only in relative terms" (103), planting relationality before its scalar consequence can be recognized. Read retrospectively, "Very human" does more than register morphological resemblance. It begins a chain of mutually reinforcing inferences through which bodily similarity, recognizable gesture, technological activity, terrestrial-looking surroundings, and the expectation of a "huge spaceship" become mutually confirming signs of a shared material world (103). None of these observations establishe the visitors' magnitude. Yet together they make such a measurement seem unnecessary. Human appearance does not logically entail equivalent magnitude, but MacLean arranges the representational field so that the distinction never initially presents itself as a problem. The force of "Very human" lies precisely in this compression: likeness supplies a familiar body, while terrestrial landscape, gesture, motion, and technological expectation make that familiarity scalar.

Zachary Horton's account of scale clarifies why that inference can remain unnoticed. Scale is not merely another measurable property attached to an otherwise stable object; it emerges through relations among bodies, environments, and the mediating systems through which they become knowable. Horton argues that knowledge practices stabilize domains around the "unmarked scale of the human" (7), while scalar mediation can itself obscure the seams between distinct scalar milieus. The importance of the unmarked standard is that it does not ordinarily appear as a standard at all. Nathen never explicitly decides that the figures on his screen must possess terrestrial human dimensions. Had he done so, magnitude would become a hypothesis and therefore something available for testing. Instead, human scale enters as the default against which the rest of the representation becomes intelligible. MacLean's puzzle depends on that asymmetry. Signal speed, color, pitch, and motion appear as variables because their mediation is perceptible; the human body does not, because its magnitude has been naturalized as the background from which those variables are judged.

Timothy Clark makes the consequences of that naturalization more explicit. Clark defines "scale critique" as attention to how a situation alters with the scale at which it is considered; norms that seem coherent may operate only under "usually unexamined assumptions about their scale" (40–41). He later stresses the "contingency of the scale that seems 'natural' to human beings" (51). MacLean turns that principle into narrative procedure. The mistake in "Pictures Don't Lie" is not adequately described by saying that the aliens are smaller than expected, as though size were simply one concealed attribute among others. Changing their magnitude changes the significance of the relations surrounding them. Velocity no longer means what Nathen expects it to mean; atmosphere presents different resistance; terrestrial vegetation acquires different dimensions; a puddle can constitute a major body of water. Size names a property of an object. Scale names the relational frame within which that property reorganizes an environment. What the observers have assumed is not a bodily dimension but a whole field of material commensurability.

This is why successful recognition intensifies rather than corrects the error. The visitors do not merely resemble human silhouettes. Their gestures can be interpreted as gestures; their behavior appears purposeful; their technological activity is recognizable; communication confirms intelligence and intention. Each success makes the reconstructed world more coherent within the frame already established by "Very human." Malmgren's account of alien encounter helps expose the reversal. If alien difference becomes intelligible against a human background, greater resemblance might ordinarily seem to reduce the interpretive difficulty of contact. MacLean makes it increase a different difficulty. The visitors become progressively easier to recognize as subjects at exactly the moment their material difference becomes harder to perceive. Recognition and calibration move in opposite directions: every additional sign of humanlike intelligibility strengthens the assumption that the bodies being recognized inhabit the same scalar order as their observers.

The resulting anthropocentrism is more specific than simple projection. Nathen does not imagine that the aliens share human values, psychology, or culture merely because they look familiar, nor does the story depend upon their remaining radically unknowable. The crucial projection is metrological: the body functions as an implicit measuring instrument, converting morphological resemblance into an expectation of dimensional equivalence without announcing that conversion as an interpretive act. That is why the error can survive increasingly conspicuous anomalies. A visible instrument can be recalibrated; an explicit hypothesis can be revised. An unmarked standard is more difficult to correct because it organizes what counts as an anomaly in the first place. Until the visitors attempt to occupy the same physical environment as their observers, human magnitude remains the ruler that measures everything while escaping measurement itself. The landing does not introduce the problem of scale. It forces the standard that has governed the encounter from the beginning to become visible.

Earth at the Wrong Scale

The consequences of that unmarked standard become material when the visitors announce that they have landed. Until this point, discrepancies can still be treated as problems internal to transmission or representation. The landing removes that refuge. Communication continues to function: the visitors report their progress, Nathen understands their statements, and the receiving equipment places the source of the transmission at the airfield. Yet when the message "We've landed" arrives, the expected spacecraft is nowhere to be seen (MacLean 117). The landing severs two processes conventionally bundled together as successful contact. Linguistic contact has succeeded, and spatial coordination has succeeded, but the bodies supposedly coordinated within that shared space remain mutually inaccessible. The empty field is not evidence that the visitors have lied or that their message has been mistranslated. It is evidence that the same location can fail to constitute the same environment when observers occupy radically different scalar relations to it.

The visitors' descriptions initially seem to make their claim even less credible. Their planet of arrival is dark and murky; its atmosphere appears oppressively dense, "thick as glue," while its gravity and surrounding physical conditions do not match the Earth Nathen believes he

is observing (MacLean 117). Read from terrestrial human scale, these reports sound like contradictions. Read from the visitors' scale, they become observations whose apparent impossibility is produced by the frame through which Nathen evaluates them. MacLean does not solve the contradiction by revealing that one party has been describing a different planet. Both the radio fix and the landing site remain correct; what changes is the relation between the bodies making the observations and the material features they encounter. Environmental description thus becomes evidence of scale, since the same physical world generates different practical conditions once the magnitude of the perceiving and moving body changes. That explanatory economy is formal rather than physically exhaustive, retrospectively coordinating observations that had appeared mutually incompatible.

The "lake" makes this transformation especially clear. Nothing in the terrestrial landscape needs to become physically larger for a puddle to function as a substantial body of water to the visitors. Nor is the alien description simply a mistaken name imposed upon an objectively tiny feature. The relevant relation is environmental rather than lexical. A body of water that is negligible to a human observer can obstruct movement, dominate a field of vision, and organize surrounding terrain for an organism many orders of magnitude smaller. Horton's insistence that changes of scale alter an entity's perspective on and relationship to its environment gives the episode its conceptual force. MacLean is not asking the reader to choose between a true human description and a false alien one. "Puddle" and "lake" register different relations between bodies and the same material feature. The eventual revelation corrects the human assumption of commensurability without invalidating the visitors' report.

Scalar relation likewise reorganizes the rest of the airfield. Grass and ordinary vegetation become enormous growths; commonplace terrestrial organisms acquire monstrous proportions; atmospheric resistance and surface conditions take on consequences invisible at human magnitude. Clark's account of scale critique is useful here because the change does not merely enlarge or diminish an otherwise stable scene. A shift in scale alters which relations become salient and which material processes determine experience. MacLean's Earth is consequently made alien without being spatially displaced. The visitors have reached the correct planet and the correct location, yet the world disclosed by their descriptions initially seems incompatible with Earth because the humans assume that spatial coincidence guarantees environmental equivalence. It does not. Shared coordinates establish where bodies are; they do not establish the scalar relations through which those bodies inhabit what is there. The story's alien landscape is thus produced from ordinary terrestrial matter by changing the bodily standard against which that matter becomes an environment.

The earlier problem of motion now acquires the same explanation. Nathen has treated the apparent speed of the visitors and the rate of their transmissions as variables introduced by broadcasting. He can therefore experiment with playback speed while leaving the represented bodies themselves unchanged. The final realization, "They don't speed up their broadcasts" (MacLean 120), reverses that procedure. What appeared to be a technical acceleration belongs instead to the physical relations generated by the visitors' magnitude. MacLean does not require

an extended lesson in miniature physics for the narrative point to register. Temporal and kinetic expectations have been calibrated against bodies assumed to occupy a human scalar order. Once that assumption changes, the anomalous "weight-to-speed-to-momentum ratio" encountered earlier no longer stands apart from the environmental contradictions (MacLean 112). It becomes retrospective evidence that the wrong variable had been held constant. The scientists kept adjusting the representation because they never considered recalibrating the body to which the representation referred.

John Rieder's account of science fiction as a recurrent movement between disorientation and explanation helps distinguish what MacLean accomplishes here from a more general encounter with radical alterity. Rieder identifies a genre pattern in which apparently impossible facts disrupt an existing interpretive order and demand incorporation into a new explanatory frame (89). MacLean follows that movement but makes its resolution unusually exact. Nothing essential about the visitors' intelligence, language, intentions, or subjective interiority must finally be decoded to explain the impossible airfield. The decisive new information concerns a relation of magnitude. Once that relation changes, observations previously classified as mutually incompatible become mutually supporting. The alien does not retreat into unknowability; the human model becomes revisable. MacLean thereby locates the difficulty of encounter not in an irreducible otherness beyond representation but in the observer's failure to identify which apparently neutral feature of the representational frame has been supplied from home. Suvin's definition of SF as "cognitive estrangement" helps name the operation, but MacLean makes it unusually literal: ordinary Earth becomes strange when cognition must revise the scalar relation through which the familiar world had been organized (Suvin 4).

The magnifying glass at the story's end makes that correction materially visible. It identifies what the receiver could not establish and what the observers never thought to ask: the conversion between the dimensions represented on the screen and the dimensions of the bodies occupying the airfield. The revelation retrospectively reorganizes the evidence without requiring most of it to become false. The visitors did land, and the directional fix did locate them. Their strange terrain is simply the terrain surrounding the station. Their apparent lake, gigantic vegetation, oppressive atmosphere, and extraordinary creatures belong to Earth as encountered through a radically different bodily magnitude. Even the transmission anomaly participates in the same scalar system. The final discovery does more than disclose that the visitors are tiny. It demonstrates why a long sequence of successful observations could converge on a materially disastrous conclusion. The humans possessed enough information to establish relations within the alien world, but not the calibration required to place that world beside their own. When the missing relation is finally supplied, the alien planet does not disappear. It becomes Earth seen from a scale the human observers had never recognized as absent. The remaining question is why the reader, who has access to MacLean's narration rather than Nathen's apparatus, has made the same omission.

The Reader's Missing Ruler

The scalar error exposed at the airfield does not belong only to Nathen and his colleagues. MacLean has withheld the same measurement from the reader while surrounding its absence with information that makes the represented world appear dimensionally complete. The opening image offers bodies that are "Very human," an Earth-like landscape, recognizable weather, grass, puddles, an airfield, and the anticipation of a "huge spaceship" (MacLean 102–03). These descriptions establish relations of appearance and environment, but none fixes the visitors' magnitude. The omission is easy to overlook because the narration does not present magnitude as missing data. Human likeness, familiar terrestrial reference points, and the conventional vocabulary of first contact make the scene feel already scaled. MacLean does something more exact than concealing the size of the aliens until the final pages. She supplies enough conventional information that the absence of measurement does not register as an absence.

Marie-Laure Ryan's principle of minimal departure explains how such an omission can nevertheless generate a determinate storyworld (52). Because fictional texts cannot specify every property of the worlds they evoke, readers ordinarily supplement what is stated with assumptions derived from their knowledge of the actual world unless the text gives them reason to depart from those assumptions. In MacLean's story, no explicit measurement initially forces such a departure. A body described as humanlike is positioned to inherit the dimensional expectations attached to ordinary human bodies rather than remain radically indeterminate in magnitude. The crucial point is that this inference does not feel like an inference. Human scale enters as default information precisely because the narration has not marked it as information requiring construction. Ryan's account thus identifies the readerly analogue of Nathen's scientific error: both systems complete an incomplete representation by importing a familiar relation that subsequently becomes difficult to distinguish from what was given. Minimal departure does not simply explain why readers tolerate unspecified details; it explains why the missing measurement arrives already filled. The default is powerful because it is not experienced as an interpretive choice.

Science-fictional competence intensifies that process. Brian Attebery argues that SF readers fill textual gaps from both scientific and generic megatexts; "the less explicit the information, the more need for the reader to be immersed in the genre itself" (8). MacLean can consequently write "spaceship" without rebuilding the concept from first principles. "Huge" appears to supply scale, but it names only a relation whose reference standard remains unstated. Huge compared to what? Alien transmission, landing, airfield, and humanlike visitor similarly belong to an established first-contact vocabulary whose familiarity accelerates world construction. The story turns that competence against the reader. Genre knowledge makes the sparse description efficient, but efficiency has a cost. The reader imports a scalar model along with the icon. The very protocols that make the fictional world rapidly intelligible help conceal which of its properties have been supplied by convention rather than established by the text. Attebery's discussion of Gary Wolfe's icon concept sharpens the trap: familiar SF icons such as spaceships and aliens carry inherited information while leaving much unstated, so familiarity accelerates inference (9).

The parallel between Nathen and the reader is structural rather than psychological: narrative representation reproduces the same incompleteness already established in Nathen's technical representation. Nathen receives an incomplete technologically mediated representation and supplies human scale; MacLean places the reader within narrative conditions that solicit the same completion. MacLean thus makes the reader perform the very miscalibration the plot diagnoses. In each case, the resulting model is coherent enough to absorb contradictory evidence: Nathen treats anomalous motion and environmental description as local technical problems, while the reader treats those anomalies as mysteries within a human-scaled first-contact scenario. The final revelation does not simply disclose withheld information. It exposes what both interpretive systems added to the information they possessed.

This formal symmetry returns the title to the center of the argument. To read "Pictures Don't Lie" as straightforwardly ironic would imply that visual evidence has betrayed its observers; to read it as a defense of transparent pictorial truth would ignore the layers of scanning, assignment, playback, and inference through which the images become legible. MacLean sustains a more difficult position. Representations can preserve truthful relations without specifying every condition necessary for their material interpretation. The visitors' bodily proportions, gestures, surroundings, and relative differences can remain intelligible even while absolute color, pitch, temporal rate, and magnitude require further calibration. The picture need not lie for the observer to be wrong. Error enters when the absence of a represented relation is mistaken for evidence that the relation has already been established.

MacLean's first contact fails not at recognition or communication but at the conversion of successful representation into a supposedly shared material frame. That unmarked magnitude governs the conversion, organizing expectations about bodies, motion, atmosphere, landscape, and technology while escaping the calibrations applied elsewhere. By making the reader reproduce the same mistake, "Pictures Don't Lie" turns scalar assumption into narrative form. The story suggests that first contact may fail not where difference becomes too radical to understand, but where similarity makes one consequential difference disappear. Scalar calibration names that prior problem: whether observers can identify the human measures already structuring what counts as intelligible contact.

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