

Inca rope bridge

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Inca rope bridges are simple suspension bridges over canyons and gorges and rivers (*pongos*) constructed by the Inca Empire. The bridges were an integral part of the Inca road system and exemplify Inca innovation in engineering. Bridges of this type were useful since the Inca people did not use wheeled transport - traffic was limited to pedestrians and livestock - and they were frequently used by Chasqui runners delivering messages throughout the Inca Empire.^[1]

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Construction and maintenance

The Incas used natural fibers found within the local vegetation to build bridges. These fibers were woven together creating a strong rope and were reinforced with wood creating a cable floor. Each side was then attached to a pair of stone anchors on each side of the canyon with massive cables of woven grass linking these two pylons together. Adding to this construction, two additional cables acted as guardrails. The cables which supported the foot-path were reinforced with plaited branches. This multi-structure system made these bridges strong enough to even carry the Spaniards while riding horses, after they arrived. The design naturally sags in the middle.

Part of the bridge's strength and reliability came from the fact that each cable was replaced every year by local villagers^[2] as part of their *mit'a* public service or obligation. In some instances, these local peasants had the sole task of maintaining and repairing these bridges so that the Inca highways or road systems could continue to function.

Repairing these bridges was dangerous, as those performing repairs often met death. An Inca author praised Spanish masonry bridges being built, as this rendered the need to repair the rope bridges moot.^[3]

Inca Rope Bridge



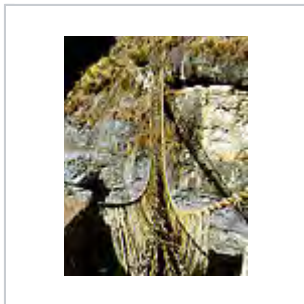
The annually reconstructed Q'iswa Chaka ("rope bridge") in the Quehue District is the last of its kind.

Ancestor	Rope bridge
Related	None
Descendant	Simple suspension bridge
Carries	Pedestrians, livestock
Span range	Short
Movable	No
Design effort	Advanced for its time
Falsework required	No

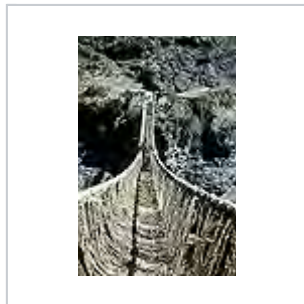
Famous examples

The greatest bridges of this kind were in the Apurímac Canyon along the main road north from Cusco;^[4] a famous example spans a 148-foot gap^[5] that is supposed to be the inspiration behind Thornton Wilder's 1928 Pulitzer Prize winning novel *The Bridge of San Luis Rey* (1927).

Made of grass, the last remaining Inca rope bridge, reconstructed every June, is the Q'iswa Chaka (Quechua for "rope bridge"), spanning the Apurimac River near Huinchiri, in Canas Province, Quechua District, Peru. Even though there is a modern bridge nearby, the residents of the region keep the ancient tradition and skills alive by renewing the bridge annually in June. Several family groups have each prepared a number of grass-ropes to be formed into cables at the site; others prepare mats for decking, and the reconstruction is a communal effort. The builders have indicated that effort is performed to honor their ancestors and the Pachamama (Earth Mother).^[6]



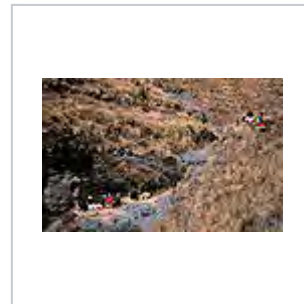
The old bridge sags (Slide show)



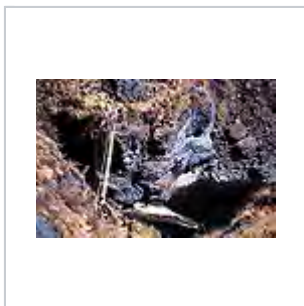
Notice how much less the new bridge sags



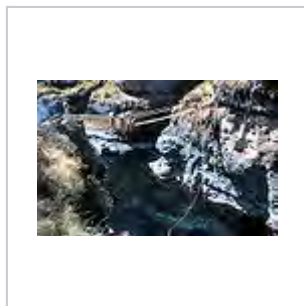
Builders gather during the renewal



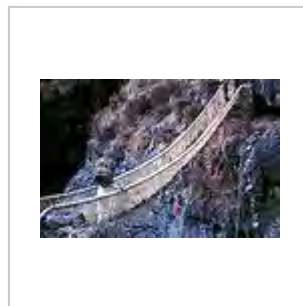
Preparing side lashings



Main cable and hand-ropes are in place



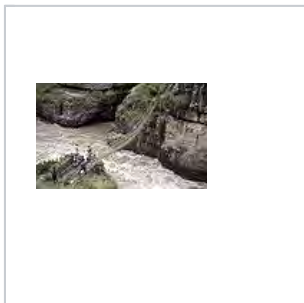
Lashing the hand-ropes to the main side cables.



Trimmed mat rolls form the bridge deck.



The new bridge is now complete and in use.



Bridge in use during the rainy season.

See also

- Carrick-a-Rede Rope Bridge, a rope suspension bridge in Northern Ireland
- Inca Bridge, rope bridge, secret entrance to Machu Picchu
- Simple suspension bridge. see the image of the Inca rope bridge built with modern materials and structural refinements
- Suspension bridge, modern suspended-deck type

References

1. Brown, Dale (1992). *Incas: Lords of Gold and Glory*. New York: Time-Life Books. p. 98. ISBN 0-8094-9870-7.
2. Squier, Ephraim George (1877). *Peru: Incidents of Travel and Exploration in the Land of the Incas*. New York: Harper Bros. p. 545. "Each bridge is usually kept up by the municipality of the nearest village; and as it requires renewal every two or three years..."
3. Brown, Dale (1992). *Incas: Lords of Gold and Glory*. New York: Time-Life Books. p. 68. ISBN 0-8094-9870-7.
4. Leonard, Jonathan Norton (1968). *'Ancient America', Great Ages of Man Series*. Time/Life Books. p. 185.
5. Squier, Ephraim George (1877). "The Great Hanging Bridge Over the Apurimac". *Peru: Incidents of Travel and Exploration in the Land of the Incas*. New York: Harper Bros.
6. Foer, Joshua (February 22, 2011). "The Last Incan Grass Bridge". *Slate*.

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External links

- "Inca Bridge to the past". *Boston University*. March 21, 2003.
- "Inca Bridges, a Library of Congress lecture". *Library of Congress*.
- "Inca Roads and Chasquis"]. *Discover-Peru.org*.
- Klosterman, Doug (Photographer). "Slideshow of Keshwa Chaca (Inca rope bridge construction near Huinchiri, Peru)". *dojoklo.com*.
- "The Last Inca Suspension Bridge: A Photo Album". *Rutahsa Adventures adventure travel*.



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