henri rey

THE INVENTOR FROM TAHITI

BY WILLIAM DAVENPORT
I met Henri Rey in Tahiti in 1965. He was living in semi-retirement in the district of Pirae, about three kilometers outside Papeete, the capital of French Polynesia. With him lived two grown daughters, Pauline and Henriette, and usually several grandchildren. A Tahitian cook from Moorea Island, called Tutu, came in daily to prepare three meals for the household. The main meal was midday, after which the entire household took a siesta. Sundays were no different from weekdays. Henri had been widowed for many years. He was then 75 years old, in good health, and had a part-time business shipping mangos to New Zealand every fortnight or so when one of the Matson Line passenger ships with refrigerated cargo space put into port. Henri purchased the mangos suitable for shipping out from friends and neighbors who had a few trees just as he did.

Chez Rey (as his establishment was called) was a European-style house on about one hectare of land. The house was located next to a stream, and the property was neatly planted with fruit trees of every tropical species Henri had been able to get. Chickens foraged on the grass and ground under the trees, and their eggs were gathered daily. Henri had built a narrow bridge over the stream that was quite distinctive; it was peaked not arched and guyed with heavy tie wire to the shore in order to keep it from swaying.

Henri Rey seemed quite content to be living as he was, surrounded by his family, and he possessed more energy than most men his age. He had a curiosity about just about anything mechanical. Although slight of build, Henri had a strong voice with which he greeted any and all who approached the bridge for the first time by shouting a greeting—something like, “Come on over the bridge”—in English, French, or Tahitian, as he judged appropriate.

Henri was also a practitioner of homeopathic medicine. Hardly a day passed that someone seeking a consultation didn’t appear at the house. Henri would listen, possibly ask a question or two, think quietly, give his diagnosis, and then go to his house and get the required prescription. Since homeopathy was thought to be harmless by scientific medicine, Henri needed no license to practice. He never charged for his services.

Henri’s father, Jean, was French, and his trade was that of charron-forgeron (wheelwright/blacksmith), the first in Tahiti. His mother (last name Brun) was of mixed French and Tahitian descent.

“Back then part-Tahitians usually married part-Tahitians. We half-castes were a closed group or class, and we tended to run most everything in Tahiti.” Henri always used the word “half-caste” when telling his story.

Jean and his wife produced six children. In order of birth they were Rose, Julie, Henri, Jules, Leon, and Elisa. Several more died as infants.

Initially, the Jean Reys settled down way out in the country in Paea, quite far from Papeete. Jean Rey had a horse-drawn wagon, the first such vehicle in Tahiti, that he used to travel into Papeete over what was really a path, not a road. The local Tahitians (Henri used the word “native” when referring to pure Tahitians) who lived along the way always collected in
groups to watch the horse and wagon pass by. In due course, Jean Rey developed and operated a hauling service in addition to his wheelwright/blacksmith trade. His wife, Henri’s mother, was a devout Catholic, but Jean disliked the Church intensely. There was a Tahitian custom that still continues to some extent, to designate a second pair of parents for a child, called in English “feeding parents.” Henri’s feeding mother had him baptized a Protestant, and that caused his birth mother to be very angry, and the reason Henri’s early rearing was mostly by his feeding mother. Even though France is predominantly Roman Catholic, its Pacific dependencies, officially called Polynesie Francaise, are mostly Protestant.

Henri started formal schooling at a public elementary school in Papeete. By this time, his father had moved his shop into town, but Henri developed little interest in regular school. He soon just quit going altogether, and spent his time hanging around his father’s shop or pursuing his own interests in making things to trade or sell. One of these was collecting “cat’s eyes,” the round opercula (shell covers) of a common species of sea snail, and trading them to other boys just like we trade marbles. He showed business acumen even before he began inventing things. Since his father Jean was Catholic but not a practicing one, he worked in his shop on Sundays. One Sunday a priest came into the shop and told Jean not to work on the holy day. Jean replied with feigned hostility that he had also gone to the market that morning and now he was going to make back the money he had spent.

Young Henri also became fascinated by the fragments of old pre-Christian myths of Tahiti about such culture heroes as Hiro and Rava’ai, who had been the great tahu’a, or masters, and holders of supernatural power, especially the powers to cure sickness and disease of any sort. Henri’s father was very proud of him and loved him dearly and encouraged him to tinker around his shop. He saw to it that Henri had all the materials and right tools he needed to make the things he thought up. As Henri tells it, a French Army captain, noting Henri’s precocity in his father’s shop, told Jean that he ‘should send the boy to the Ecole Technique in Paris.” Jean replied that he did not have the money to do a thing like that. Henri heard this interchange and was relieved by his father’s negative reply, for the very mention of the word “école” or the mere suggestion of sending him away from Tahiti alarmed him.

Henri made his first mechanical gadget for an aunt. She had had a baby and was carrying it in a shawl tied off one shoulder, just as local mothers did then in Tahiti (and everywhere else in Polynesia). Henri built a small four-wheel cart, actually a perambulator that could be pushed or pulled, and presented it to her. She used it, which caused quite a stir among other young mothers, especially those of mixed racial heritage. Some of them came to Henri and asked him to make one for them. Henri insists that he had never seen or heard of a pram (baby carriage) before he built his.

Kite flying during the southeast trade-wind season was a great sport for older boys in Tahiti and there were grades of competitions. The winners were those who got the most string out. Henri was not much interested in the contests, but he noted how slowly and how long it took to bring the string back. So he invented a wind-powered reel. Henri’s reel had a broad-bladed, wind-driven power mechanism. For a small fee, he would offer to bring in their string for them with his machine. Most likely, it was the novelty of watching the reel work that most attracted the takers of Henri’s services, but people talked about his winding contraption for some time after the kite season was over.

The captain of the French Artillerie stationed in Papeete had noticed Henri’s cleverness, and he went to his birth father and asked if would be alright to take Henri into their shop where he could learn to use all the machines they had. The Artillerie had a big shop with many soldiers working in it. Henri worked first on the lathe, turning local hardwoods into spokes, plates, cups, bowls, and the like. Then the captain, Bourgoin by name, put Henri to work with metal—shaping, filing, and fitting various parts together precisely. He stayed two years in the Artillerie shop and acquired there the most useful of the crafts he mastered.

My birth father died in 1902, when he was only 63 years old and I was 17. He died without a last will and so it took a long time to settle his estate. Everything had to be sold first, and then the money was divided among the heirs. This was difficult in Papeete at the time, because there were no lawyers and no bank, not even a standard coinage.

I wrote to my father’s agent in San Francisco and asked for a loan to purchase new tools and supplies to start anew. The agent responded to Henri’s request, and even added the tools and materials to fit solid rubber tires to the wheels.

Previously, Henri had developed a sort of bicycle on which he ran errands for his father. Around the time of his father’s death, Henri got interested in Tahitian canoes, especially the sailing canoes. He bought one made by a Tahitian maker and fitted it with bicycle pedals, shaft, and propeller. For the propeller, he copied the only one in Tahiti that was on a steam-powered launch owned by a local French businessman. Henri’s foot-powered canoe worked, and many people were curious about the contraption. So, Henri responded by offering rides in it. The ride was from the shore to the small island called Motu Uta that stood in the middle of Papeete harbor. The charge for a trip was 10 sous.

At the urging of all his family, Henri also decided to get married, at the age of seventeen, “Tahitian style.” The lady’s name was Tevao-moe-ari‘i, “The Valley of Sleeping Chiefs.”
This name had been given her by Prince Hanoi, of the Pomare Dynasty, whose father had become the reigning monarch of French Polynesia, by appointment from Paris, not by genuine tradition. Tevao-moe-ari’i had been in the hands of Seventh Day Adventists. She did well with them and they sent her to a family in Petaluma, California, to learn better English. However, she asked to be sent home from the States because of the cold weather. Although the religious customs and beliefs of the Adventists had little effect on her, she and Henri remained monogamously together until she died. He never remarried.

One of my most memorable experiences—I forget the year—was when our neighbor [Henri was still single and then living temporarily with his brother-in-law], Jim Adams, owner of a small steam-powered launch [The Adams family of Tahiti were distantly related to the second president of the U.S.], asked me to go along with him to the small atoll named Tetiaroa. [Tetiaroa was purchased in the 1960s by the actor Marlon Brando for his personal use.] I agreed to go because it would be my first time to actually leave Tahiti. There is an east-flowing current across so we steamed up to Point Venus [so called because of Captain James Cook’s observations of the transit of the planet Venus across the sun there] before heading the launch for Tetiaroa. The atoll was then owned by Marau, a Pomare who was a sort of queen of Tahiti. [Marau is still honored for composing the song “Maruru a Vao,” Tahiti’s national anthem.]

We arrived there with no trouble and found that a group of Paumotuans [or Tuamotuans from atolls east of Tahiti] had been hired to reside there just to look after things. Among those Paumotuans was the biggest woman—fat I mean—I have ever seen. We had taken enough supplies for two or three days. There is only a shallow entrance into the inner lagoon, but the lagoon itself is deep enough for any kind of large ship. As our supplies ran out we headed back to Papeete with a load of fish to sell in the Sunday market. But we never made that market. We did not allow enough for the current and we ended up off Moorea and too late for the weekly market.

When my birth father died, I began to think that even after the inheritance was figured out, I wasn’t certain I wanted to spend my whole life in Papeete. I wanted to travel. I had saved some money. I say “money” and speak of francs, but the currency we used back then was from Chile. It turned out to be enough to pay a discount-price passage on the deck of a Union Steamship Co. cargo-passenger ship that sailed to Auckland and returned by way of the Cook Islands: Aitutaki, Tongareva, Makatea, and Rarotonga, the largest one, with a small town...
named Avarua where the seat of government for the entire Cook Island group was. I went ashore at every stop and even ran into a few Tahitians who had gotten over there to work. I liked Rarotonga very much and I began to think about setting up a shop and then bringing my wife and children there.

It took some time to work out a plan for moving to Rarotonga. Finally, in October 1908 I left on the old Hauroto, the ship stopping to take on cargo at Huahine, Raiatea, in the Society Islands in which Tahiti is included; then went on to several of the Cook Islands, and finally to Rarotonga. Mostly, the cargo was oranges. Surprisingly, we met several Frenchmen; all were married to local women. The men were like floating coconuts floating ashore and taking root. I needed land, enough for a shop and growing a cash crop. I decided on growing the mountain banana, which I would sun dry into a sort of confection that was much liked in both the Cook and Society Islands. After asking around, I learned that only Queen Makea could sell or lease land on Rarotonga. I went to see her and took an interpreter with me, because I had not yet learned to speak and understand the Rarotongan dialect, and my English was not good yet. The second language of the Cook Islands is English, because of their New Zealand dependency. Queen Makea was very polite to me and seemed interested. She agreed to lease me 28 hectares of the land I wanted for £5 a year.

I set up shop, and then planted 14,000 banana plants of a Samoan variety called Cream Banana; also, Valencia oranges, Emperor mandarins, and Lisbon lemons.

In due course, the plantings thrived and Henri decided to build a cableway from the center of his small plantation to the outer edge of the fringing reef, with one stop near the shore for unloading the bananas that were to be sun dried and other fruit, all to be stored until a boat or ship came to pick them up. No such cable car existed in that part of the Pacific. Henri could not recall ever seeing anything like that, but he admitted to hearing about them being used in Europe.

Henri went back to visit with his wife and children, and while there, he ran into a man with a motion picture machine and some films. Henri was fascinated by it and bought it at a rather high price. His plan was to take it back to Avarua and build a hall to show the pictures. So he and a partner purchased lumber for £1000 and put up a large building they named Royal Hall, in honor of the queen. But the secretary to the New Zealand Resident told Henri he would not allow this to go further. Henri went to the Queen and explained the problem. She told him to just ignore the Resident’s orders. And that was that. At the opening, “the Resident even made an opening speech.”

There had to be someone to talk while the film was showing to explain to the audience just what was going on, so I did it. We charged 2 shillings and 6 pence which was high, but the hall was packed every night, and we soon made our expenses back and a lot more. That was in 1913. We took the film to other islands and arranged to get fresh films from New Zealand.

One thing I was always being asked about was the kare ore’enua, the buggy without horses. People could not imagine such a thing, so I decided to buy one. The next time the steamship was in port I went on it to Wellington. Through my friends who handled my fruit exports I found two cars, Stuarts, made in England, and arranged to have them both shipped to Rarotonga. With two I could keep one running all the time and use the other for spare parts. A short time after they arrived I had them running and felt confident that I knew enough to keep them going.

I started giving rides through town for 2 shillings a person, five at a time. My brother Jules and I made trip after trip, every day. My word, the money we were making! Then we started taking passengers all the way round the island for £2 and 10 shillings. Jules took one car over to Tahiti, and business there was as good as on Rarotonga. Just as everything was going well at both places my car broke a wheel. I thought and thought how I might fix that broken wheel. All of a sudden an idea came: instead of fixing the broken wheel, I would make a new one, and the new one would be of a completely different kind and design.

I took the broken wheel and broke out all the spokes. Then I took the metal rim of the broken wheel and bored eight holes...
evenly spaced around the outer flange and eight around the inner flange. The inside and outside holes were offset so that the holes in one came in line between two holes in the other. In each of these 16 holes I put a lug that stood out from the rim a little. Then I took all the spokes out, which left the hub in two parts, an outside and an inside. In a circular plate of common 3/8 inch iron I cut eight spoke-like projections and a second one exactly the same. The two plates were hammered into concave shapes so that when they were placed together, concave side to concave side, there were 16 projections.

When the two plates were fitted into the old rim there were 16 plate projections instead of spokes, and when tightened by a nut on the axle, the two concave plates were pressed into the old rim. This was not an old artillery-type wheel or a disc wheel; it was a Rey wheel.

My friend McBirney in Rarotonga was very interested in my wheel, and we talked about it for several weeks. Finally he said, “Henri you must get a patent on it, but I don’t know how to go about it. Anyway, we must go to the U.S. and find out. I will pay all expenses.” So we took the next Union Steamship steamer to San Francisco. I think we must have been the first passengers they ever took from Rarotonga to the U.S. The first thing we did was look for a shop that could fabricate a set of my wheels that were more finished and good looking than my somewhat crude one. That was hard because it was wartime and most machine shops were busy with war work. We finally found one and ordered five wheels, four for a demonstration car and an extra for a demonstration model at shows and such.

Now we were ready to go east to get the patent. In Washington, D.C., we found a man named Trainer who was both an engineer and a lawyer, and he went to work. Somehow, he got the papers through quickly, and McBirney and I took the train back to San Francisco. We bought a rather late model of Dodge Overland to mount the wheels on and started out to drive across the country. We headed for Washington again and went straight to the War Office. We were welcomed there and several officials went over the wheel carefully. They were enthusiastic.

Can you produce them?

No, of course not, we are just from the South Seas.

Then he explained that every shop and factory in the U.S. was working full capacity. There was no hope that the government would adopt it.

We stayed around Washington for a few weeks, and there was a terrible heat wave, but we got to see President Wilson in a July 4th parade, and we slept outside at the foot of the statue of General Lafayette until the heat subsided.
They did a lot of sightseeing on the way west and caught the Moana back to Tahiti. Just a few days after reaching Tahiti, Henri and his wife came down with the flu. He did not fully recover for three months; his wife was not as sick as Henri, and all the children survived, but hundreds of Tahitians died in the flu epidemic. Then word finally arrived that the Great War was over.

But the matter of the wheel was unfinished. So Henri sold some of his interests in Rarotonga and put the rest in the hands of his brother Jules. He and McBirney went back to the U.S. to pursue the matter of patenting the Rey Wheel. They went to Detroit and after getting a new lawyer, they incorporated, formed a stock company, and went public by issuing $400,000 worth of stock, half of which Henri held plus $15,000 in cash for his investment so far. They fitted three more cars with Rey wheels, and first went to the Kelsey Wheel Company of Detroit who made artillery-type wheels for General Motors and Ford. They were interested, but not willing to abandon their huge investment in their plant and hundreds of hectares planted in hickory for spokes.

Then I went to the Hayes Wire Wheel Company, but they thought wire spokes were going to take over. Then I read the French were working with something called the balloon tire. I suspected that this was not in our favor. I saw engineers at the Scripp-Boothe Division of General Motors, and they were interested and sent me on to the Experimental Division for a talk with Dr. Kettering. He went over the wheel and decided to try it out on a Chevrolet and was favorably impressed. We talked about several unrelated things, then Dr. Kettering looked at me and said, “Your place is here, right here in my laboratory.”

We will give you an office, you can work the hours you like, work on anything that interests you, I know how inventors work because I am one.

No, Mr. Kettering, I cannot do that. Here I am just a nobody. At home in the South Seas I am Henri Rey the blacksmith-wheelwright.

I met with a man who was Chief Engineer with the Pierce-Arrow Company, and he wanted to quit them and sell the Rey Wheel in Europe. However, he wanted 50 percent of the whole company. Our Director wanted me to accept, but I refused. For the first time there was some unpleasantness within the company. Everyone was restless. We met with a man who was a Director of the Allegheny Company which made wheels for the Budd Company of Philadelphia. The man said, “I want Mr. Budd to see that wheel of yours.”

Next day I went back to the Allegheny office and Mr. Budd was there. Right away, he asked to see a demonstration model, and he sat right down on the floor and began to play with it.

Finally, he said, “Can you come over to Philadelphia?”

Certainly we can come, and in one of our cars fitted with Rey Wheels.

We went over it with the Chief Engineer, and then we waited for some word. We had given Mr. Budd a copy of our patent. We waited a month, all the time the Budd Company was paying our expenses. Finally, the call came. We went over to Mr. Budd’s office, and he asked to see me alone. I knew that something was not right.

“Mr. Rey, here is the situation. We have an agreement with the Michelin people to use their disc wheel and balloon tire. I will give you $200,000 and we will put your wheel on the shelf. Take your $200,000 and go back to Tahiti.”

I knew that was the end of the Rey Wheel Company. We were just too late. We all went back to San Francisco, and I stayed around there for awhile. I had to think of something else that would be useful and would sell. I remembered how copra workers husked the nut with a sharpened stick stuck in the ground. So I designed a machine to do the job and had a demonstration model made. But, all the copra producers just kept on using sharpened sticks [and still do to this day].

Then I met a man in Santa Clara who was in the prune business. I knew about sun-dried fruit. I designed and built a machine that kneaded the pitted plums to just the right softness. He thought it was a wonderful machine and paid me a lot of money. But I didn’t apply for a patent, because it was so much trouble and there seemed to be little future in prunes.

In 1965, on my visit, Henri was thinking very hard about the distribution of electricity without power lines. “That is the future,” he told me. It also explained why there were nails driven into many of the trees in his yard and some wires dangling from them. Henri was clearly experimenting in realms beyond his grasp of modern physics. That was the last time I talked with him.

Henri began to have trouble with his prostate, and homeopathic self-treatment did nothing to help the worsening symptoms. His family persuaded him to go to New Zealand for diagnosis by an M.D. Whether or not he had surgery I do not know. But he returned to Pirae and died there on February 26, 1971.

William Davenport was Curator Emeritus of the Oceania Section of the University of Pennsylvania Museum of Archaeology and Anthropology. He passed away March 12, 2004, at the age of 82. This article is a condensation of a book-length life-history of Mr. Rey. The editor would like to thank Igor Kopytoff, one of Bill’s colleagues in the Anthropology Department at Penn, for helping prepare this article for Expedition.