



Bikes of Kwajalein



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Abstract

Bicycles on Kwajalein are like none other on the planet; they stand alone. This photographic essay describes the taxonomy, life cycle, origins, and ecology of the Kwajalein bike.



Background

Kwajalein is a remote island 2500 miles southwest of Hawaii and due north of New Zealand, 600 miles north of the equator and 838 miles west of the International Date Line.

Kwajalein is the southernmost and largest island of a coral atoll that bears the same name. It is part of the Republic of the Marshall Islands, which obtained independence from the United States in 1979.

The island is leased to the United States Government for use as a U.S. Army base, though the population of 1600 residents is almost entirely civilian. It is roughly four miles long and half a mile.

Since the few motorized vehicles serve only official purposes, bicycles are central to life on Kwajalein.

Taxonomy and Description

Kwajalein bicycles are of the species *Bicyclus Kwajaleinus*. The full taxonomy or scientific classification is, phylum *Apparatus*, class *Transportatum*, Order *Vehiculum*, Family *Circuitous*, Genus *Bicyclus*, Species *Kwajwajleinus*. That's *B. Kwajaleinus* for short, commonly known as the Kwaj Bike. Taxonomists know it colloquially as *B. Kwaj*.

B. Kwaj comes mostly in two varieties, the Huffy's and the Suns. Both come from China; both are made of steel. The mass of these bikes suggests that the tubes are *solid* steel, but the short life span reveals that the tubes are actually hollow.



The following photograph shows a spectacular specimen of *B. Kwajaleinus*. This particular variety has an extended, two foot long stem, leading up to narrow handle bars that probably had grips at birth. The top tube slopes down, allowing female cyclists to wear a skirt, and male cyclists to mount without raising the foot above waist level. Almost every piece of metal is painted to resist the salty corrosive environs, even the rims and spokes. Since the seat bears the cyclists entire weight, the seat is wide and heavily padded. The obligatory rack is one of the simpler varieties, most racks having wire baskets. The extended stem is not original equipment, and is seen only in adult stages.



Close inspection reveals that the bike is single speed, i.e. has no gears, and has coaster brakes.

Other examples of *B. Kwaj* can be found throughout this essay.

The invasive species *B. Mountainbikeathus*, shown below, stands in stark contrast. Note *B. Mount*'s near horizontal top tube, straight handlebars, narrow seats, caliper brakes, suspension shocks, and gears.



To date, invasive species pose little threat to the indigenous *B. Kwaj* due to the corrosive Kwajalein environment, as the next photos show.



Life cycle

The life of a Kwajalein bicycle begins at Macy's, the local department store.



The juvenile form has raised handle bars, but has the short stem that is typical of bikes the world over. Extended stems and other variations may appear in adulthood, but not necessarily, as shown by this older rental bike.



The frequent rain, hot temperatures, strong winds, and proximity to salt water on Kwajalein create a brutally corrosive environment. These factors combine with total lack of maintenance and a life outside without any cover, ever, to make *B. Kwajaleinus* short lived. Though mortality is usually due to corrosion, on occasion a bike will drown at the end of a pier after the bars close.

The picture following shows the corrosive effects; note the corrosion of the chain, rear hub, and spokes. This is a rental bike, the variant with the shortest life span.



Indeed these effects make the rentals bikes a sorry lot, as seen below. These specimens are near end of life, but will be rented again and again.



Origins

Effect of short life spans and mutations

The short life span of bicycles and a high mutation rate caused by incessant tinkering have resulted in rapid evolution. Quick generations and high rate of mutation, combined with the great distance from other *Bicyclus* populations has resulted in a distinct, off-shoot species.

Evolutionary pressures

Environmental conditions dictate B. Kwaj's evolutionary path. The heavy mass and the single speed gearing are direct results of the small size and low, flat elevations of the island, and the slow pace of the resident cyclists. This pace rarely exceeds 10 miles per hour, a result of the tropical humidity and heat, and the Stepford Wives quality of the place. Also, with the constant tradewinds and zoning layout, work is downwind for most people. The brutal corrosive conditions also favor the simplicity of contained coaster brakes and single gearing.

The size of the island is evident in the following overhead photograph. The orange track is that of a very rare *B. Roadbikeathus*, evident from its unusual length (about 27 miles, mostly laps around the runway).



Riding technique

The reasons leading to extended stems are less clear. Most likely Kwajalein bikes have evolved to match the riding style of the inhabitants. Mutations that match the riding style thrive; those that do not face extinction.

To illustrate, consider the following cyclist, who displays perfect Kwaj form. She is sitting proud, bolt upright, perhaps even a little backward. Her arms are not resting *on* the handlebars, they are hanging *from* them. All of her weight is borne on the seat, which is wide and well padded. This stance is not aerodynamic, but the cyclist never exceeds ten miles per hour so no energy is wasted.



Here is another example of Kwaj cyclist form at its best. Note the relaxed arms, relaxed grip, actually no grip with the arms hanging, not resting on the handlebars.



Here is an example of excellent form, although the grip looks a little tight and the cyclist's chin is low.



This guy has no clue. He is riding a *B. Roadbikeathus* in the Northern European, North American tradition, with a form to match. He is leaning way forward, weight bearing equally between the handle bars and seat. Typical anywhere else; he sticks out on Kwajalein.



Ecology

Hypothetical Cyclists

A fascinating story about the 19th-century naturalist Charles Darwin brings to mind curious attributes of some of the more radical *B. Kwaj* specimens. As the website http://encarta.msn.com/media_461530192_761578331_-1_1/Darwin's_Hawk_Moth.html reports, Darwin became curious about an unusual orchid that has nectar producing organs many inches deep within its flower structure. He theorized that there must be a moth with a proboscis similarly long. Though unsure of its existence a priori, Scientists later found such a moth, the Madagascan species, *Xanthopan morgani*.



Photo credit <http://encarta.msn.com>

Attributes of some *B. Kwaj* specimens suggest that unusually shaped cyclists exist. Consider the short handlebars atop these long stems:



This leads to the hypothesis that there exist tall skinny cyclists with exceptionally narrow shoulders.

Other *B. Kwaj* specimens are stranger still. What attributes does the cyclist that employs a seat like this have?



Trailers

No discussion of Kwaj bikes would be complete without a description of the trailers. Trailers defy classification. Each one is unique.



Trailers are to bikes as sea shells are to Hermit crabs; the bike finds the trailer that suits its needs.



Just as Hermit crabs find empty shells of opportunity, bikes find unused trailers waiting.



Though classification is difficult, it is possible to discern broad categories. Dive trailers tend to have hard bottoms and sides, and are festooned with dive stickers.



Fishing trailers have PVC pipes to hold fishing poles, and have no sides to allow easy installation of a cooler.



Hazards

On Kwajalein, Stop signs have little or no effect on bicycles. Stop signs are usually amended and nullified by a yield sign, as shown below.



This of course is because there are few motorized vehicles. Still, there are hazards, including oblivious children, fallen coconuts, coconut crabs, tropical downpours,



errant golf balls,



and aircraft.



Summary

B. Kwajaleinus, the Kwajalein bike, is the barn yard cat of bicycles. Unlike its sleek cousin who lives indoors in the lap of luxury, the typical Kwajalein bike is an alley cat; it survives. It survives brutal tropical conditions and the easy going habits of its owners. It survives because it has evolved over many generations and many mutations. Great distances from other *Bicyclus* populations have led to its emergence as a distinct species, unlike any other.