Those 12 horses had to overcome wind resistance, flex a lot of stiff cable, and spin hundreds of idler wheels.

So we can give some credence to historical statements that the tram "pretty much ran by itself." But no way did it saw up any boards in its spare time.

**Success and Failure**

Judging by the few surviving photos, great heaping loads of lumber got delivered on down to Pima Terminal. Sadly, the aerial tram got shut down and was partially dismantled one year after it started operation.

Part of the reason might have been underlying economic problems with the sawmill. Or new Forest Service regs.

But the tram apparently needed continuous repairs and seemed to have had woefully excessive downtime. At least, that’s what today’s on-ground evidence suggests to me. My guess is that the delivered cost-per-board was too high to make much economic sense.

The system design and construction was all done using local help, because an experienced real tram engineering firm was "too expensive".

There were several gruesome fatalities and a number of other gory accidents. The transfer terminal literally ate an operator for lunch one day. At least one track cable failed spectacularly. Giving a profound new depth of meaning to the term *sprooiiinnggg*....

In those days, of course, OSHA inspectors were dealt with simply by hooking them onto the next tram car.

One series of repeated tower failures required at least five rebuilds. Done without any attempt at improving the design or fixing the problem. Other towers were hastily rebuilt or added without proper footings.

Scattered piles of fire bricks in strange places suggest impromptu blacksmithing. Collisions between cars and towers apparently occurred. To the obvious detriment of both. Lost loads and shattered towers still litter some of the more remote canyon bottoms along the route.

I guess the final analysis was that the Mt. Graham aerial tram delivered the boards but not the bucks.

**Back to the Future**

What does this failed and largely forgotten tech venture have to do with any of today’s Midnight Engineering?

I see several key points here...

*To work hard, you gotta play hard*— No matter whether it’s hiking, caving, hang gliding, bike, ski, or scuba, you flat out have to get down and dirty.

*Study the classics*— That’s where all the fundamentals of appropriate technology, elegant simplicity, and workable real world results first come down.

*It ain't creative unless it sells*— No matter how wonderful your design, iffen it don’t pay for itself in one manner or another, you have a failure.

*Cheapest is rarely the most cost effective*— Solid footers, steel, and real bearings outperform wood, rocks, and low grade iron. Every time. Guaranteed.

*Budget for maintenance*— Design your product from the ground up to be fixable and improvable. Always aim for minimum total life cycle costs.

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**For More Info**

Your usual starting point on tram research is Pioneer Town, the Pima Centennial book published by the Graham County Historical Society. Limited but highly useful photo collections exist in the Pima museum or the Safford Ranger District of the Coronado National Forest.

Written family clan histories are a big deal in this area, so there are a lot of private sources. These often can end up a curious mixture of fact and fiction. One or two tramway employees remain in the area and are very much alive.

I could use a little help in relocating two "lost" tension stations. But you’ll have to be the type of hiker who brings along your own catclaw. Just in case there is not enough along the route. Naturally, the word "trail" is not in your vocabulary. Your 4WD vehicle will, of course, receive a 100% authentic Arizona pinstriping job.

I have uploaded several artsy-craftsy tram sketches as TRAMCAR.PDF and TRAMTOWR.PDF to www.tinaja.com Suitable for framing. Along with custom drawing utilities. I’m working on translating the original tram photos to CD ROM. More on this whenever. ✤

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Don has a free new catalog crammed full of his latest insider secrets waiting for you. Your best calling times are 8-5 weekdays, Mountain Standard Time.

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