Prehistoric Hanging Canals of the Safford Basin

By Don Lancaster and Synergetics

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The Gila Valley has a rich prehistory...

Especially during the Late Classic period around 1350 CE.

- Studied by Neely and others.
- Population likely as high as today.
- Some ties to Hohokam, Mimbres, Salado, Sinagua and Anasazi cultures.
- Gila River lowland canals as extensive as today and the basis for modern irrigation.
- Thousands of world class agriculture grids, possibly used for Agave crops...
Lesser known are the "hanging" canals...

- Literally "hung" on steep sided mesa edges.
- As high as 90 feet above base terrain!
- Twelve or more total at least 30 miles!
- Create the illusion of "water flowing uphill".
- May include above ground aqueducts, route switching, and flood breakaways.
- Used mostly for long range water delivery.
- Nearly totally exploit Mt Graham streams.
- Typically a yard wide by a foot deep.
Three terms you need to know...

BAJADA —  
A coalescing alluvial fan.

QUATERNARY —  
The latest geological period.

MESA —  
A remnant Quaternary bajada.
Some properties of local southern mesas...

- Typically narrow and long.
- Steep sided.
- Gently sloped.
- Limited rainfall.
- Largely infertile.
- Pretty much water impermeable.
- Not too useful to pioneers or present.
- Easily conveys water long distances.
The hanging canals might be named...

- Ledford
- Marijilda
- Rincon
- Deadman
- Robinson
- Allen
- Jernigan
- Mud Springs
- Lefthand
Ledford Hanging Canal...

- Southernmost of the known hanging canals.
- Sources near Jacobson Canyon dam.
- Rather difficult to access and explore.
- Switches between several drainages.
- Sees current use for cattle tanks.
- About three miles total extent.
- Associated with prehistoric fields.
- Parasitic vegetation makes reach obvious when viewed from highway US 191.
Marijilda Hanging Canal...

- Earliest to be studied and researched.
- Runs from Marijilda Creek to fields found in the Lebanon area.
- Initial reach rebuilt by historic pioneers and sees active irrigation use to this day.
- Easiest access of the known hanging canals, but western 4WD track is extremely rough.
- Includes impressive above ground aqueduct.
- Hangs on the western mesa face.
- Apparent switching to several destinations.
- Elaborate French Drains going off mesa.
Rincon Hanging Canal...

- Related to the Marijilda hanging canal.
- Makes a distinct "U" turn and actually heads back UP canyon.
- Portions are single walled and quite wide.
- Directly associated with grids, mulch rings, fields, and field houses.
- A section has been run over by the Safford water tank project.
- Eventually drops off mesa to serve more northern fields.
- Contours obvious on satellite images...
Deadman Hanging Canal...

- Sources from Deadman creek and delivers to Porter Springs and Deadman tanks.
- Initial hanging portion believed overlain by historic and modern pipeline.
- Prehistoric portion flows to this day.
- Consistently routes along HIGHEST portion of Deadman Mesa.
- Possible elaborate three way switching at the narrowest point of mesa.
- Could approach five miles in length if the presumed extensions are verified.
Robinson Hanging Canal...

- Rebuilt by historic pioneer to serve cattle tanks in the Daley Estates area.
- Three-way switching in Frey creek selects original route, Sheep Tank, or mesa top.
- Short section spectacularly failed by falling off the mesa edge.
- Prehistoric fields overlain by sheet flooding.
- Very strong "water flows uphill" illusion.
- Mesa top used for water transport only.
- Accessible only by ill defined cattle trail.
Allen Hanging Canal...

- Nearly SEVEN MILES long!
- Source believed Spring Canyon. May go as far as Central bottomlands.
- Apparently overlain by CCC Hawk Hollow tank, Allen Dam, and West Layton Road.
- Two distinct architectural styles.
- Deepest long known cut of seven feet.
- Portions obscured by sheet flooding.
- Comes within 800 feet of Jernigan Canal, but relationship remains uncertain.
- Many questions remain unanswered.
Jernigan Hanging Canal...

- Part of a well studied and reported site.
- "U" shaped canal a quarter mile in length.
- A "local" that routed water between fields.
- Maximum hanging height "only" twenty feet.
- One fairly impressive cut of three foot depth.
- Well defined exit French Drain area.
- Original water source not yet clear. Possibly obscured by sheet flooding.
Mud Springs Hanging Canal...

- Routes Ash Creek over Mud Springs Bajada.
- Entire 6 mile route linear and viewable.
- Possibly the earliest hanging canal.
- A credible source for Jernigan water.
- Route vetted with PVC pipe by rancher.
- Mid-canal cleanout and flood spur.
- Key portions still missing or unexplored.
Lefthand Hanging Canal...

- Extensively studied and reported by Neely.
- Directly associated with plant nursery areas.
- Elaborate switching and control structures.
- Short "local" and direct agricultural uses.
- No "hanging" evidence but similarities to the other area prehistoric canals are remarkable.
- Small gates divert controlled water amounts.
- Both earthen and rock bordered examples present. Possible instances of clay lining.
Other possibilities yet unexplored...

- Veech Canyon in the "P" Ranch area. A few rumors of historic and prehistoric canals.
- Ash Creek. Some prehistory may lie beneath the Cluff Ranch Wildlife area.
- Shingle Mill Canyon is largely unverified. Home of the historic Tramway.
- Carter and Nuttal canyons could possibly provide western extensions.
- Unchecked but known prehistoric areas near junction of Marijilda and Stockman washes.
Why the obsession with mesa hanging?

- Slope is INDEPENDENT of terrain!
- Minimum cuts and fills.
- One canal side is often "free".
- Superbly energy and effort efficient.
- Easy repairs from flood damage.
- Mesa top slopes often optimum.
- Not much other use for mesa tops.
- Conveys water long distances.
Arguments the canals are prehistoric...

- Archaeologists say so.
- Run over by newer roads, tanks, fences, and even dams. Without accommodation.
- Consistent "desert varnish" patina.
- Lack of any apparent use of pioneer tools.
- Prehistoric population very much higher.
- Easier to "dig out an old ditch".
- Far more attuned to prehistoric needs.
- Lack of characteristic CCC signatures.
- Large cacti growing midstream.
Hanging canals ARE endangered...

There are typically zero to very few canal artifacts, so pothunting issues are by no means severe. BUT...

- An utter lack of public awareness clearly causes damage through neglect.

- Water projects by the Town of Safford totally trashed a number of canal crossings, mulch rings, grids, and even a CCC dam. All these could have been cheaply avoided.

- New proposed realignment of US70 to the south may threaten many of the canals.

- The state lands bureaucracy is exceptionally hostile to archaeological research.
What needs done now...

- Map and catalog all southern features.
- Videotape all hanging canal routes.
- Resolve the Allen Canal enigmas.
- Find a credible Jernigan canal source.
- Involve students and interested others.
- Explore other candidate water sources.
- Publish both traditionally and new media.
- Make upcoming threats aware of the issues.
- Use "field mice" to thoroughly explore.
- Scam a Draganfly grant...