



# THE American Surveyor

IN THE PAST... AN EYE TO THE FUTURE

Vol. 10, Issue 12

## Survey Myths

**Helping Others**

Technology transfer

**Lego Tower**

Guinness record

**CST Program**

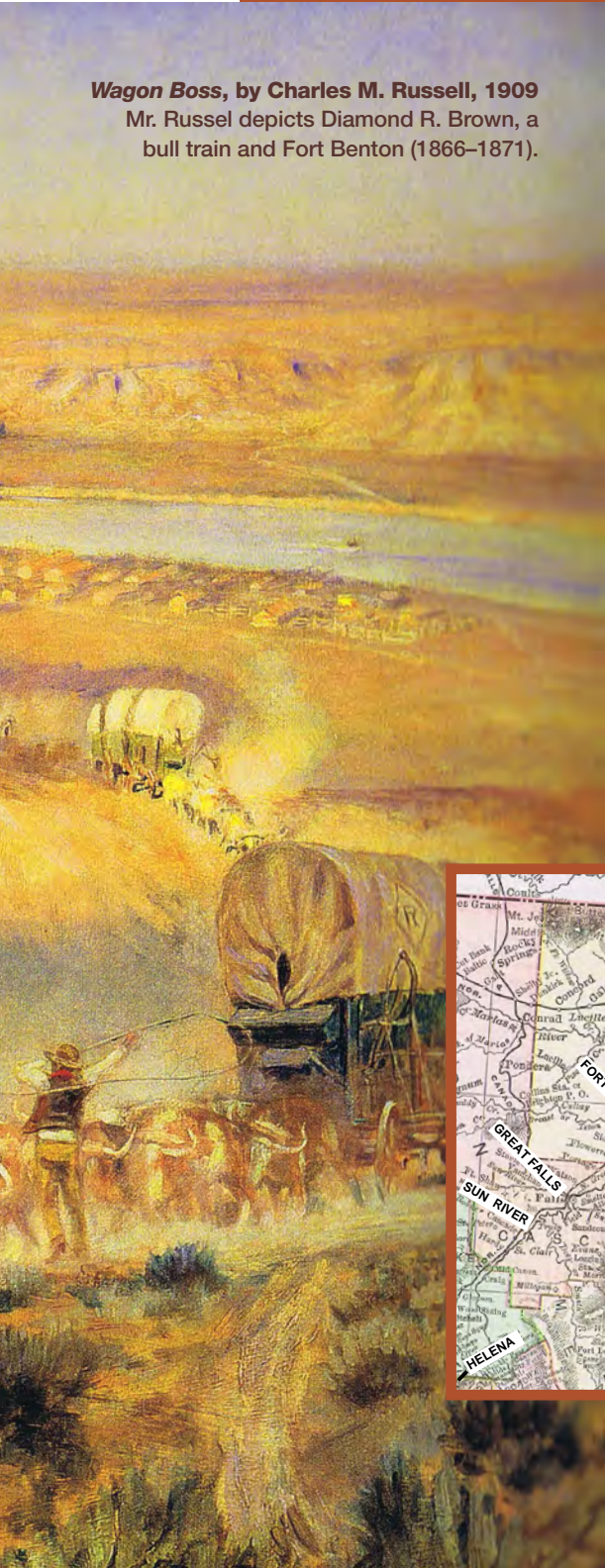
Vincennes University

# BOSH!!!

**DISASTERS, SURVEY MYTHS AND HERESIES**



**Wagon Boss, by Charles M. Russell, 1909**  
Mr. Russel depicts Diamond R. Brown, a  
bull train and Fort Benton (1866–1871).



**I**f truth will set us free; then myths will lead us to disaster. The following is an account of an 1865 bull train disaster on the Missouri River caused by avulsion during an ice jam. This was written by Alexander Toponce and included in J. H. Beadle's 1873 book, *The Undeveloped West*. Beadle's chapter titled "Bosh" was written to discredit a prevalent weather myth of that time, but the account will serve just as well to address an avulsion/erosion myth contained in the 1973 and 2009 BLM Survey Manuals.

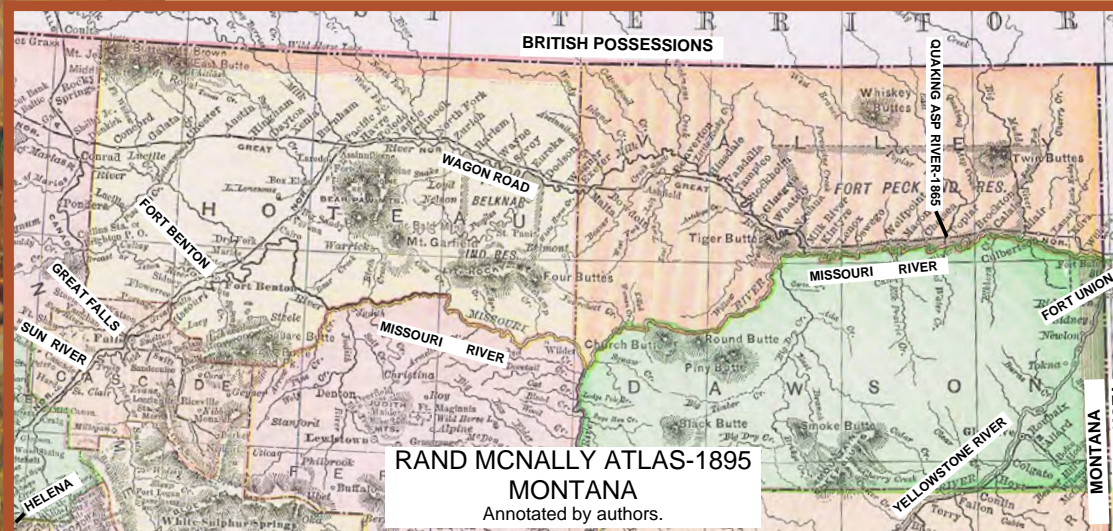
### "BOSH!!!"

"We hear much of the 'northward deflection of the isothermal line', and something like a thousand (broad-sides) assure us that the Northern Pacific (Railroad) runs through a milder climate than the Central Route... (T)o promise the expectant immigrant an Arcadia, where common sense and common experience forbid the idea, is a fraud. Of a hundred witnesses I know to be to be reliable, I will cite but one."— J.H. Beadle

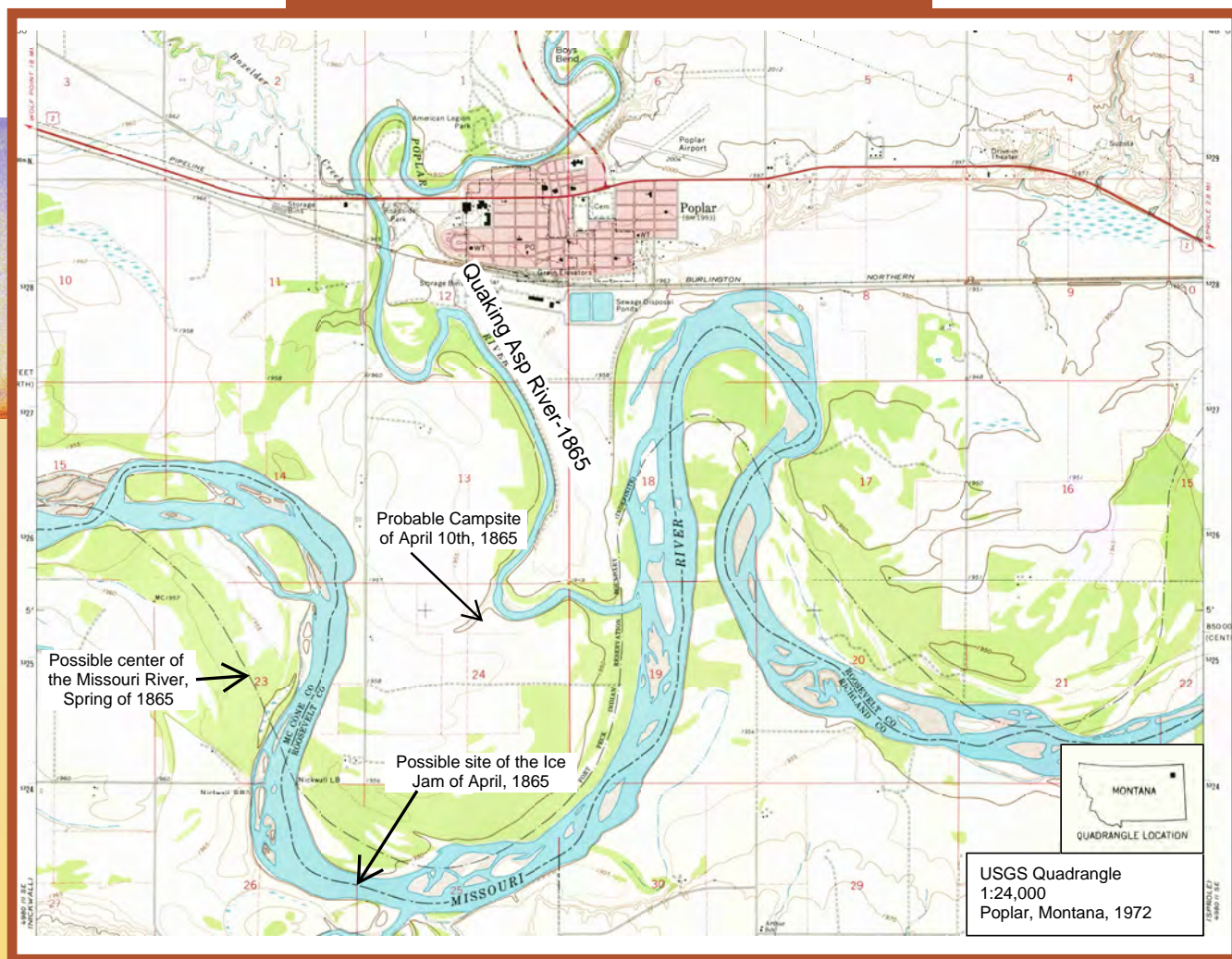
### CORINNE, UTAH TERRITORY, MARCH 8, 1873

Mr. J. H. Beadle:

Dear Sir...I give you the items of interest of the (winter) of 1864–65. I left Fort Benton in company with Jerry Mann, on my way (east) to Fort Union (400 miles), on the 14th of November of that (winter), with an (empty) outfit of sixty-one wagons, and 787 head of work



>> By Chad & Linda Erickson



cattle; twenty-five head of horses and mules, with seventy-one men; we arrived at Fort Union December 16th, loaded and started for Fort Benton December 28th. About forty miles out on the return trip, on a stream known as Quaking Asp River (Poplar River)...on the north side of the Missouri; On the eighth day of January we were overtaken by a terrific snow-storm. The first day of the storm we lost 150 head of cattle by freezing...In ten days we lost all the animals we had...On or about the eighth day of February, in company with Mr. Mann, I started for Helena, for a fresh supply of cattle to move our wagons.

We started back from Helena on the 29th of March with six hundred head of cattle and forty-eight horses and mules. No farther difficulty until we reached Sun River, where we were again overtaken by a terrible snow-storm...What was our astonishment in the morning to find all our horses and mules gone. Five Indians had been camped only two hundred yards from us during the storm, in the willows...Then we were obliged to drive the cattle afoot to Fort Benton.

Procuring more horses we drove to the Marias, twelve miles below Fort Benton, built a raft to run over our supply wagons; upset all our provisions in the river, and were again left to subsist on the country.

(We proceeded to Fort Union and on our 530 mile return trip to Helena,) on the 10th of April the ice very

suddenly commenced breaking up in the Missouri River; gorged against a bluff bank in a short bend of the stream, and dammed the water so that it set back fifteen miles and found a place for a new channel. It broke in above us, and ran through our camp on the Quaking Asp, taking wagons, cabins, trees and everything else before it, drowning elk, deer, and all the animals on the bottom. It came so sudden, that men sitting in the cabins had not time to put on their boots, climbing out through the chimneys to save their lives, the water running about fifteen feet deep. One of the cabins floated down the river about eight miles with three men on it, who cut up a buffalo robe and tied the corners together. Two of them survived. Others climbed trees, hanging on for sixty hours. One party built a fire and cooked their meals on the roof of a cabin. Three men in all perished. Some were crippled by having their limbs broken; others by hanging on to the trees and chilling nearly to death.

By this freshet I lost my whole train of twenty-six wagons. Mr. Mann's train was camped on the bluff bank, and the water merely rising up into some wagon beds damaged considerable freight; but the others escaped. We lost all the hundred head of cattle brought down from Helena. I was loaded with 200,000 pounds of valuable freight, of which all was lost except a few things that lodged among the drift-wood and were not perishable by water.



Virginia, 1917. Ice jam causes passengers to wait on The New River Train.

The merchandise at that time was worth \$125,000; the stock and wagons about \$50,000 more, making in the aggregate \$175,000 [about \$7,000,000 in today's value].

We gathered up what little was left, reached (Fort Union), and returned to Helena on the 28th of June. Alex. Toponce.

In light of such well-established (experiences) the assertions (of tempering winds) in the pamphlets and land circulars...are something more than mere audacious impudence—they are an

insult to the popular intelligence.” —*J. H. Beadle* (Did someone say “Global Warming”?)

Charles Russell arrived in Montana in 1880 at the age of 16. Within a few short years his bull trains were supplanted by freight trails of the railroad variety. However, the dangers from ice jams still persisted. The above 1917 photo catches an ice jam on the New River in the act of destroying a railroad bridge, complete with a train and passengers going nowhere.

## LESSONS LEARNED FROM “BOSH!!!”

“BOSH” is a point from which to address the first myth of surveying.

### MYTH #1

**In the BLM survey manuals of 1973 and 2009 we find these words, “Avulsion is a sudden and rapid change of channel” whereas “Accretion is...the gradual and imperceptible deposition of material along the bank of a body of water...accompanied on the opposite side of the stream by the reverse process, erosion.”**

The implication of the two definitions is that avulsion happens at high water and erosion/accretion at lower water, or maybe even low water. Right? Wrong. Nothing happens during low water,

except perhaps sunburns for the people on inflatables. From 40 years of running rivers we can say that nothing much happens even during “ordinary high water”, at least not in Alaska, Arizona, Idaho, Montana, Oregon and Washington. Avulsion, erosion and accretions are all primarily actions of floodwaters. The higher the floodwaters, the faster are these actions, and they can each be very fast indeed.

It is only the serendipity of nature that determines whether flood action will be avulsion or erosion and its accompanying accretion, but it is a law of open channel hydraulics that they are each the result of fast water and turbulence, with nothing “slow” about them.

### MYTH #2

**“Thomas Jefferson invented the Rectangular Survey System.”**

Actually the Romans did that, Mr. Jefferson was more the innovator than the inventor. Mr. Jefferson's system wasn't even the first in the United States, there having been 20 rectangular townships surveyed in Georgia in 1733. (*Early History of North Dakota*, Page 227, by Colonel C. A. Lounsbury-published 1919).

### MYTH #3

**“The General Land Office introduced solar compasses in their manual of 1855; steel tapes in 1881; slope chaining was approved in 1884; the use of stadia was permitted in 1902 (page 22); and the use of ‘county and local surveyors’ to subdivide sections was approved by the Act of July 9, 1870.”**



Every time local control moves an original monument 8 feet, proportioning will move another 40.

Actually, all of these were developed and practiced by private and U.S. Deputy Surveyors decades previous to these dates. Al White, in his BLM published *A History of the Rectangular Survey System* sets forth that the adoption of these practices by the GLO was simply recognition of fait accompli (see page 147). (Also see the *Massachusetts 1913 Manual of Instructions for the Survey of Lands...*, pages 8, 10 and 29; and *Stadia Surveying* by Arthur Winslow-1884, pages 5, 13, 19, 37-43.)

It is thus important for Land Boundary Surveyors to contemplate that, after about 1870, the footsteps of U.S. Deputy Surveyors might have been made using steel tapes, slope chaining and even stadia. After all, who would continue using a chain after seeing a steel tape? Not a low-bid contractor.

#### MYTH #4

**“County surveyors were the ‘local surveyors’ anticipated by Federal Law, to subdivide sections.”**

Most homestead activity took place quickly and hundreds of miles, rivers and mountain ranges away from the county seat; if there was one. By the time large counties were split into serviceable divisions, the vast majority of lands were located, sections subdivided and pre-emption and homestead claims filed. (See the 1919 *Early History of North Dakota*, pages 525-540.) The first subdivision-of-section surveys were primarily performed by Land Locators, and, because they were performed before conveyance, it was surely these that Federal law anticipated.

#### MYTH #5

**“An original G.L.O. corner CANNOT be moved.”**

The answer to this myth is that local control and the principle of repose regularly move corners, even section corners.

We cringe every time we see an ancient fence corner 8 or so feet away from an original, upright, undisturbed  $\frac{1}{4}$  corner stone, with its full complement of conforming marks and bearing trees. It is scary to think that if only the ancient fence corner remained, and the neighbors swore up and down that the fence corner had always been considered the section corner, the original corner would move to the fence corner. The courts would most likely sustain such a determination under the principles of nearest and best evidence and repose.

Lest the young swallow their tongues on this, proportioning also moves original G.L.O. corners. See *Longview Fibre v. U.S.*, 135 IBLA pages 170-186 and our article, *Chaos, American Surveyor Magazine*, Vol 10, #4. Every time local control moves an original monument 8 feet, proportioning will move another 40.

#### HERESY

**“An original G.L.O. monument CAN be moved, and this by the BLM declaring it an ‘administrative corner’ and moving it to a protracted position.”**

Here we run into a disaster greater than the ones on the Missouri and New Rivers: A surveyor’s god who is really our profession’s devil. Our founding fathers recognized that the combination of the three powers, Legislative, Administrative and Judicial under one person or aristocracy is the very definition, the very engine, of tyranny. When the Department of Administration, in the form of the Department of the Interior,

successfully contrived to have their own court, IBLA, they in effect removed the check and balance of the Judicial Department. BLM, with its combined powers, now behaves like a monarch, an emperor, or even the god/devil of surveys.

In the case of *Howell v US*, Case No 3:11-CV-00653-EJL, U.S. 9th District Court-Idaho, BLM completed the travesty: after ignoring abundant local control, moving property corners to the advantage of their fiduciary client, they declared that

private surveyors and, by extension, their clients. By a greater extension, it was also a bold threat against the property lines that we surveyors are sworn to protect, via our oath to the public welfare.

The heresy in Idaho was fortified when another instructor advocated the use of global coordinates in legal descriptions, a car salesman from NGS touted that year's global model and each ignored soil creep and plate tectonics. With instructors like these, who needs village idiots?

With an agency like the BLM Cadastral Survey Section, who needs a King? What we really need are land surveyors who know case law, follow it, and have the guts to cry "BOSH" in the face of error and corruption; though they be masked by the "presumption of correctness". Myths *have* led us to disaster. *A*

**"...we heard one BLM hellion declare that THEY are free from the restraints of the fundamental law of original corners..."**

At the 2010 Idaho Survey Conference, we saw one BLM hellion declaring that THEY are free from the restraints of the fundamental law of original corners. A few old surveyors had the presence of mind, confidence and kahunas to object. However, we few felt pretty naked accusing the candidate pope of blasphemy while the other 150 bishops and cardinals of the convocation stared and glared at us.

their actions were sovereign and could not be reviewed in Federal court.

We'll grant that BLM can move a corner and monument if they own all land within the sections abutting that corner, just as any subdivision developer can move an internal corner. However, this heresy came not from a BLM in-house training session, this was a bold, unqualified declaration by a BLM employee to

We have been asked to give two presentations at the Oregon survey conference in January, one of which is *History & Misuse of Proportioning*. Your thoughts on this subject would be grist for the mill, [ericksonlandsurveys@gmail.com](mailto:ericksonlandsurveys@gmail.com).

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