

Additional GLO maps for upper Verde River and settler impact on base Q.

An explanation of information used to estimate 30 cfs depletion of base flow.



My conservative estimate of base runoff depletion that is used for Method 1

Watershed	Acres	Ac-ft/ac	ac-ft
Granite Creek	2200	3.15	
Williamson Valley	3600	3.15	
Walnut Creek	325	3.15	
Big Chino Creek	900	3.15	
Total	7025		22129

$$22129 / 725 = 30 \text{ cfs}$$

SRP- McGinnis estimate (X061)

Watershed	Acres	Ac-ft/ac	ac-ft
Granite Creek	2200	3.3	7260
Williamson Valley	3600	2.0	7200
Walnut Creek	325	2.0	650
Big Chino Creek	900	2.0	1800
Total	7025		16910

$$16910 / 725 = 23 \text{ cfs}$$

My demonstration estimate of base runoff depletion using actual acres of cultivated land from the GLO maps and the above Ac-ft/ac values by SRP. (demonstration only)

Watershed	Acres	Ac-ft/ac	ac-ft
Granite Creek	4990	3.3	16470
Williamson Valley	3760	2.0	7520
Walnut Creek	325	2.0	650
Big Chino Creek	900	2.0	1800
Total	9975		26440

$$26440 / 725 = 36 \text{ cfs}$$

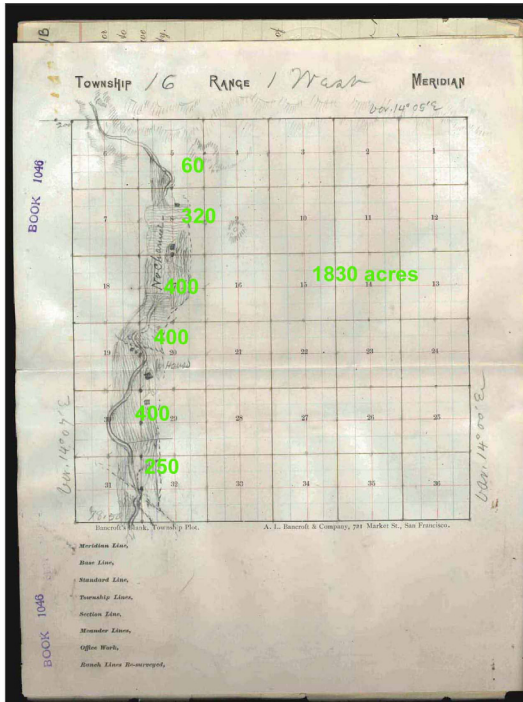
The SRP-McGinnis depleted estimate of 23 cfs used the acres (7025) that were used for my conservative estimate when, in fact, the actual acres were 9975. The SRP estimate is only 64% of my *demonstration estimate* of 36cfs using actual acres from the GLO maps.

Also, using the actual acres of 9975 and the average use of ac-ft/ac of 3.15,

$$31421/725 = 43 \text{ cfs}$$

My methods are further explained as follows.

Granite Creek

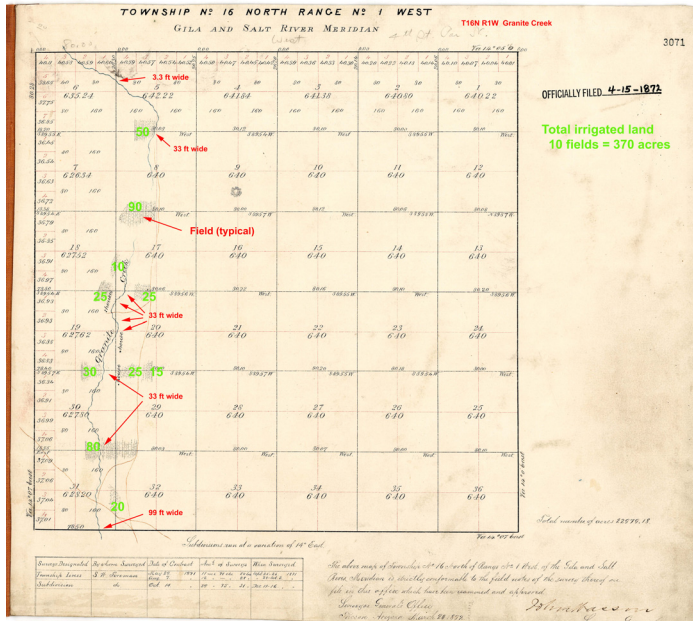


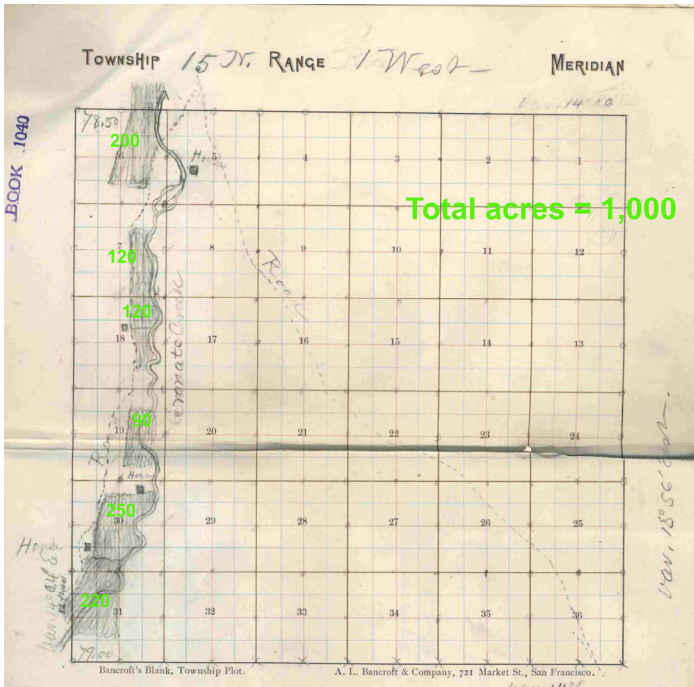
My conservative estimate of base runoff depletion that is used for Method 1 used the final GLO plats for T15N R1W and T16N R1W for part of Granite Creek. Final GLO maps are known to show cultivated acres only along the surveyed section lines and the field maps are known to show all of the cultivated acres as observed by the GLO surveyors.

The field maps and the final maps for T15N R1W and T16N R1W are shown on this and the following page. Again, the actual acres of cultivated land from the GLO maps are shown on the field maps.

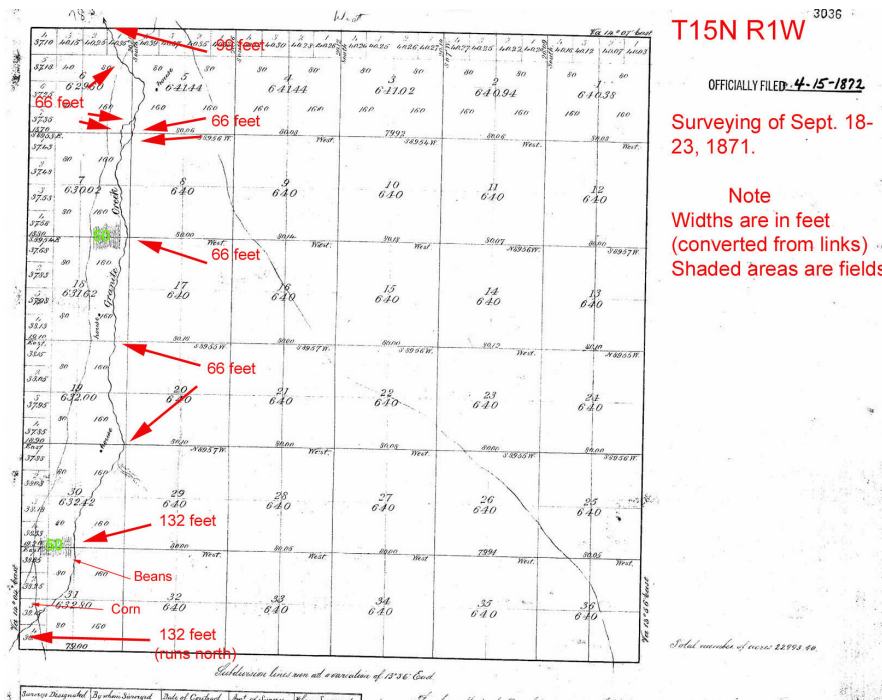
For example, I conservatively used 370 acres for T16N R1W (see below) but the actual 1880 acres of cultivated land are shown above.

See also pages 21-27 of my report for ANSAC.

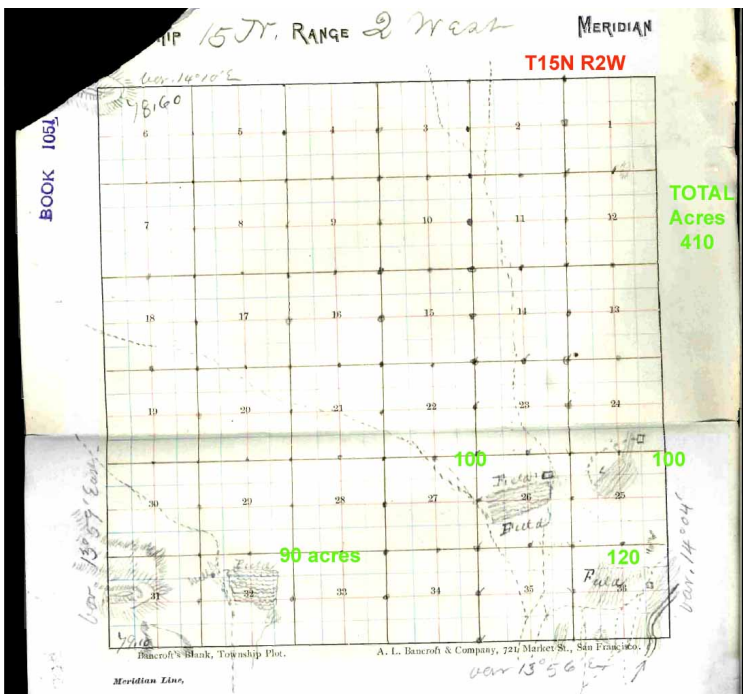
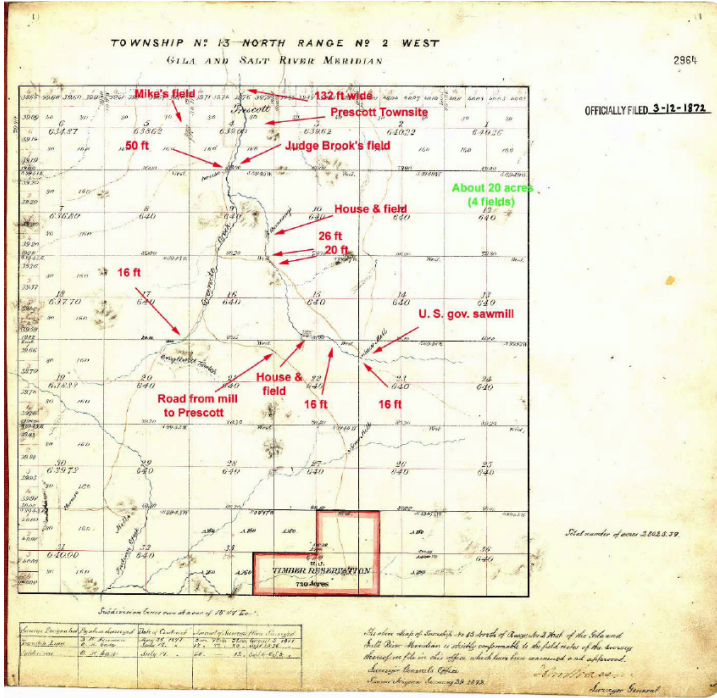




My conservative estimate of cultivated land T15N R1W was 100 acres (see below). A total of 1000 acres of cultivated land is shown on the above field map.

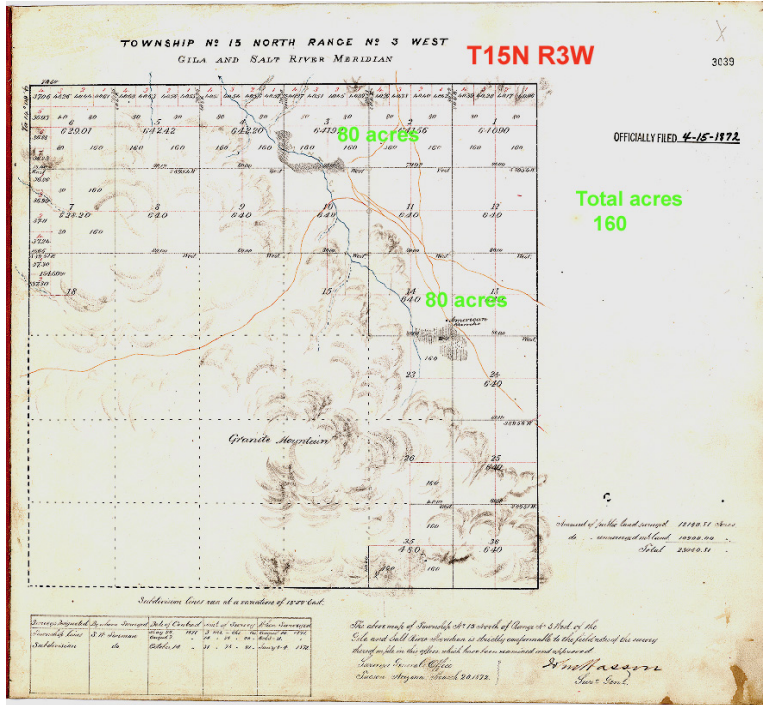


Also, my conservative estimate of cultivated land for Granite Creek did not include T13N R2W (20 acres shown below) and T15N R2W (410 acres shown at bottom of page.)



Williamson Valley

Furthermore, my conservative estimate of cultivated land for Williamson Valley did not include T15N R3W (160 acres shown below).



Note

My Method 1, presented on pages 21-27 of my report for ANSAC, is a conservative estimate of base runoff depletion of 30 cfs. I conservatively estimated there was 7025 cultivated acres upstream of the USGS Paulden gage (page 26 of my report) that was reported to ANSAC. Using a weighted annual irrigation factor (water loss to ET) of 3.15 ac-ft/yr (p. 37 of Pool and others, 2011), I determined that 30 cfs of base runoff was lost to ET from farming by the early settlers.

Obviously there are other ways to estimate of base runoff depletion mostly because crop types at the time of the GLO surveys were poorly defined and unknown in many areas. Thus, to keep the estimate simple I used a conservative estimate of acreage and the average loss of water to ET.

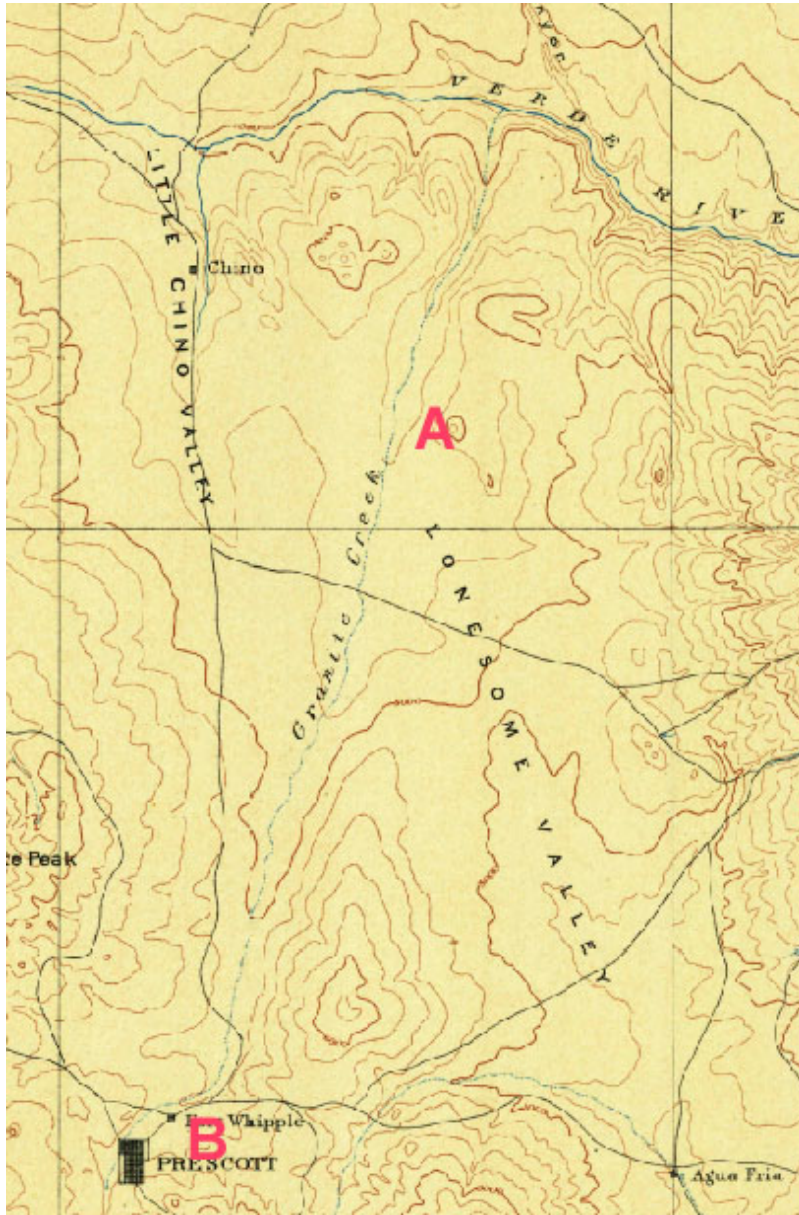
One example of another way to estimate base runoff depletion uses the total acres of 9975 and the weighted annual irrigation factor of 3.15 ac-ft/yr as follows:

$$(9975 \times 3.15) / 725 = 43 \text{ cfs}$$

More on Granite Ck.

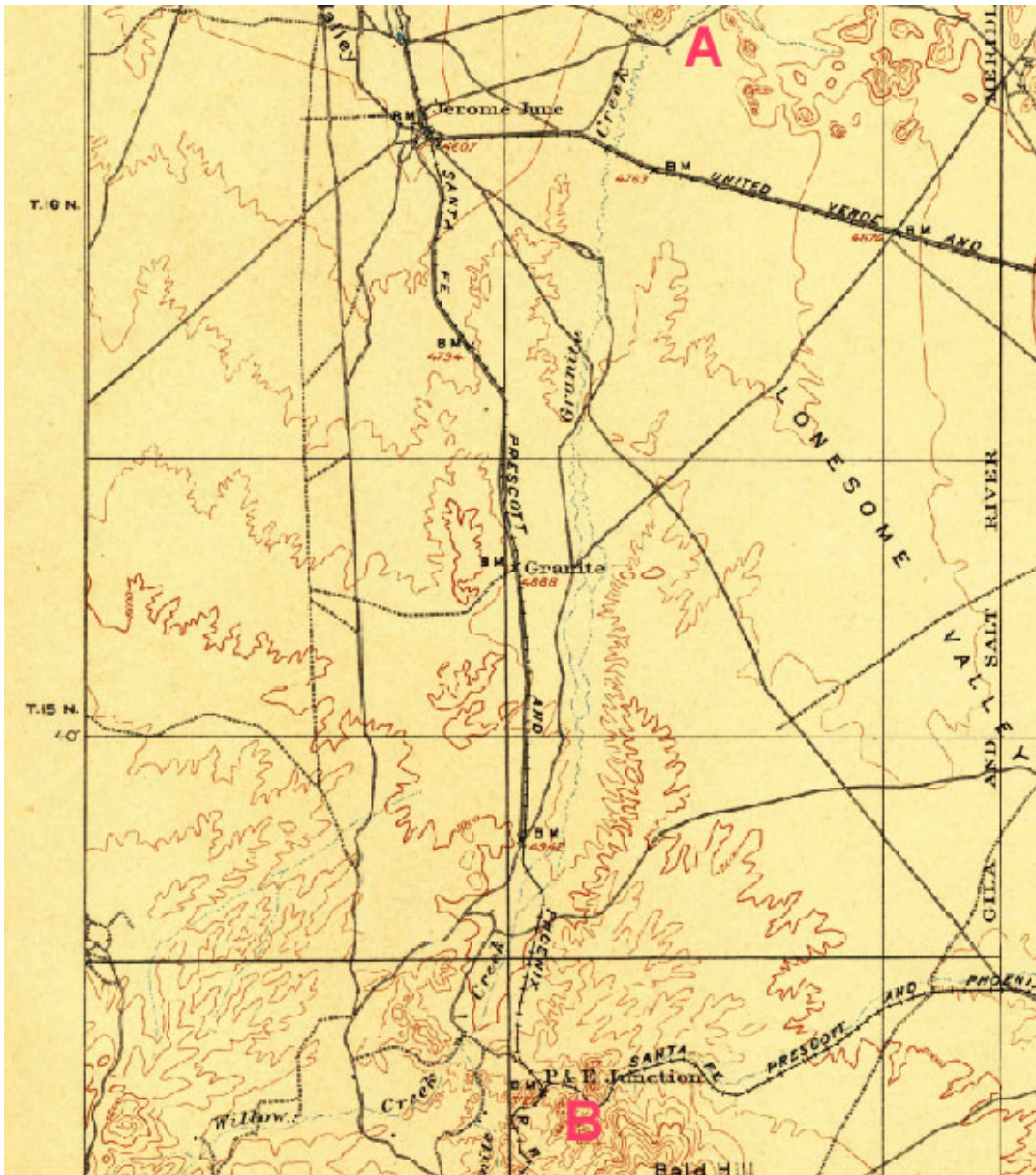
Granite Creek changed from a single meandering channel (1885) lined with farms, as also shown on the GLO surveys, to braided (1902-03).

Part of Prescott 1892 USGS Quad and survey of 1885 is shown below. Map shows Verde River and Granite Creek as single meandering channels. See Appendix K of Appendices E through M for historic USGS maps. Also note that Granite Creek is a single channel as depicted on the GLO survey plats of 1871.



Below is Jerome Quad of 1906, survey of 1902-03. Much of Granite Creek is shown as braided. Braiding probably resulted from the numerous diversions for irrigation all along the channel that depleted the base flow leaving the channel exposed to scour and fill from floods with no channel forming base flow to reform the single meandering channel. Since before statehood to the present (2015) there has been braiding along much of the channel of Granite Creek.

The GLO surveys show several miles of cultivated land about ½ mile wide along Granite Creek. Perched streamflow was diverted to farmland all along Granite Creek before statehood.



The Miner.

Prescott, Arizona Territory.

SATURDAY MORNING, MARCH 13, 1869.

San Francisco Agency.—THOMAS BOYCE is the only authorized agent for the MINER in San Francisco. Orders left at his office, No. 30 (second floor), Merchant's Exchange, California street, below Montgomery, will be promptly attended to.

Trip to the Country.

Metropolitan and sometimes rural editors, are rich enough to own carriages, fast horses, velocipedes, etc., and enjoy life by riding upon and in them, but it seldom falls to the lot of a quill driver in a new country to enjoy any luxuries or indulge in recreation whatever, unless "tooting his horn" about so-and-so's big head of cabbage; Jacob Twistem's capabilities for the position of Interpreter of the Spanish language; the richness of Mr. Saltem's feet and the piety of the gentleman who swears, drinks and gambles every day in the week, (Sundays excepted, as the daily newspapers say), can be called luxuries. We need, then, scarcely tell persons who are in the habit of reading the MINER, whenever they can find nothing else to read, that yielding to the persuasive eloquence of Mr. George W. Banghart, we took a seat in his spring wagon, Saturday morning last, and were soon under full headway for his ranch in Chino Valley, some 22 miles north of Prescott. As the song says,—

"The morn was fair, the sky was clear,"

yes, a good deal clearer than our head, although, so far as that favorite diet admired under the name of whisky, was concerned, we left on an "empty stomach," but that was not our fault—it was simply our misfortune to have been so stupid and forgetful as not to have supplied ourself with a bottle of the courage-inspiring, revenue producing fluid known here as "bust-'em-wide-open." As there was but two of us to a regiment, as a soldier would say, and both of us being officers, each did as he pleased, and did not undertake to keep step with the horses or charge

bayonets on the air. Knowing that our enemy *en dishabille*—the Indian—was lurking around the country, we took care to provide ourselves with the necessary implements of destruction—in the shape of guns, pistols, etc.,—and were ready at a moment's warning, to get scared, fire at random, miss an Indian, and like as not, shoot a horse or wound ourselves. But, luckily for us or the Indians—don't know which—we made the trip without seeing any of the sarpints. For the benefit of those unfortunate beings who live in California and the East, and make a living by swindling each other, we propose to branch out a little on the country, its resources, etc., hoping, thereby, to induce some of them to come here, where they can make an honest living and lay foundations for future fortunes. Everybody knows, or ought to know, that our starting point, Prescott, is situated on Granite Creek, at a point where said creek leaves the mountains and the pine timber—in as delightful a valley as can anywhere be found. The first mile brought us to Fort Whipple, which is snugly seated on a bluff overlooking Granite creek, the mountains south and west of Prescott, and the vast expanse of prairie country northward towards the San Francisco mountain. Whipple is probably the cleanest and healthiest post in the Territory, and, at last, the soldiers are comfortably housed, having in the past couple of months, roofed and repaired their quarters in a neat and substantial manner. Being a "big bug" (we once held the high and important office of Recorder of Big Bug District), we had reason to expect that the commanding officer would honor us with a salute, but in this we were mistaken, he let us pass as though we were a Gigadier Brindle in disgrace, a contractor who had not made money, or a miserable cuss who had neither uncle, aunt, or brother-in-law in Congress. But we attributed this to our misfortune, and passed on down Whipple valley at a rapid rate, past nice farms and comfortable farm-houses, until the road left Granite Creek and wound around the Point of Rocks, through the tail end of Willow Valley, on through brushy, rolling hills, where we expected to get jumped by lurking savages, and out on the open, rolling, grassy prairie, where hundreds of antelope were feeding and frolicking. We love

lope were feeding and frolicking. We love the solitude of the mountains, the chilly air from their snowy tops, and the sighing of the tall pines, but felt buoyant while rolling through the grassy prairie—over a road as smooth and hard as a billiard table. To the East lay the Black mountains, their tops covered with pine and snow,—Woolsey and Granite creek valleys, from which ascended innumerable smokes, from the houses of the farmers; facing us to the northward, were those huge mountains—the San Francisco and Bill Williams' and a part of the timbered mesa that stretches from the Colorado to the Miembres. To the west was the Juniper range of mountains. We soon arrived at the Government ranch, took a look at the herd and the numberless springs of cold water that at this point rise and flow out of the ground, and form a very large creek. A short distance more brought us to the ranches; we alighted at that of Mr. Bangharts, and after devouring a hearty meal, visited the houses

Granite Ck.

Cattle

Springs

and ranches of John G. Campbell, Robert Postle and others. From Mr. Postle's hotel, which is a large and substantial adobe, built on the site of old Fort Whipple, we got a good view of the great and fertile Chino valley, which runs from the Colorado to the Verde, and is nearly two hundred miles in length by about ten in width. A sight at it set us to dreaming of the future of that part of our noble Territory, and the vision of the 35th Parallel Railroad—the route of which runs through a part of it, rose before us. We imagined we could see hundreds of smokes ascending from farm houses in the valley, from the cabins of herders of stock, and from saw-mills in the hills, but woke up from our dream only to see an enormous Indian smoke rise from the top of a peak, and numerous small smokes in answer to it. Knowing that a party of our fellow citizens—maddened by the recent cruel acts of the Apaches were over there hunting the savages, we prayed earnestly that it might be the smoke from some captured rancharia, and the funeral pyre of hosts of dead savages. After

Big Chino Valley

ral pyre of hosts of dead savages. After satisfying ourself that Chino valley and the country around has resources that will yet make it a "land flowing with milk and honey" we took a look at Mr. Postle's premises, and were well pleased with the improvements he has made and is yet making. We then entered his house, and were shown a specimen of Arizona production—(a credit to its parents and the Territory of which it is a native), a bouncing boy of about six months. There are but two ladies in the valley, Mrs. Postle and her mother, Mrs. Shivers, not enough to start a Sorosis or indulge in the Grecian bend, yet they appeared perfectly happy and content to wait until the railroad brings them more company, which it will. The road from Albuquerque, New Mexico, passes the doors of these people, but just now there is not much travel upon it. The Verde river is but a short distance from the ranches, and we were told that it is filled with fish, and would have gone a fishing had it not been for fear of losing our "har" by the knife of a red-skin. Mr. Postle has a serviceable little mill for grinding corn, etc., on his ranch, and has this year planted rows of cottonwoods on each side of a long avenue in front of his house. Campbell's, Banghart's and Shivers' ranches are as good as any we have seen in the country, and will soon become valuable. But, it is of no use to dilate upon any particular spot in a country where every foot of soil—valley, prairie and mesa—is capable of producing corn, wheat, barley, oats, and the various vegetables, so we will close this lengthy article by hoping that Congress will do its duty to the whole country by aiding the company that is anxious to build a railroad through the rich and beautiful country described by us, and open it up to settlement.

Land of milk and honey

A baby at 1st territorial capital site of AZ

Fear of Indians.

Grist mill.

Corn, wheat, barley, oats, vegetables