



# Chapter One

## THE 1919 TRASCANYON AERIAL TRAMWAY SURVEY

BY JIM OHLMAN

*Like many of the symposium's presenters, Jim Ohlman has explored the Grand Canyon for most of his life and has succumbed to the lure of its human history. In this presentation, he assembles all of the evidence for one of the little-known schemes surrounding canyon development. As with the plan to build an aqueduct from the San Francisco Peaks to the South Rim and attempts to build a road to Supai, the idea to string a transcanyon aerial tramway to "enrich" the tourism experience happily expired before getting far off the ground. But, as Ohlman illustrates, originators of this particular idea were serious, had all the backing required initially, and performed most of the preliminary survey before National Park Service Director Stephen T. Mather stepped in to quash the project.*

It may be hard to imagine taking a "scenic ride" across the vast expanse of the Grand Canyon in a tiny gondola while suspended some two thousand or more feet above the landscape, but this is precisely what George K. Davol and his band of surveyors had in mind back in 1919. Their idea was simple—at least on paper. Connect the South Rim and the North Rim with a series of suspended cables, linked one to the other by massive steel towers; run a pulley-like device along the cables and attach a tram carriage, or gondola, beneath the pulley; and there you go: the perfect way to view the wonders of the Grand Canyon!

The principle is sound, evidenced by hundreds of alpine ski lifts around the world and by well-known aerial tramways such as those at Mount San Jacinto in southern California and at the Sandia Mountains near Albuquerque, New Mexico. Nevertheless, ideas on paper and principles effective elsewhere ran head-on into reality at the Grand Canyon. It was not some insurmountable engineering obstacle, lack of timely funding, or even lack of public interest that stalled this project; its demise hinged on the politics of conservation versus public use—an unending conflict waged throughout the administrative history of

Grand Canyon National Park. Today, it is obvious to even the most casual visitor that the canyon's rims remain unconnected by a tramway. More subtle are remnants of old camps and survey outposts littered with rusted cans, two-by-fours, and rotted rope—relics of a preliminary survey—and of several small-scale supply trams that were constructed.

Little in the way of written documentation for either the overall project or its preliminary survey has surfaced. What little we know about this survey comes almost entirely from four photographic albums and one letter written by a member of the survey party some fifty-eight years after the fact, but a few additional tidbits are recorded in two books. In 1951 Robert Shankland wrote an engaging biography of Stephen T. Mather, the first director of the National Park Service and one of the men directly responsible for bringing national park status to the Grand Canyon. According to Shankland, George K. Davol, a San Francisco engineer, approached the Santa Fe Railway as early as 1916 with his idea of spanning the canyon with a tramway and received their backing for a preliminary survey (Shankland 1951, 207). In that year the Santa Fe controlled not only passenger and freight service along the Grand Canyon

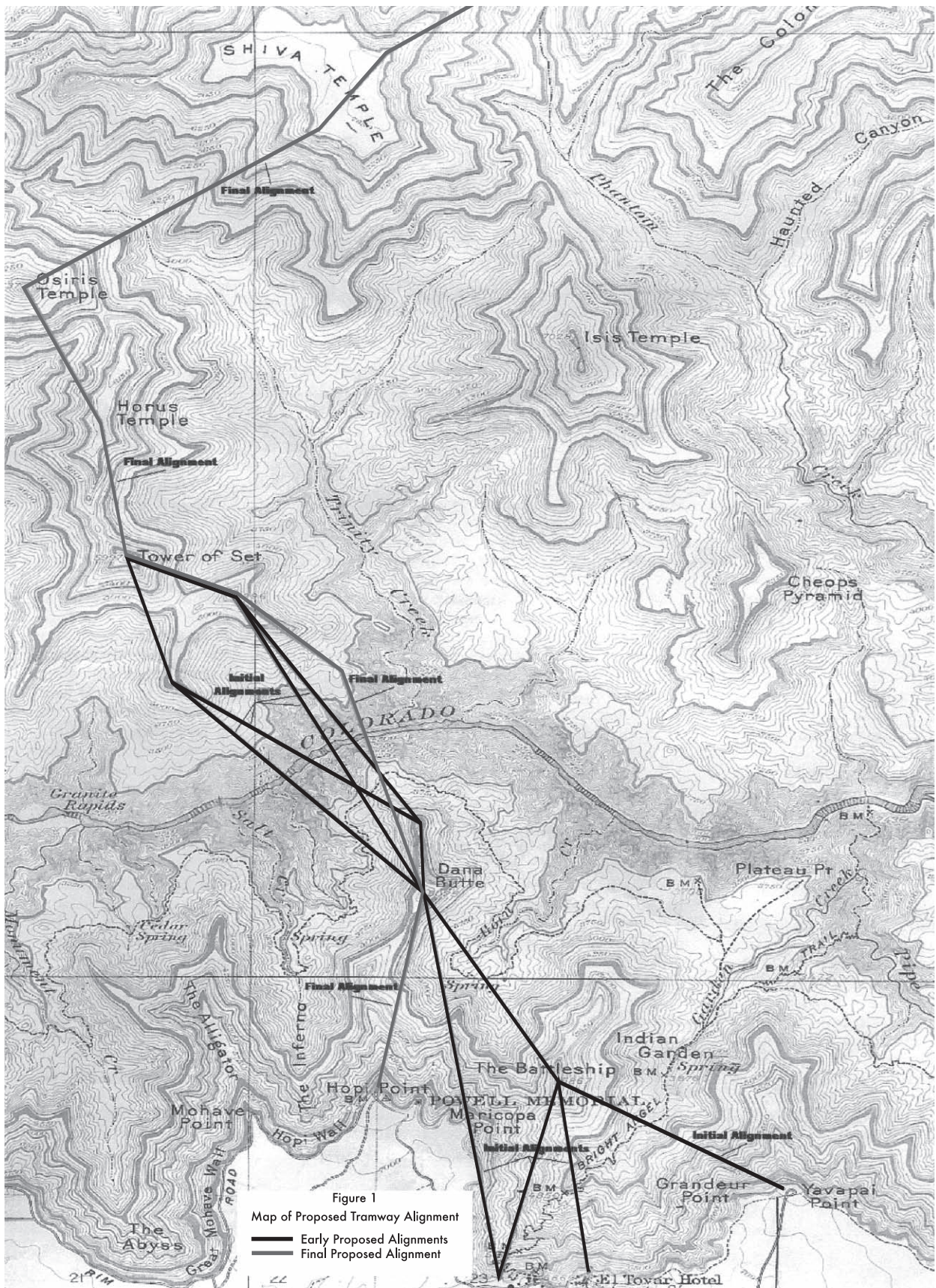


FIG. 1. Various alignments considered for the tramway

Railway, but also most of the utility and visitor services at the South Rim. In their thinking, linking the two rims would broaden their influence at the Grand Canyon by providing an additional “amusement” with which to attract tourists, and at the same time slap a glove in the face of the Union Pacific Railroad, which was trying to establish a presence in the budding tourist business at the North Rim (Anderson 1998, 152, 154).

With the Santa Fe on his side by 1919, Davol was ready to present his case to Stephen Mather (Shankland 1951, 207; Anderson 2000, 10). Mather, however, was busily engaged elsewhere, so his protégé at the Department of the Interior, Horace Albright, considered Davol’s plan. Albright held a dim view of commercial “aero plane” activities at the Grand Canyon, but warmly embraced the idea of a trans-canyon tram and was able to elicit the support of Secretary of the Interior Franklin Lane; Francis Farquhar, the future president of the Sierra Club and influential friend of Mather and Albright; and notables at the National Museum (Shankland 1951, 207; Swain 1970, 107). Once Mather had time to study the proposal, however, he voiced strong opposition. To him the notion of tying up “the two rims of this sublime prodigy of nature with wire ropes would be nothing less than monstrous,” but Davol did not receive an official refusal until October 1920, when John Barton Payne replaced Lane as secretary of the interior (Shankland 1951, 208).

Donald Swain’s 1970 biography of Horace Albright relays a similar version of events, but Swain adds that this was one of the rare occasions when Albright’s impulses as an administrator and conservationist ran counter to Mather’s. Although Albright’s early inclinations favored unrestricted public access to our national parks, under the tutelage of the elder Mather he came to view as more important the need to maintain our parks in near pristine condition (Swain 1970, 108). Nevertheless, between his first trip to Washington in early 1919, and the government’s final “no” on the subject in late 1920, Davol was able to muster a survey team, assemble provisions and supplies, and complete more than half of a preliminary ground survey—all in full sight of park service personnel (Shankland 1951, 208; Thoden 1977).

Information from a variety of sources indicates that the Santa Fe entertained several possible alignments for the trans-canyon aerial tram (Santa Fe Railroad n.d.; Shankland 1951; Thoden 1977). One map shows proposed South Rim terminals at Yavapai Point, El Tovar Hotel, Bright Angel trailhead, and Maricopa Point (fig. 1). Three of these alignments continue to a tower atop the Battleship, and from

there to another tower on Dana Butte. The fourth alignment passes directly from the Bright Angel trailhead out to Dana Butte. At least four continuations were considered for the next tram segment, north of Dana Butte, but all ended at a tower atop Tower of Set, a spectacular, 6,012-foot-high, red-rock butte 1.5 miles north of the river. The final alignment shows the South Rim terminal at Hopi Point and the tramline extending north to Tower of Set, with three intermediate towers between those two endpoints (Thoden 1977; USDI 1961). Continuing north from Set, all of the proposed alignments cross the summits of Horus, Osiris, and Shiva temples before terminating at Tiyo Point, twelve miles west of Bright Angel Point. The total length of the shortest alignment would have been ten miles, based on Thoden’s map.

George Davol and a team of twelve surveyors and packers conducted a preliminary survey from August to November 1919 (Ryan n.d.). Whether Davol obtained local approval is unknown, but it appears park officials did not interfere. The Grand Canyon Railway brought in supplies, and Fred Harvey mules transported them to camps south of the river. The survey proceeded from the South Rim down to a point north of Dana Butte on the south side of the river (fig. 2). A cable-ferry was established about midway between Trinity Creek and Salt Creek, allowing direct, if not easy, access to points north of the river. The survey then continued northward to the top of the Redwall along the east side of Tower of Set (fig. 3). Camps were established at several places along this route, and lightweight “supply trams” were rigged at critical points to ease delivery of needed materials. As the survey neared the east side of Horus Temple, severe snowstorms forced curtailment of further work until the following year. Before packing up, Davol and two of his men retraced the entire survey line to photo-document work completed to that point (Thoden 1977).

Davol no doubt anticipated returning to the canyon in 1920 to complete his survey, but park officials had other plans and an aerial tramway was not among them. Mather’s notion of a park free of “amusements” and “contraptions” held sway, so Davol moved on to other projects (Shankland 1951). It seems amazing that no subsequent attempts were made during the 1920s and 1930s, when shorter but similar aerial trams were built down to Hermit Camp and Indian Garden, or during the 1950s and 1960s, when much longer trams were constructed in Marble Canyon and far western Grand Canyon. Perhaps it is fortunate that Davol’s plans for a trans-canyon tram never materialized, as there is no telling how many of Albright’s “aero planes” would have met untimely ends by plowing into unseen cables!

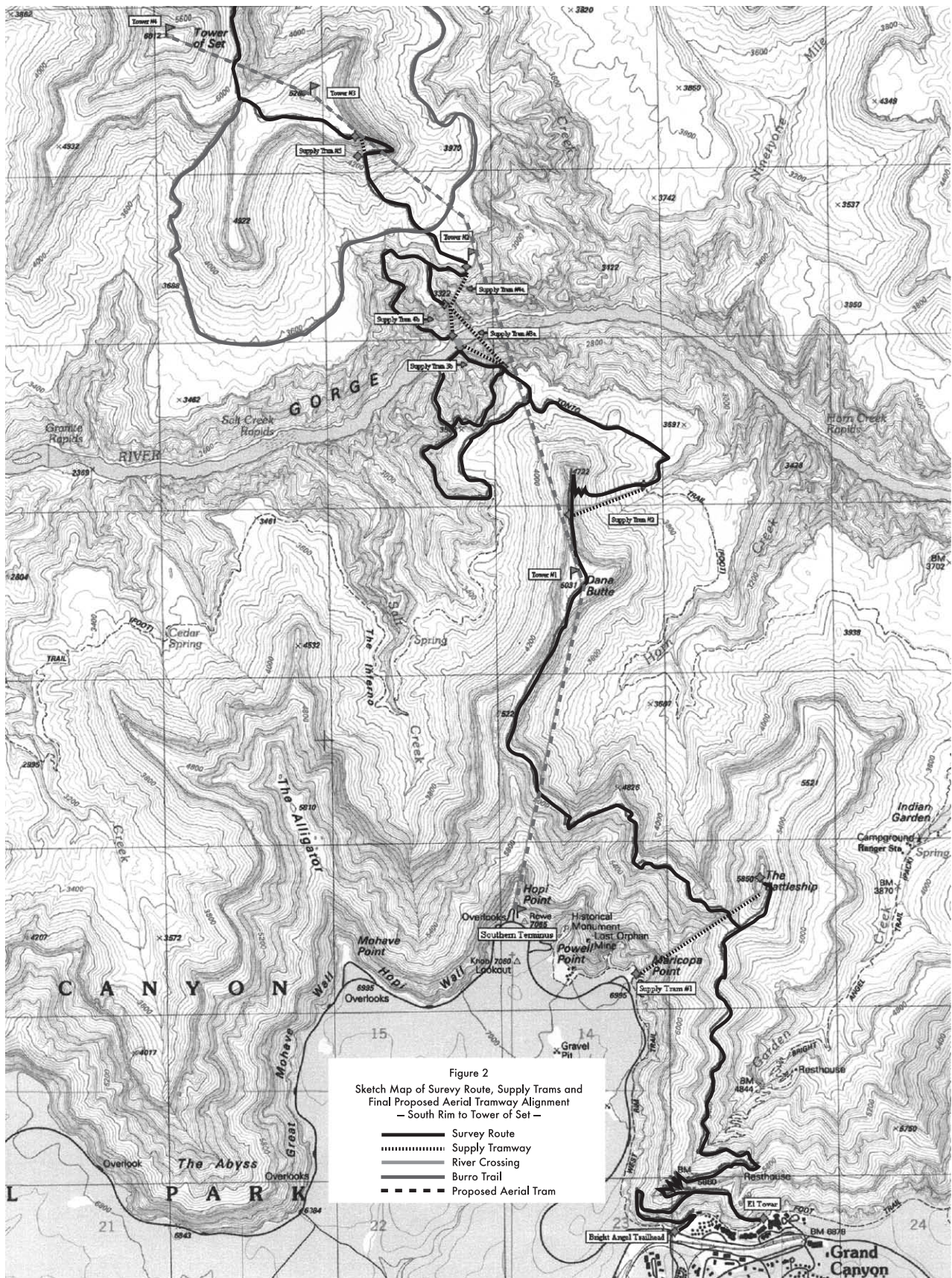


Fig. 2. The survey route from the South Rim to Tower of Set

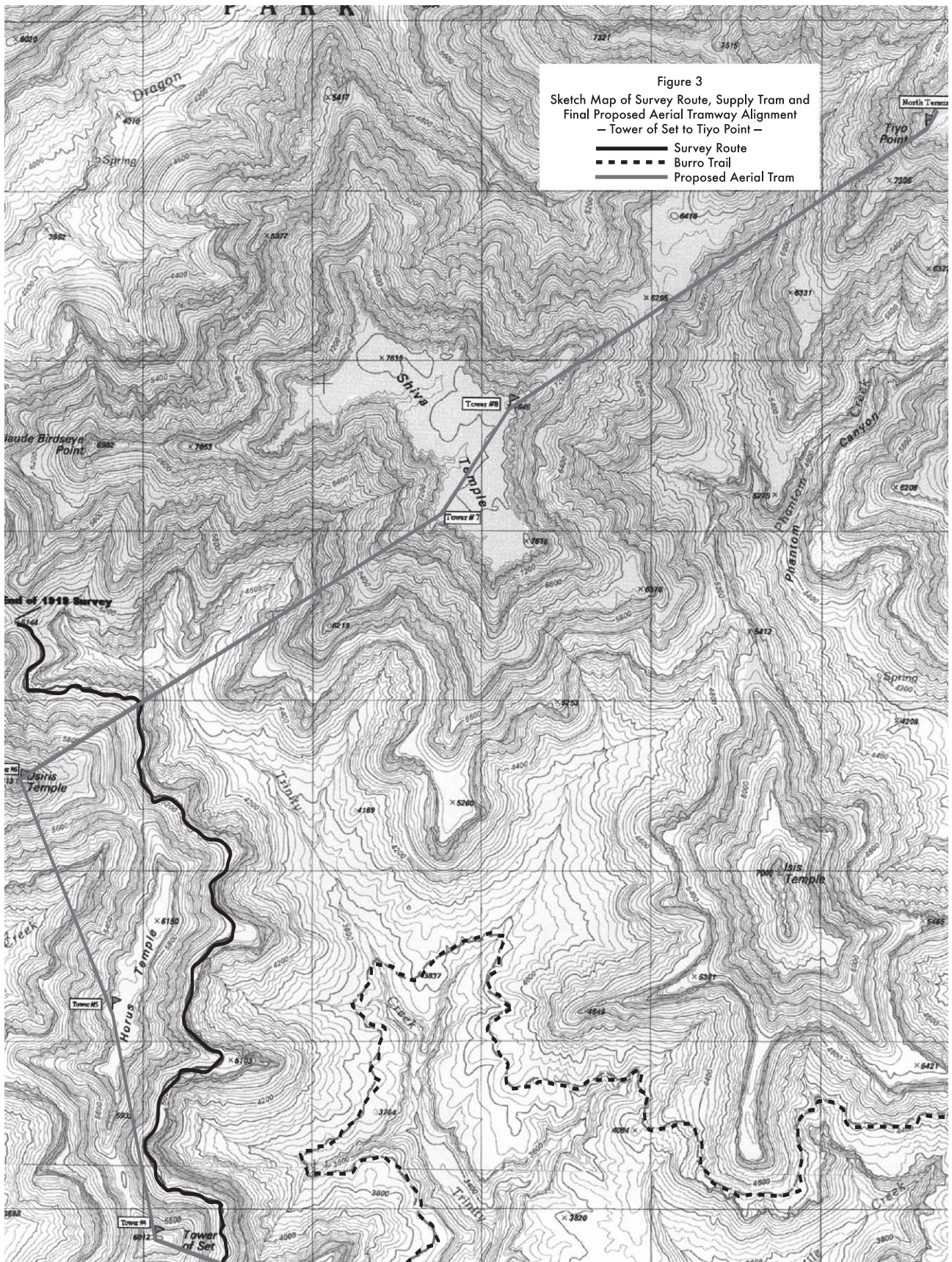


Fig. 3. The survey route from Tower of Set to the top of the Redwall

## MORE INFORMATION ON THE PHOTOGRAPHIC ALBUMS FEATURING THE SURVEY

### Colter Album

Mary Colter, a Santa Fe Railway architect who worked at the Grand Canyon in the 1900s through the 1930s, donated the first of four known albums to the national park in April 1952. This album, now in the park's study collection, consists of fifty-four mounted photographs prepared for the Santa Fe to "show views that might be available to passengers if a tramway were built into Grand Canyon" (Colter n.d.). This information is found on the inside front cover of the album in a brief explanatory note written by then-Superintendent Harold C. Bryant. Bryant is correct, but he continues, "Most of these photos were taken from the tramway built and used during construction of the water supply from Indian Garden, completed in 1928." There are two obvious errors here: All of the photographs are from the 1919 survey, and the park service built the Indian Garden pipeline in 1931–32, not 1928. Perhaps Bryant was confusing the water pipeline built by the Union Pacific Railroad from the North Rim to Roaring Springs. That installation also required a supply tram, in use during 1927–28.

In the summer of 1995, Ranger Lon Ayers spent considerable time reviewing these photographs, discerning both their subject material and the possible location of each camera station (Ayers 1995). He had assistance from both Thoden's written account and copies of photographs obtained from the Ryan Album, discussed below, but at that time little field reconnaissance of the survey route had been done and the excellent sequential images of the Spamer Album, also discussed below, were not available. Several interesting features of the Colter Album are worth noting. First, all of the prints measure  $6\frac{3}{4}$  by  $11\frac{1}{4}$  inches, which is a rather large format for photographs placed in an album. Second, every image bears a number along its lower edge. These numbers are gap-sequential in ascending order from front to back of the album, starting from image #39 and ending with image #233 (image #90 is the only one out of order). These numbers indicate that a series of photographs was initially produced during the survey, and that this particular album contains only those images its compiler considered pertinent for its intended use. I refer to the entire series of numbered prints as the "Santa Fe" images because the following three albums contain additional photos of a different origin. Note that all of the images in this collection are represented in either the Ryan or Spamer albums.

### Ryan Album

The Robert L. Ryan Album (Ryan n.d.) resides in Northern Arizona University's Cline Library, Special Collections, and was donated by Ryan's son, Bob Jr., in 1996. Ryan was a member of the 1919 survey team, and he was next in charge of the fieldwork after L. C. Willey and E. Schliewen. The album contains 323 images, 163 of which relate specifically to the tramway survey. Of these, ninety-three are of the type referred to previously as "Santa Fe" images, and another seventy are personal "snapshots" taken either by Ryan or by a designee. At least three duplicate prints are among the Santa Fe images. Whereas the Colter Album has images arranged in near-numerical order, the Ryan Album has them arranged every which way, starting with image #6 (NAU PH97.13.3) and ending with image #239 (NAU PH97.13.76). There are also four unmarked Santa Fe photos (NAU PH97.13.7, 9, and 14–15) that likely fit into the numbering sequence between photos #2 and #38 of the Spamer Album (see below). It is assumed that the numbers were cropped off these images during processing. One key feature of this album is the extensive captioning provided by Ryan. Nearly every page is annotated in some way, providing valuable insight into the survey effort.

### Spamer Album

In 2000 Earle Spamer of the Academy of Natural Sciences discovered a third photo album (Spamer n.d.). Spamer retains the original album, but digital copies of the images have been graciously made available to the Cline Library and Grand Canyon's study collection. This album contains 145 images of the 1919 survey. All are presented in strict numerical sequence (using the Santa Fe numbering system), starting with #3 and ending with #240. Obviously, not every image in the set is represented in this album, but to date this is the most inclusive collection of photographs related to the survey that has been found. Seventy-two of the images in this collection differ from those included in either the Colter or Ryan albums, but together these three albums contain 162 out of an assumed total of at least 240 images.

### Thoden Album

Along with several postcards, a clipped advertisement, and miscellaneous items, this scrapbook-like album contains sixty-one photos of the Grand Canyon, of which forty-eight are pertinent to the 1919 survey (Thoden n.d.). It was donated to the Grand Canyon study collection by one of Ed Thoden's relatives in December 1989 (Thoden was one

of the packers or “camp rustlers” on the survey). While none of the photos appear to be part of the Santa Fe series, what the album lacks in style it makes up for in historicity, as many of the images include details of camp life that are lacking in the more formal collections discussed above.

Most of the photographs in the Thoden Album are personal snapshots of friends and scenes that Thoden wanted to keep alive through the wonder of film. He was less interested in grand scenery than in the people who were in it with him. Images in the Spamer Album are documentary in nature, serving to record progress of the survey and events, rather than daily life of the surveyors. The Ryan Album is a mixture of these two—a record of the survey and surveyors together. The Colter Album appears to be a carefully selected set of official Santa Fe photos, used to either draw attention to highlights of the survey, or perhaps just to convey a memento of the survey to Colter by her friends at the railroad.

Based on the style and content of photographs contained in these four albums, and on scant historical data found elsewhere, it is my opinion that all of the numbered photographs in these albums were commissioned by (and perhaps also produced by) the Santa Fe. Each album appears to have been individualized to suit a particular need, as no one album contains the entire series of images. Indeed, these albums collectively represent less than 70 percent of the known or suspected images. According to Thoden, a large number of images were made after the main survey had been completed and after all but two of the original crew had been discharged. It appears that only a handful of these later images were deemed suitable for inclusion in any of these albums, perhaps because of their overt documentary character. It would be most interesting if future researchers could locate these missing images, as well as the remaining numbered Santa Fe photographs.

### THE THODEN LETTER

Prior to 1977 nearly all knowledge of the 1919 survey had been lost, save for one mislabeled set of photographs at the park library and two brief inserts in biographies of Mather and Albright. Physical artifacts connected with the survey were largely undiscovered due to their remote locations, and those that were found brought quizzical looks to passing explorers because their story was unknown. In early 1977 Ranger Tim Manns received a long, handwritten letter from Thoden. This letter contains eighteen pages outlining the work that was done, along with a transcribed map of the route surveyed and a three-part sketch of a typical supply tram (Thoden 1977).

In 1995 the Ryan Album surfaced. Researchers gathered around the new find and a flurry of literary activity

followed, resulting in at least two articles or reprints thereof (Chesher 1996; Richmond 1996; Cook and Schafer 1994). Thoden’s letter formed the core of the material in the albums, with Ryan’s photographs providing the scenic backdrop. The Thoden Album, however, somehow escaped notice during this time, although according to park records it had become part of the study collection in December 1989. Ed Thoden died in April 1988, and with him the last flesh-and-blood connection with this fascinating saga of twentieth-century entrepreneurial activity vanished as well.

### WORKS CITED

- Anderson, Michael F. 1998. *Living at the edge: Explorers, exploiters and settlers of the Grand Canyon region*. Grand Canyon, Ariz.: Grand Canyon Association.
- . 2000. *Polishing the jewel: An administrative history of Grand Canyon National Park*. Grand Canyon, Ariz.: Grand Canyon Association.
- Ayers, Lon. 1995. September 14 letter to Carolyn Richard. Grand Canyon National Park Study Collection, Grand Canyon, Ariz.
- Chesher, Greer. 1996. Treasures of the Granite Gorge. *Canyon Journal* (Spring/Summer).
- Colter, Mary E. J. n.d. Photo album containing 54 prints of the 1919 survey. Grand Canyon National Park Study Collection, Grand Canyon, Ariz.
- Cook, James E., and Paul Schafer. 1994. Exploiters of the Grand Canyon. *Arizona Highways* (February):14–21.
- Richmond, Al. 1996. Tram? What tram? *Nature Notes* (Summer):1–3.
- Ryan, Robert L. n.d. Photo album with 323 prints of Grand Canyon, 163 relating to the 1919 survey. Cline Library Special Collections, Northern Arizona University, Flagstaff, Ariz.
- Santa Fe Railroad. n.d. Map of possible routes from Santa Fe Railroad cross canyon survey. GRCA Image 17350, Grand Canyon National Park Study Collection, Grand Canyon, Ariz.
- Shankland, Robert. 1951. *Steve Mather of the national parks*. New York: Alfred A. Knopf.
- Spamer, Earle. n.d. Photo album with 145 prints of the 1919 survey. Original album in possession of Spamer; copies in Grand Canyon National Park Study Collection, Grand Canyon, Ariz., and Cline Library Special Collections, Northern Arizona University, Flagstaff, Ariz.
- Swain, Donald C. 1970. *Wilderness defender: Horace M. Albright and conservation*. Chicago: University of Chicago Press.

Thoden, Ed K. 1977. Letter to NPS Ranger Tim Manns, received March 12. File Folder #4082. Grand Canyon National Park Study Collection, Grand Canyon, Ariz.  
———. n.d. Scrapbook/photo album containing 61 prints of the Grand Canyon, 48 relating to the 1919 survey.

GRCA #34654, Grand Canyon National Park Study Collection, Grand Canyon, Ariz.  
USDI. 1903. *Bright Angel Quadrangle*. Repr., Washington, D.C.: U.S. Geological Survey, 1961.