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E. Trees to Ties to Track

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Montana Memory Project Photo umt010970

Initial Metadata Title: Polleys Lumber Company, Unloader and Railroad Ties
Initial Metadata Date: 1930

Trees to Ties to Track

If you have read the [Introduction](#) to this collection of stories, you already know how I got involved in this photo analysis/research work as a volunteer for the University of Montana (UM) Maureen and Mike Mansfield Library. In early 2018, one of the library technicians sent me a list of seven Montana Memory Project (MMP) photo numbers with the suggestion that the metadata for that set could stand some double-checking or completion. The lead photo, MMP number [umt010970](#), was in that list. The photo is one of many from the physical collection of Rollin H. McKay that have been scanned into the MMP archive. The metadata for the lead photo indicated that the scene was related to Polleys Lumber Company operations.

Archives West (2018) indicates that Edgar Hovey Polleys started his lumber company in Missoula in 1910 with the construction of a mill on the south side of the Clark Fork River, southwest of the center of the city in those days. Based on Sanborn Fire Maps of Missoula from the early 20th century, the Polleys property extended from the west side of the Northern Pacific¹ Bitterroot Branch Line westward almost to California Street. The north-south extent of the plant was from the river to the right of way of the Chicago, Milwaukee, St. Paul, and Pacific Railroad, i.e., the Milwaukee Road, essentially to Dakota Street. Both railways served the mill (Figure 1).

When I receive a request to study a particular image, I always look at images with umt numbers near that of the case-in-point image. I do MMP searches on the

¹ Northern Pacific trackage in the Missoula area is now owned by Montana Rail Link.



Figure 1. Northern Pacific Rail Cars Loaded with Logs on the Northern Pacific Spur at the Polleys Lumber Company Mill Log Pond. The Northern Pacific spur actually was on a trestle bridge in order to cross the southeast corner of the log pond. The Milwaukee Road spur joins the Northern Pacific spur in the left center of the photo near the trolley wire support with the sloping back brace pole. Other trolley wire supports have similar back bracing. The back bracing can be seen more clearly in [umt016885](#). This is MMP photo [umt010978](#).

photographer, if known, and on key words associated with the case-in-point photo. Often, I discover that the case-in-point image is related to some other photographs taken by the same photographer and that have been scanned into the MMP archive. The metadata for the other images that I find in my searching may be helpful, or the view in the other images may add depth to the research on the photo in question. That was certainly the case here.

The lead photo, umt010970, and two other MMP photos, [umt010971](#) and [...72](#), all relate to the Polleys Lumber Company locomotive #4. These photos show the laying of a railway on which cars loaded with logs would travel from the woods to the Polleys mill in Missoula, i.e., the scene in Figure 1.

I never know where my internet research outside of MMP will take me. Starting points are usually selected randomly. In this case, I did some internet research in an attempt to identify the type of locomotive in the lead photo with the hope of, at least, having that bit of information for the Description metadata field. I came across a picture of a logging locomotive similar to the Polleys Lumber Company locomotive. The caption for that

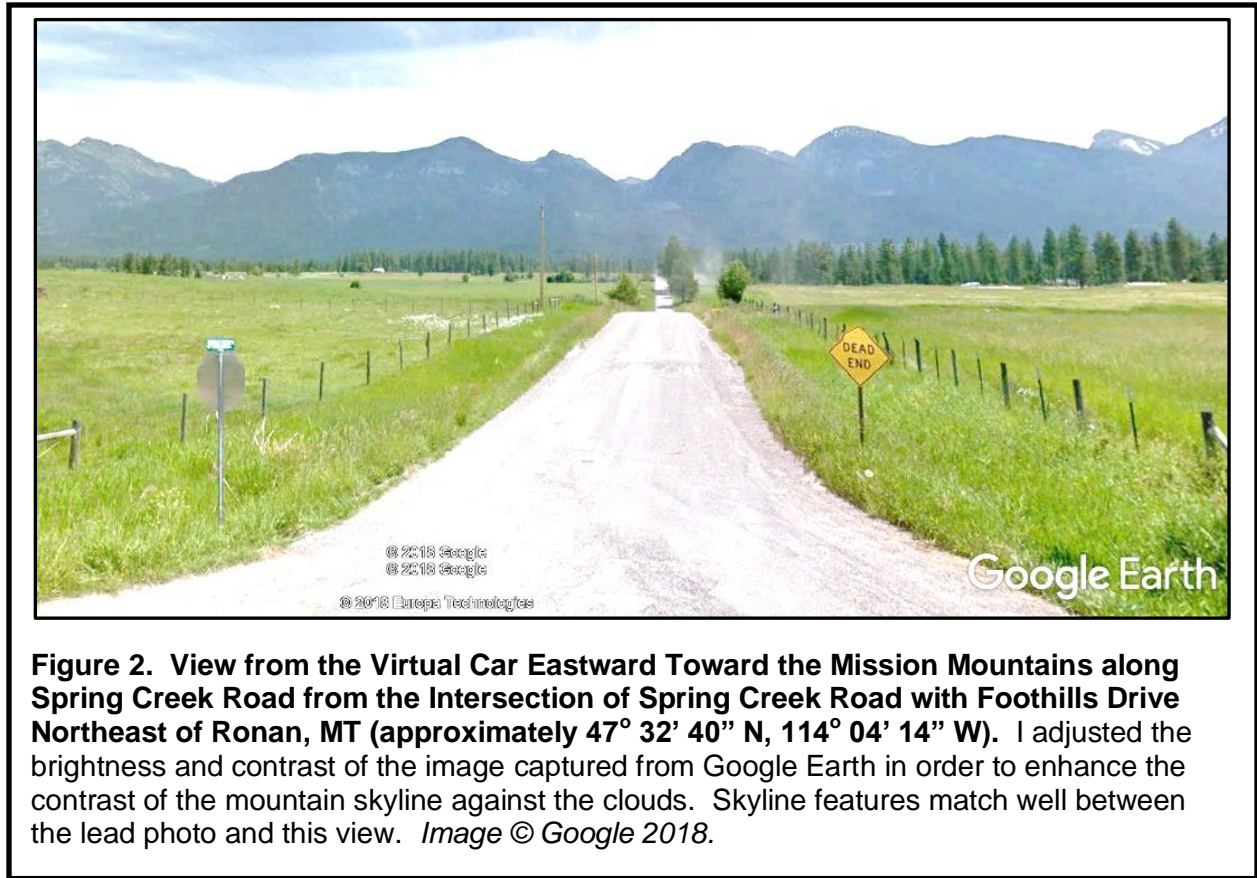


Figure 2. View from the Virtual Car Eastward Toward the Mission Mountains along Spring Creek Road from the Intersection of Spring Creek Road with Foothills Drive Northeast of Ronan, MT (approximately 47° 32' 40" N, 114° 04' 14" W). I adjusted the brightness and contrast of the image captured from Google Earth in order to enhance the contrast of the mountain skyline against the clouds. Skyline features match well between the lead photo and this view. *Image © Google 2018.*

online photo indicated that the locomotive was a Heisler brand, a gear-drive steam locomotive similar in concept to the Shay and Climax gear-drive locomotives that, also, were popular in the logging business in the early 20th century.

After determining the type of the locomotive in the photo under study, I researched Heisler locomotives specifically. The Geared Steam Locomotive Works (GSLW) site (Thomas, 2018) lists many Heisler locomotives. I searched the site for "Polleys", and the search returned links for Polleys locomotives #2 and #4. The photo of the Polleys #2 locomotive on the GSLW site is the MMP photo [umt010969](#), which I had viewed in studying the lead photo because its MMP number is adjacent to the MMP number of the photo under study. I will come back to [umt010969](#) and locomotive #2 later.

In the GSLW [photo](#) of locomotive #4, the numeral 4 is clearly visible on the side of the cab, and the lettering "POLLEYS LBR CO" is on the side of the tender. The company name lettering is not visible in the MMP photo, but the numeral 4 is visible. The GSLW photo caption indicates that the photo of locomotive #4 was taken near Ronan, MT.

The Description fields in the four MMP photos ([umt010969](#), ...70, ...71, and ...72) originally indicated the location as "probably in Montana". In the lead photo and in [umt010972](#), a mountain range rising up from a relatively flat valley can be seen in the background. Based on the hint on the GSLW site, I wondered whether the location of



Figure 3. Polleys Lumber Company Locomotive #2 Loading Railroad Ties onto a Flatcar. Ties to be loaded can be seen in the lower left foreground. The “2” is barely visible on the smokebox door even in the original photo. This is MMP photo [umt010969](#).

the lead photo could be near Ronan. I drove my Virtual Car² to the area northeast of Ronan, and I captured the view in Figure 2. I suggest that the scenes in umt010970, ...71, and ...72 were imaged near this location.

Two differences exist between the photo of locomotive #4 on the GSLW site and the images of the locomotive in umt010970, ...71, and ...72. I mentioned the cab and tender labeling differences above. In the MMP photos, the smoke stack is the funnel-shaped style, also called bonnet style or diamond style, while the smoke stack in the GSLW photo is a simple tube. These differences can probably be accounted for with the timing of the respective photos. The tubular smoke stack shape may indicate a change from the original use of wood or coal fuel to oil for fuel, i.e., when the need for the spark suppression provided by the diamond style smoke stack was not needed.

My interpretation of this set of photos, i.e., umt010969, ...70, ...71, and ...72 from the Rollin H. McKay collection in the UM Archives, is that McKay, a professional photographer in Missoula, spent some time in the field with the Polleys Lumber Company people and took pictures that illustrate various phases in the development of a new segment of a logging railway. McKay took many other photos during this time period that show the mill, e.g., Figure 1, and Polleys Company operations in the woods.

² Virtual Car is my casual term for Google Street Views.



Figure 4. A Tie Hack Cutting the Face of a Railroad Tie (USDA Forest Service, 2018). This photo is credited to Kenneth D. Swan. The date for this photo is August 12, 1924. In addition to the broad axe in use by the worker, one can see his hand saw and a bark scraper on the ground at the right edge of the photo.

Figure 3 shows locomotive #2 pulling a flatcar on which is mounted a steam powered simple derrick, commonly called a jammer. The jammer is lifting ties from beside the railroad tracks onto a second flatcar.

I have not found information on how the ties for the Polleys Company railroad were prepared and delivered from where the trees were felled to the loading point beside the railway (Figure 3). However, initially, the workers who prepared the ties were called tie hacks and worked with hand tools (Figure 4). McKay (1994) devotes a large section of her report to the Flathead National Forest to the production of railroad ties.

The Swan photo in Figure 4 is dated 1924. McKay (1994) indicates that by 1930, most of the ties in the Flathead National Forest were being cut in the woods using portable tie saw mills. Similar mechanization was likely used in places other than the Flathead National Forest. [Figure 88](#) in McKay's (1994) report shows a portable tie mill operation.

Ties, such as those being loaded in Figure 3, made their way to the site where a new segment of the lumber company's railway was being built, i.e., the lead photo. The lumber company railroads were often laid with no significant road bed preparation. The railway needed to last just long enough to remove the merchantable timber from an area. The roadbed did not need to be smooth as with a line that carried passengers. The logs did not complain about a rough ride as human passengers might have done.

The lead photo shows locomotive #4, a flatbed car with railroad ties such as those being loaded in umt010969 (Figure 3), and a steel framework on a second flatbed car. That

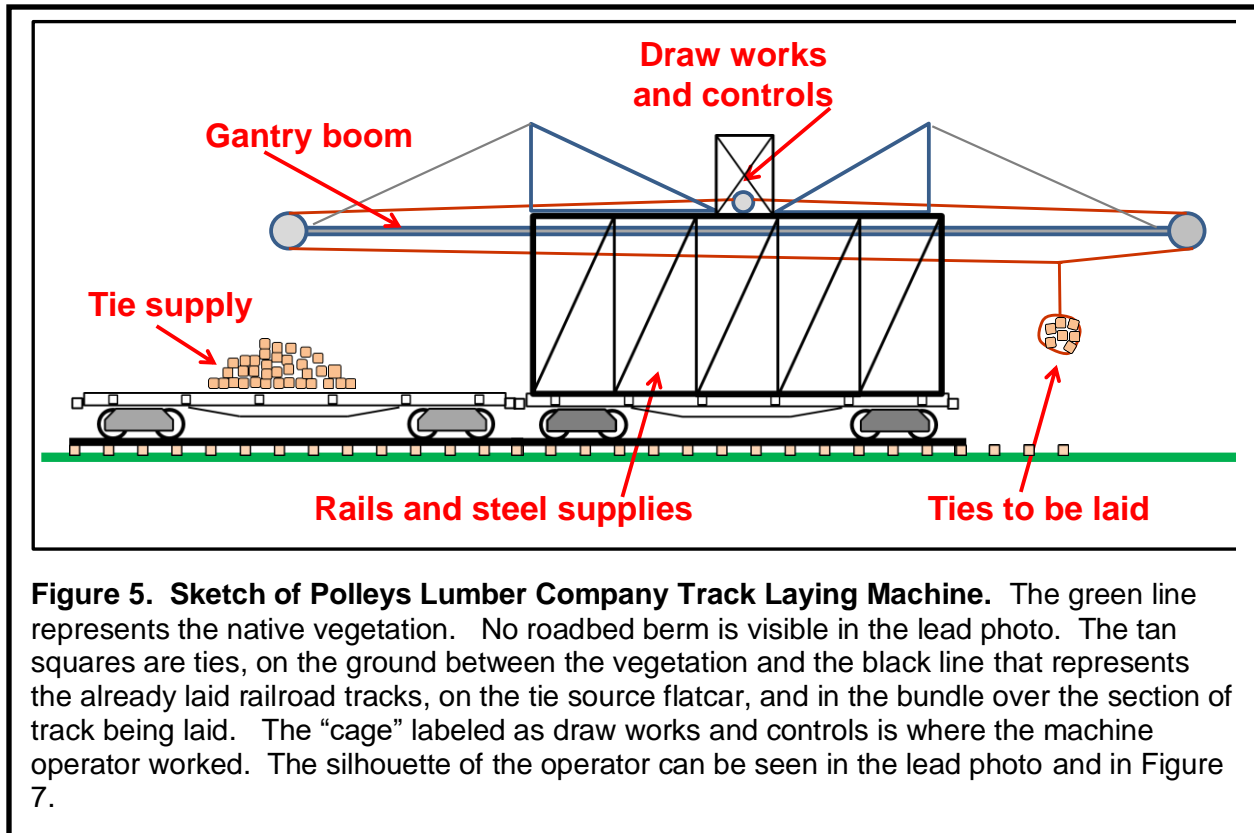


Figure 5. Sketch of Polleys Lumber Company Track Laying Machine. The green line represents the native vegetation. No roadbed berm is visible in the lead photo. The tan squares are ties, on the ground between the vegetation and the black line that represents the already laid railroad tracks, on the tie source flatcar, and in the bundle over the section of track being laid. The “cage” labeled as draw works and controls is where the machine operator worked. The silhouette of the operator can be seen in the lead photo and in Figure 7.

steel framework is on what is called the pioneer car, i.e., the first car to travel on newly laid track, and the steel framework on the pioneer car is a track laying machine. The track laying machine had two functions, i.e., unloading both ties and rails.

Track laying machines are discussed on the oil-electric.com site. Various designs are illustrated, e.g., the [Roberts](#) (oil-electric.com, 2011a), Holman, and numerous [other](#) styles (oil-electric.com, 2011b).

Essentially, all of the track laying machines, including the one in the lead photo, perform the same functions, i.e., they move ties and rails from source flatcars and position them ahead of the machine. The differences in the various styles related largely to the relative amounts of mechanization versus manual labor involved in handling the ties and rails. The Hurley self-propelled system probably employed the most amount of mechanization (oil-electric.com, 2011b) of the track laying machines of the early 20th century.

Initially, I could find no photos on the internet that showed a track laying machine similar to the one in the lead photo, and I will come back to that point later. Because of the angle of the photograph, the track laying machine in the lead photo is not well imaged. Therefore, I made the sketch in Figure 5 in an attempt to illustrate my sense of the gross features of the Polleys Lumber Company track layer. The gantry boom seems to me to be a feature that distinguishes the Polleys machine from those described on the oil-electric.com (2011a, 2011b) sites. Images on the internet show drawings of shipping container cranes with the drawing at <https://inchbyinch.de/pictorial/container-crane/>

having many similarities to my sketch in Figure 5. The function of a container crane is to move shipping containers laterally from the dock to a ship, or vice versa, totally analogous to the lateral movement of ties and rails by the track laying machine.

My interpretation is that the track layer had two basic controls for handling materials. One control raised and lowered the choker hitch that carried the ties or the rails. The other control moved the choker hitch assembly back and forth along the gantry boom. Not seeing a steam boiler, such as is pictured in Figure 6, on the track laying pioneer car, I interpret that the draw works was powered by live steam from the locomotive. The steam was piped (Figure 7a) from the locomotive and powered a small cylinder, perhaps only 20 horsepower, as mentioned in the oil-electric.com (2011a) discussion of the Roberts track layer.

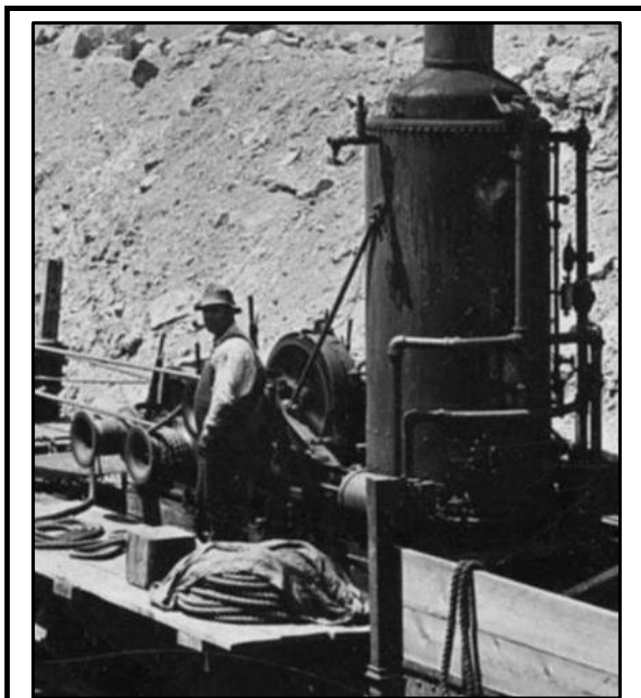
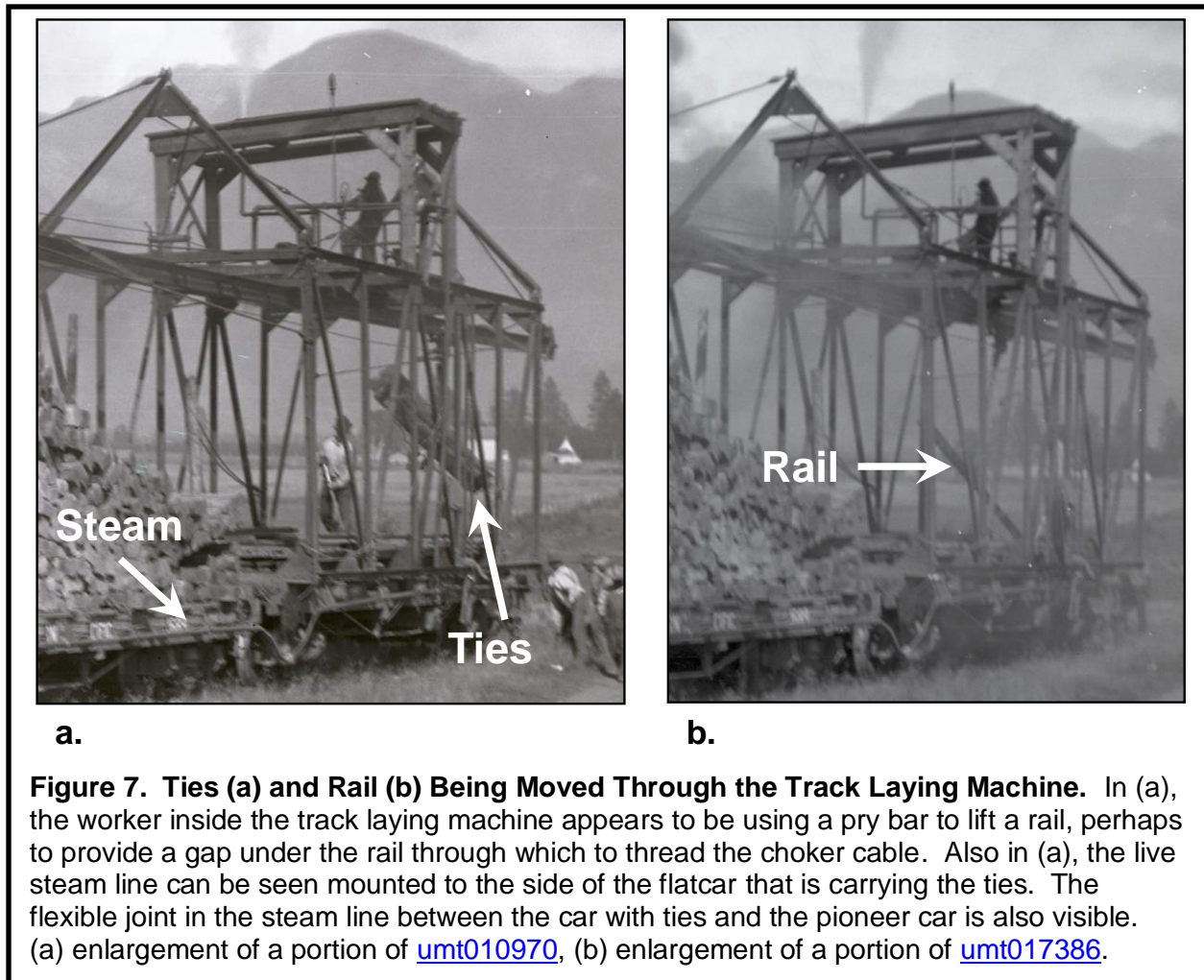


Figure 6. Steam Powered Cathead Winches for a Railroad Derick or Track Laying Machine. slatonharveyhouse.com (2017)

Some track laying machines had their own on-board steam engine, e.g., the Hurley machine (oil-electric.com, 2011b), for both material handling and locomotion. A photo on the slatonharveyhouse.com (2017) site shows a steam engine, sometimes called a donkey engine, and the draw works for what may have been a track laying machine. Figure 6 is just the part of the slatonharvelhouse.com photo that shows cathead winches that might be similar to what was in the operator's "cage" sketched in Figure 5.

The process for laying track with a machine such as in the lead photo was straightforward. The track laying machine operator would run the choker hitch assembly to a position over the supply of ties, and a worker would set the choker hitch around a group of ties. That bundle of ties would be moved along the gantry boom past the head of the train, i.e., the end of the pioneer car, and past the end of the track. One can

see a worker on the pioneer car and a bundle of ties in the lead photo and in the enlargement in Figure 7a. The ties would be released, and the workers on the ground, as seen in the lead photo, would lay the ties in place. More bundles of ties would be delivered past the end of the track until enough ties were laid to accommodate the next pair of rails.



After laying enough ties to accommodate the length of the rails, the choker hitch assembly would be drawn back into the heart of the pioneer car, which carried the rails. A worker would then set the choker hitch around a rail, and the draw works would move the rail over the newly laid ties (Figure 7b). The rails were about 30 feet long, which suggests that the gantry boom extended at least 15 feet past the end of the pioneer car. Of course, this operation was repeated in order to lay the second rail parallel to the first one in a section.

Once the rails were spiked, the pioneer car and the track laying machine were moved forward to repeat the process for the next 30 feet or so of track. With the help of the track laying machine, one to two miles of track could be laid per day.

Epilogue

This is the second edition of this story. The original article, developed and published on ScholarWorks in early 2018, included Figures 2, 3, 5, and 6 and the lead photo, of course. What was missing when this story was first published was a photo that would



Figure 8. Track Laying for the Fruit Growers Supply Railroad in 1946 at Halls Flat, California. *Image courtesy of University of Montana, Mansfield Library, Archives and Special Collections, Phillip C. Johnson Collection: Photo number 92.1874. (As of 12-26-2019, this photo was not in the Montana Memory Project collection.)*

have been the companion to the lead photo, i.e., the movement of a rail through the track laying machine.

In the spring of 2018, I visited the Mansfield Library Archives and reviewed the physical McKay collection. I found the companion to the lead photo that I had hoped was in the collection. That photo had not been scanned into MMP. I requested that the photo be scanned. It was scanned in the fall of 2018 and given MMP number [umt017386](#). Figures 7a and 7b show the ties and a rail, respectively, being moved through the Pollleys Lumber Company track laying machine and, thus, could be considered the end of the story. With the photo of the rail being moved, I began editing the original article to include that scene.

Before I had completed my editing of the original article to include the view of the mill (Figure 1) and the track laying machine in Figure 7, the Mansfield Library archive technician, who scans the photographs for the Montana Memory Project and who knew of my interest in the photos of the track laying process, happened to scan the photo in Figure 8. The track laying machine in Figure 8 is remarkably similar to that in the lead photo. Figure 8 shows the area in front of the pioneer car, an area not imaged in the McKay photos. In Figure 8, ties have been laid, and one rail has been put down. The

second rail is being lowered into position from the gantry crane. The photo shows, as is suggested in the McKay photos of the Ronan, Montana, area, that minimal roadbed preparation had been done. I do not know whether the ties were subsequently ballasted.

I mentioned above that my internet searches can have random starting points. That was the case in my finding of the image in Figure 4, i.e., the tie hack. In the fall of 2019, I attended a model railroading show and swap meet, and I picked up an advertisement for a convention of the Northern Pacific Railroad Historical Association (NPRHA). The advertisement included a photo of a Northern Pacific passenger train at the Missoula station in 1947, and a credit was given to the photographer. Out of curiosity about the photographer, I searched for his name in MMP, but MMP had nothing by that photographer. I made an internet search, one of those random starting points mentioned above, on the photographer's name and got a hit for the UM ScholarWorks site, the same site that hosts this story. The ScholarWorks item was an audio recording of an interview with the photographer, Bramford Dodge III.

The ScholarWorks page for the recording showed a thumbnail image. While the image was quite small, I wondered whether the work crew that I could make out in the thumbnail photo was hacking ties. The thumbnail photo had a number on it, which I used in a new internet search. Quite surprisingly, that search led me to the USDA Forest Service historical site (2018). The photo was credited to Kenneth D. Swan. The work crew pictured in the thumbnail was cutting fence posts, not railroad ties.

In my early research, I had not found photos on the internet of the process of hacking ties, use of portable tie mills, and so forth. Nevertheless, having found a new resource, I paged through the Forest Service online album and found other photos by Swan, including the image of a tie hack in Figure 4.

About this same time, I came across the McKay (1994) report on another US Forest Service website, and the text in the report and the Swan photos were complementary and I have tried to weave them into the original story where they seemed appropriate.

Finding information on the fate of the Polleys Lumber Company spur lines on the internet has not been successful. One can find information here and there on the internet that says that some of the lumber company lines evolved into traditional freight and passenger service. Some lines were ripped out and the roadbeds converted for truck transport of logs. For those lines that were ripped out, the rails were certainly salvaged, possibly to be reused on another temporary rail line. Assuming that my suggestion of the location of the track laying scene in the lead photo is correct, one does not see any evidence of the onetime rail line between the fence and the county road (Figure 2). Maybe, like McKay, I should take a field trip to the area in an attempt to gather more information on this railway.

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