



Date Nails....By Rolland Meyers



A subject that most people do not even know exist. What are they? What are they used for? When did they appear in the ties of American Railroads and are they still used? These are some of the questions that arise every time I bring up the topic of a hobby I have had now for many years.

After the Civil War ended, the expansion of the rail system in the U.S. grew dramatically. With this growth came an enormous increase in the demand for timber to create the cross ties needed for these new and expanding railroads. Over 3,000 ties per mile are used. In the first phases of this expansion the United States had an ample amount of standing timber to satisfy the immediate needs, but as this expansion multiplied the demand started to exceed the existing supply. In 1880 about sixty million ties were used, but by 1900 over one hundred million were cut and used from existing timber stands. That pace obviously could not be sustained and that is when the idea of treating the cross ties to increase their longevity was first brought up. Untreated ties generally had a longevity of five to seven years, a treated tie could last thirty years or more.

The larger railroads set up tie facilities and tested various methods of treating ties both chemically, with steam, or a few other methods. In order to test the results of these treatments test sections were set up by several of the railroads. To monitor the results in these test sections it was proposed to put a dated nail in those ties for record keeping purposes. The first recorded date nail used in a U.S. cross tie dates from 1897 and was used on the Mississippi River & Bonne Terre Railroad. No other railroad used them until 1899. Octave Chanute who was involved with the tie treatment process as well as aviation innovations and other cutting edge programs of the time was credited with introducing the use of the date nail to the railroads at a Maintenance of Way convention in 1900. By 1901 several railroads were using date nails in test sections of their lines. In the early years of date nail use, all the dates were indented in the head and both one and two digit dates (numbers) were used. So a 4 or 04 could indicate the year 1904. This caused some confusion later as Code nails were introduced. They were generally all one digit and used for many different purposes. So after 1910 most all date nails had two digits on the head. Nails were put into the ties at both the treatment facility and at the time the ties were inserted into the roadbed.



Along with the date nails there were special treatment nails made that showed the type of treatment - such as the Milwaukee Road Z 9 - which indicated a zinc tie treated in 1909 or the Great Northern F 4 which indicated it was a Fir tie that was treated in 1904.



By 1910 or so, the use of date nails was pretty well entrenched in many of the Class-one railroads. Until this time they were used primarily in test sections for record keeping of the results of various treatments. But the nail salesman must have started to sing a sweet song as things began to change and the use of date nails began to be applied more commonly on all ties put in the lines. This was also a benefit in reading the nails because the nails put in as the ties were put into the roadbed would always be put on the top of the tie, and some railroads even had operating bulletins as to where on the tie they were to be placed. In putting the nails in at the treatment plant the nails would sometimes end up on the bottom and therefore totally unreadable. The Great Northern solved this by putting the treatment nails on the end of the tie, so it would not matter which side was up.

There were also date nails with different shaped heads, which might mean different things to different railroads. The Santa Fe was a good example of this. They used some date nails that had a square or diamond



shaped head to indicate the tie had not been treated. They also used a nail with a pentagon shaped head to indicate that the tie was second hand - in other words it had been re used by them and moved to another site. Other railroads did this with different meanings and in some cases the shape of the head meant absolutely nothing and was whatever the nail manufacturer had on hand and provided. I believe the C&O fits this last category. They seemed to use nails from several different manufacturers and in at least two years used nails with odd shaped heads with no apparent significance. In the early years they also used a few copper nails. Most of the date nails manufactured were made of steel. But

here again, there are exceptions. Other metals used were copper, malleable iron, and after the 1940's, aluminum. Some railroads, such as the Milwaukee Road, because they had a vested interest in their copper holdings used copper nails almost exclusively. During the early years of WWII they also used a copper date nail with a large "C" around the date indicating a cedar tie, which was used in ties other than on the mainline.



The C&O apparently used copper date nails for four years: 1923-1926. I do not know of any reason for this and I doubt there are too many C&O Officers or Maintenance of Way people around that might know the reason for this?

By the 1930's there were over twenty date nail manufacturers in the U.S. and a few more in Canada and Mexico. Most Class-One railroads used date nails at some point in their history - another indication of the persuasiveness of the nail salesman and perhaps the legitimate results the information provided by the records that were kept. In any case, the early 1930's seemed to be the acme of date nail use by railroads in the U.S. The depression slowed their use and the metal shortages as a result of WWII were the main factors in the slow down of date nail usage.

I should mention here the use of Letter nails. These are similar to date nails except they have one or two letters on the head -vs- having a two digit date. These letters usually stood for the type of treatment a tie received, the quality of a tie, or the timber the tie was made from. They, like the date nails, can have the letters that are raised or indented.

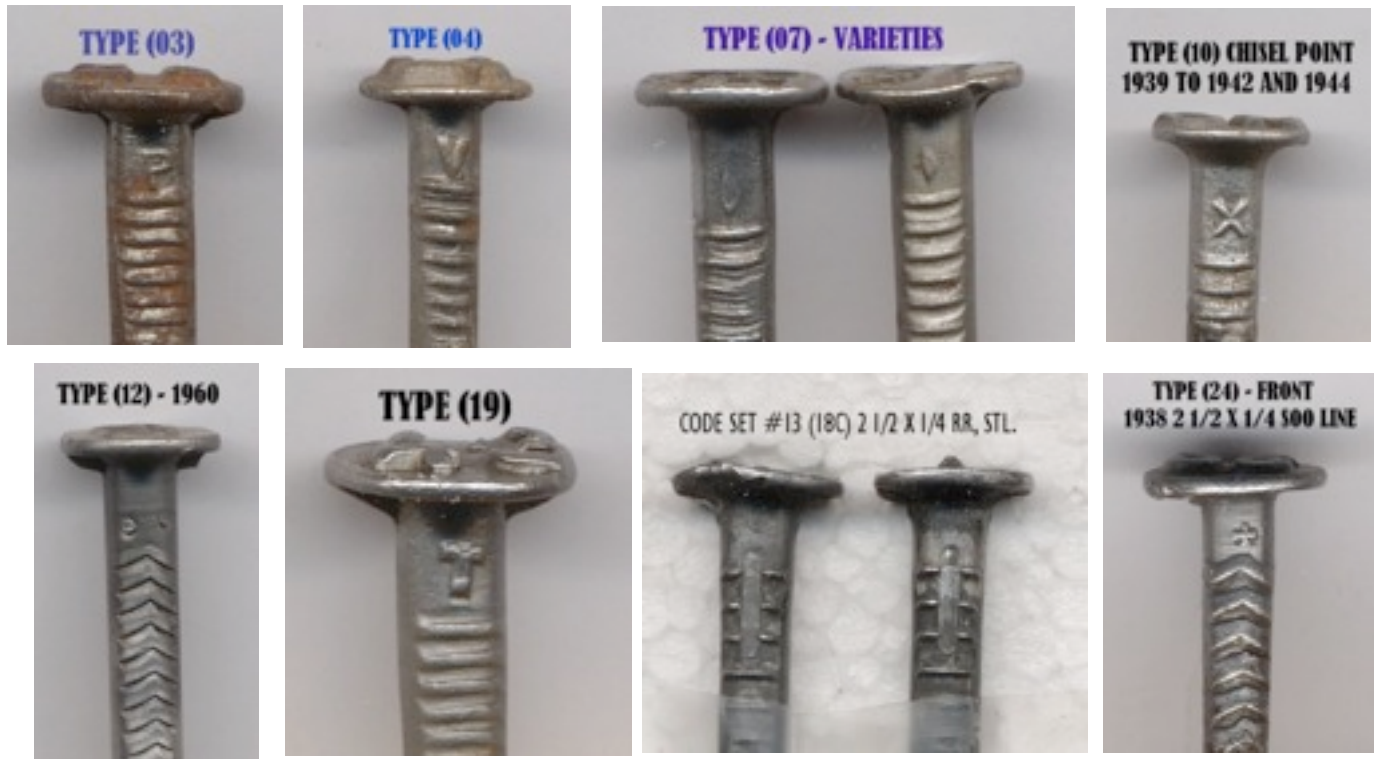


There is an aid to collecting date nails that is extremely helpful in permitting the ability of one collector to talk to another collector about a nail using a "Type" system that was devised. Instead of one collector saying to the other "do you have a 1950 steel nail that is round with a raised date and is 2 1/2 inches long and has a script like looking date?" If the "Type" is used it limits the nail to one manufacturer. This was a system devised in the 1970's when it was discovered that each manufacturer had its own ID on the shank of the nail. By classifying these markings into a "type", which in essence just means manufacturer, and giving that type a number, you could then say "do you have a Type (05) 2 1/2 round raised steel nail. There is a three volume set of books - **DATE NAILS AND RAILROAD TIE PRESERVATION** that shows most of all the known nails and these are separated by Type (manufacturer). Included is a cross reference of who used a particular nail and in the first two volumes are the lists of railroads that used nails and the known nails that were used by them. This work was done by Jeff Oaks, Chair of the Mathematics Department at the University of Indianapolis. Jeff has recently made these three volumes available free of charge on line. He sold out of several editions and just decided to make it available. For those that are interested in date, letter and code nails the three volume set can be found here:

<http://facstaff.uindy.edu/~oaks/Resources.htm#Thebook>

These volumes also discuss the various treatments given to ties, the history of that and a lot of historic data on the subject of tie treatment and preservation.

Below are some samples of the shank markings on the nails that allow one to discern the “Type” (manufacturer). These markings vary from manufacturer to manufacturer. Some are obvious while some are indicated only by the spacing or angle of the gripper marks under the head.



In other words, all the nails with the “P” under the head came from one manufacturer, in this case the Pittsburgh Steel Company. The ones with the “V” on the shank under the head were manufactured by the Republic Steel Corp.

The nails that make up the known set for the C&O came from several manufacturers over the years. In fact looking at my list of nails for that railroad there are six different “Types” listed, indicating that there were six different manufacturers of those nails.

Below is a list of the known nails used by the C&O. This list is not etched in stone and is just the compilation of information from collectors who have authenticated nails from there. There may be other, unreported, nails that should be added. But this list should be as close to accurate as possible as it was assembled by collectors who actually “nailed” those lines at one time and made note of the nails available. I will try to explain the way to make sense of this list. Once that is understood you can go to the books I mentioned earlier and understand what nails other railroads used. First, the C&O list:

Chesapeake & Ohio			
2 1/2 x 1/4	rnd R	stl (07)	17,26-31,34-40,42,43,54,55,58
1 1/4 x 3/16	rnd R	mi (11)	18
1 1/4 x 3/16	rnd I gm	cop (60)	23-25,26:c
2 x 1/4	sqr R	stl (07)	35
2 1/2 x 1/4	sqr R	stl (07)	39
2 1/2 x 1/4	rnd R	stl (06)	41,44-46,51,54,56,57,61
2 1/2 x 1/4	rnd I	stl (06)	46,48-50,52
2 1/2 x 1/4	rnd R	stl (25)	47,48,51-53
2 1/2 x 1/4	rnd R	stl (05)	49,50
2 1/2 x 1/4	rnd I	stl (05)	50
2 1/2 x 1/4	rnd R	stl (03)	54
2 1/2 x 1/4	sqr R rs	stl (06)	56
2 1/2 x 1/4	pnt R rs	stl (06)	56
2 1/2 x 1/4	rnd I	stl (07)	62
2 1/2 x 1/4	irr R ss	stl (07)	64
<i>Code nails</i>			
2 1/2 x 1/4	rnd R	stl (06)	P #2

The first column describes the size of the nail. For example the top nail listed is 2 1/2 inches in length and has a 1/4 inch wide shank. The second column describes the appearance of the nail. rnd R is a nail that has a round head and raised date. rnd I would be round head, indented date. Sqr R rs would mean a nail with a square head, raised date and a round shank - this is noted because most nails with a square head also have a square shaped shank. Some of the other abbreviations in this column are pnt which indicates a pentagon or five sided head on the nail, irr which indicates the head is neither round or square but its head is irregular in appearance.

The next column indicates the material the nail is made from. Stl is steel, cop indicates copper and the one mi indicates the nails is made from malleable iron. The next column, the one in parenthesis lets you know the "Type" and again all this is is a code number for the manufacturer of the nail. Lastly, is the column that shows the years that nail was used.

So if one were to read the first line on the C&O list it would indicate that a 2 1/2 x 1/4 round raised steel nail that was manufactured by the American Steel and Wire Co. was used by the C&O in 1917, 1926 through 1931, again in 1934 through 1940. In 1942 and 1943. In 1954, 1955 and lastly in 1958.

I hope I did not lose anyone in this explanation? It is not that complicated and once you learn to associate the type with a manufacturer you have basically mastered the way date nail collectors communicate the information they have.

Below is a scan of my personal C&O set. You can try and match the description above with the nails below. You can see I am missing two at this point. A 1952 type (25) and the 1964 type (07).



Railroads in the U.S. no longer use date nails. With the advent of the computer it is easier to keep records that way. Also, the treatments are pretty much fine tuned and standardized at this point. It must also be noted that several railroads have replaced wooden ties with composite or concrete ones. It is hard to drive a date nail into a concrete tie! 1969 was the last hurrah for date nails used by major railroads in the U.S.

Utilities are now about the only one who use them now. They are used, much like the railroads did, to indicate when a utility pole is set or when it is treated. Utilities, like the railroads, also use code and letter nails for the same purposes as did the railroads.

For information regarding the Date Nail Collectors Association (\$20/year) which includes a Quarterly magazine, or with any other questions, you can contact me directly:
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