

CANADIAN PACIFIC RAILWAY

A Technical Study

by

"WEST OF WINNIPEG" CANCELLATIONS

Lewis M. Ludlow

We have always been fascinated by the "West Of Winnipeg" cancellations, those railway strikes listed in the Railroad Section of our 1982 Catalogue of Canadian Railway Cancellations, specifically - Listing #s RR-27 through RR-30, inclusive. Intriguing in their indeterminate application ('West of Winnipeg' exposes a vast expanse), these four listed cancellations were in use for almost thirty years and are known to exist in a multiple number of hammers within the given types. We are not qualified to comment on the historical applications of these cancellations, such subject being the province of someone more familiar with the history of the Canadian Pacific Railway; however, herein we will present an analysis of these cancellations, the various hammers involved - with their periods of use - and some general comments on the individual scarcity of each cancellation discussed. The subject will be reviewed from the chronological sequence of use of each listing.

The most well known of these four listings is:

RR-28 C.P.Ry. WEST OF WINNIPEG/{No.}<letter>, Type 13A

This is listed in the 1982 Catalogue as being known in both large and small diameter circular cancellations. The small rings are standard, Type 13A, about 23mm, plus or minus 0.5mm diameter. The large cancellations are about 27mm, plus or minus 0.5mm, diameter; however, separate listings were not established at the time of publication because the larger hammer, at 27mm diameter, was still too small (by some 3mm) to qualify and be classified as a Type 5. On the other hand, since the two sizes of the circular cancellation are so visibly different, we have now established separate listings for each via the vehicle of sub-listings, as follows:

RR-28 C.P.Ry. WEST OF WINNIPEG/{clerk designation}, Type 13A.

- a. # <approx. 27mm diameter ring>
- b. No. {letter} <approx. 23mm diameter ring>

Having made this differentiation, we now look at the hammer varieties of each sub-listing: (except as noted, all dates from author's collection.)

RR-28a C.P.Ry. WEST OF WINNIPEG/ # , Type 13A

Two Hammers - 26.5-27mm diameter

Hammer I - "1" at bottom

Proofed: January 2, 1882

Earliest: December 2, 1882 - Aitken

Latest: June 18, 1900

Direction: EAST to 1896; then EAST/WEST to end

Usage: Sporadic until 1890; then known in every year

R.F.: 210; occurrence - 61.4%

Comments: The earliest known for RR-28a is July 29, 1882 in the Shaw collection; however, we do not know if this is Hammer I or II. Although reported usage in the 1880s is spotty, this may be filled

RR-28a (continued)

Hammer II - "2" at bottom

Proofed: January 2, 1882

1st Period

Earliest: February 26, 1883 - Gray

Latest: July 30, 1883 - Gray

Direction: EAST, WEST equally

2nd Period

April 14, 1891

May 11, 1900

EAST, WEST equally

E from 1895; W unreported

Usage: Known each year of periods, but somewhat sparse 2nd Period.

R.F.: 210; occurrence - 38.6%

Comments: We believe that the gap between the two periods above may be filled with additional reports from collectors not yet involved in this study. Most strikes of this hammer are quite clear and show only moderate wear. Hammer II is somewhat less well-known than Hammer I.

We have herewith presented known existing data on the two - and only two - hammers of RR-28a, the large diameter cancellation. This analysis is based on the examination of 70 different strikes, which we believe is a reasonably representative sampling; however, this limited picture can undoubtedly be expanded with more data from new collectors. Now, we will look at the small diameter cancellation and the following analysis is based on the study of over 200 different strikes.

RR-28b C.P.Ry. WEST OF WINNIPEG/No. {letter}, Type 13A
Eleven Hammers - approx. 23mm diameter - Two More Probable

Hammer I - "No. 3" at bottom

Proofed: July 20, 1882

Earliest: August 12, 1882 - Gray

Latest: October 24, 1903 - Robinson

Direction: EAST, WEST at start; then E from 1893, W from 1895

Usage: Initially intermittent; then full from 1891. Nothing 1901/2

R.F.: 140; occurrence - 30.3%

Comments: This is the most well-known of the eleven RR-28b hammers and we expect current gaps to be filled. Wear was moderately good considering the more than twenty years of use. This is the only hammer of the eleven of RR-28b that has a 'No.' at the bottom and thus is self-identifying, when present.

Hammer II - "B" at bottom

Proofed: August 2, 1883

Earliest: September 16, 1893

Latest: August 24, 1900

Direction: EAST - common; WEST - very scarce

Usage: Full within indicated period

R.F.: 140; occurrence - 22.9%

Comments: This is the most common of the 'B' hammers, and the second most common of the eleven RR-28b hammers. In the proof book for this period, there were three proof strikes of 'B' hammers on the proof date given above; however, two of these proofs, this hammer, were exactly the same. Fortunately, we have discovered a third hammer, (Hammer IV, which follows), not in the proof book and postulate that it was issued on this same date. We have seen no strikes in the ten year period between the proof date and the earliest above. It is our opinion that these three 'B' hammers did not see general usage until the late 1880s or early 1890s; with three other hammers already in use we believe that the traffic probably did not justify

RR-28b (continued)

Hammer III - "B" at bottom

Proofed: August 2, 1883
 Earliest: May 26, 1884
 Latest: June 22, 1905
 Direction: EAST, WEST equally; E in 1899, '96' in 1905 - both rare
 Usage: Earliest above; then, full 1891-99; single strike, 1905
 R.F.: 140; occurrence - 12.4%
 Comments: There is a seven year span between the earliest above and the next known strike in 1891; also, there is a six year gap between the last general usage in 1899 and the 1905 latest above. We believe the single strike in 1884 to be an exceptional use and that additional strikes before 1890 may be difficult to find; on the other hand, we expect the late gap before 1905 to be filled in gradually. This latest above is missing the bottom portion of the strike but is fully confirmed by chordal measurement. There is a period (.) after the small 'y' of C.P.Ry. that is not to be found on the other hammers of this sub-listing.

Hammer IV - "B" at bottom

Proofed: Unknown (probably August 2, 1883)
 Earliest: December 11, 1892
 Latest: July 5, 1898
 Direction: Only EAST known
 Usage: Solid for the period
 R.F.: 140; occurrence - 14.9%
 Comments: Although no proof strike is known, we believe this hammer was struck at the same time as Hammers II and III (the other two 'B' hammers) on August 2, 1883; however, this hammer is distinctly different from any of the three proof book strikes. Following this presentation of specific data on each hammer of each listing, we will present a scenario by which each hammer can be identified, even if the bottom of the strike is not present.

Hammer V - "C" at bottom

Proofed: September 9, 1883
 Earliest: July 23, 1894
 Latest: February 23, 1899 - Robinson
 Direction: Only EAST known to date
 Usage: Sporadic
 R.F.: 140; occurrence - 3.0%
 Comments: There are six known hammers with 'C' at the bottom and none of these is common, compared with the 'B' hammers. It would appear that all six must have seen only substitute or temporary use. Of the three proof strikes of 'C' hammers on September 9, 1883, two were exactly the same and we have designated such as Hammer V.

Hammer VI - "C" at bottom

Proofed: September 9, 1883
 Earliest: March 8, 1887 - Robinson
 Latest: July 1, 1898
 Direction: To date, only EAST reported
 Usage: Sporadic
 R.F.: 140; occurrence - 4.5%
 Comments: Of the three proof strikes on the above proof date, two were placed as Hammer V and this other designated as Hammer VI. There is a seven year gap between the single earliest above and the next strike in 1894; even then, there are only one or two strikes in each

Hammer VII - "C" at bottom

Proofed: Unknown
Earliest: September 22, 1893
Latest: July 13, 1895
Direction: EAST, WEST
Usage: Only three known strikes to date
R.F.: 140; occurrence - 1.5%
Comments: The placement of this hammer as Hammer VII is merely our best conjecture. There are two unproofed 'C' hammers, Hammers VII and X, and Hammer X has an earlier date in 1887; however, like Hammers V and VI, Hammer VII uses the direction EAST (as well as WEST), while Hammers VIII, IX and X are known only with the direction E (or W). We feel surely that this two year period of use will be expanded.

Hammer VIII - "C" at bottom

Proofed: July 16, 1886
Earliest: February 18, 1892
Latest: March 1, 1898
Direction: Only E known to date
Usage: Exists in each year of period
R.F.: 140; occurrence - 5.5%
Comments: Based on current reports, Hammer VIII is the most common of the 'C' hammers, but it still must be considered scarce. There were three proof strikes of 'C' hammers on the above proof date (why more were needed is beyond our ken), making a total of six 'C' hammers proofed. Two of the three new hammers were the same and were assigned as Hammer VIII; however, we note that there is a six year gap between the proof date and the earliest above. Will this gap be closed?

Hammer IX - "C" at bottom

Proofed: July 16, 1886
Earliest: March 20, 1892 - Robinson
Direction: Only report, E
Usage: One known strike
R.F.: 140; occurrence - 0.5%
Comments: Of the three proof strikes on the above date, this of Hammer IX is distinctly different from the two that were assigned as Hammer VIII. For a long time we thought this hammer may not have been put into use, but about a year ago, after the initiation of this study, we were able to confirm this single discovery above for Bill Robinson.

Hammer X - "C" at bottom

Proofed: Unknown
Earliest: January 8, 1887
Latest: April 12, 1900
Direction: E, W equally
Usage: Very spotty
R.F.: 140; occurrence - 3.5%
Comments: As indicated for Hammer VII, the placement of this hammer as Hammer X is guesswork and it is possible that we have these two hammers of unknown proof dates reversed; positioning these hammer numbers based on the direction above the date (all EAST together in one group, all E in the second trio) seemed more logical than using the earliest dates, since the latter may still be well advanced by subsequent reports.

RR-28b (continued)

Hammer XI - "D" at bottom

Proofed: September 9, 1883

Earliest: Not yet reported

Direction: WEST in proof strike

Usage: Unknown

R.F.: O.P.K. <Only Proof Known>

Comments: Three proof strikes on the above proof date are all the same; however, if our experience with the 'B' and 'C' hammers is duplicated then there should be three different 'D' hammers. Upon reflection - and hindsight - it is a mystery to us why anyone would anticipate the need for these three additional 'D' hammers. On this proof date, September 9, 1883, there were already three hammers in use (RR-28a, Hammers I & II plus RR-28b, Hammer I), three more already requisitioned <the three 'B' hammers> and another three on order on this same date (the first three 'C' hammers); we believe that the railway mail traffic, and needed clerks, was probably quite low in 1883. Further, another good question is: if these three 'D' hammers were available, why were the three additional 'C' hammers ordered up in 1886? Certainly, none appeared to have been taken out of service due to loss or wear, as shown by the known latest dates of earlier hammers.

Hammer XII - "D" at bottom

Proofed: Unknown (probably September 9, 1883)

Earliest: February 17, 1891 - Toms

Latest: July 10, 1891 - Robinson

Direction: Only WEST known to date

Usage: Two reported strikes, above, in approximately five months.

R.F.: 140; occurrence - 1.0%

Comments: At the outset of this study, we had no confirmed use strikes of the 'D' hammers; subsequently, Maggie Toms reported the earliest above and Bill Robinson, the latest. Both are the same hammer and different from the three identical proof strikes that were assigned to be Hammer XI.

Hammer XIII - "D" at bottom

Proofed: Unknown (probably September 9, 1883)

Earliest: Not yet reported

Direction: Unknown

Usage: No known strikes

R.F.: Rarity factor is not assigned to unreported strikes

Comments: The inclusion of this Hammer XIII is predicted strictly based on theoretical probability; it should be out there somewhere!!! On the other hand, we have never seen a strike of this hammer, have no idea what it looks like and no knowledge that it exists or was used. If it saw service, we will only know it when we see a strike that is quite different from the other two 'D' hammers. Obviously, any 'D' hammer is quite rare and we would appreciate hearing reports of any others that exist.

That completes this, the first presentation of data on the individual hammers of RR-28 - two hammers for RR-28a, the large diameter cancellation, and eleven known hammers (plus two more probables) of RR-28b, the small diameter cancellation. Now, we will look at the balance of the 'WEST OF WINNIPEG' listings - specifically, RR-30, two hammers; RR-27, two hammers; and RR-29, three hammers, in that order.

RR-30 C.P.Ry. WEST OF WINNIPEG • C. / . , Type 13

Two Hammers - approximately 23mm diameter

Hammer I

Proofed: April 19, 1895

Earliest: May 28, 1899

Latest: July 7, 1899 - Robinson

Direction: E, W - one each

Usage: Two known strikes in the less than six week period

R.F.: 435; occurrence - 40.0%

Comments: We assume that the 'C' after 'WINNIPEG' is a designation for a clerk which, with six 'C' hammers of RR-28b, would mean that there were eight 'C' hammers in service at the same time. There were two proof strikes on the above proof date, both identical, and we have set up both as Hammer I. We do expect the four year gap of the earliest above to be narrowed closer to the proof date.

Hammer II

Proofed: Unknown (probably April 19, 1895)

Earliest: April 19, 1896

Latest: June 24, 1898 - Robinson

Direction: E - two, W - one

Usage: Three known strikes, one for each year

R.F.: 435; occurrence - 60.0%

Comments: Hammers I & II are both rare; for the two combined, we have seen only five strikes of RR-30 out of more than 350 'WEST OF WINNIPEG' cancellations from all four listings. Because this listing is seen so infrequently, there might be a tendency, in casual glance, to confuse the 'C' with the ending 'G' of 'WINNIPEG' and thus overlook this rare strike. Careful scrutiny is the order of the day. The word 'OF' in 'WEST OF WINNIPEG' is visibly smaller than all of the other hammers of the four involved listings.

RR-27 C.P.Ry. WEST OF WINNIPEG / . , Type 13

Two Hammers - approximately 23mm diameter

Hammer I

Proofed: Unknown

Earliest: July 31, 1896

Latest: April 16, 1899

Direction: EAST, WEST equally

Usage: Well known throughout period

R.F.: 265; occurrence - 96.3%

Comments: RR-27 is very similar to RR-30 except that there is no 'C' after 'WINNIPEG' in RR-27. We have found no proof strikes of this listing. At first glance there is a tendency to confuse RR-27 with a RR-28b hammer where the bottom of the strike is missing, perhaps due to a light or partial strike; however, on clear strikes the period <.> at the bottom is distinct and different hammers are confirmed by chordal measurement.

Hammer II

Proofed: Unknown

Earliest: February 16, 1905

Direction: Only E known to date

Usage: One reported strike

R.F.: 265; occurrence - 3.7%

Comments: This hammer is unique and different from Hammer I or any other 'WEST OF WINNIPEG' hammer. We have seen almost 30 strikes of RR-27, but only one has been Hammer II and this, 1905, six years after the latest date of Hammer I of 1899. There is much yet to be

RR-29 C.P.R. • WEST OF WINNIPEG / LOCAL (#), Type 13C

Three Hammers - approximately 23mm diameter

Hammer I - "LOCAL 1" at bottom

Proofed: June 2, 1883

Earliest: September 22, 1899 - Bosch

Latest: October 13, 1899

Direction: Only E reported

Usage: Two reported strikes, above, in three week period

R.F.: 210; occurrence - 4.0%

Comments: In examination of 50 strikes of RR-29, we have found only two examples of Hammer I; we know of no reason for the rarity of this hammer. For the above proof date, we have proof strikes of all three hammers of RR-29, accompanied by strikes of their appropriate crown seals.

Hammer II - "LOCAL 2" at bottom

Proofed: June 2, 1893

Earliest: July 25, 1900

Latest: June 20, 1907 - Gray

Direction: Initially EAST, WEST; E from 1903, W from 1904

WEST again in December, 1904

Usage: Reasonably complete for the period, except 1906

R.F.: 210; occurrence - 64.0%

Comments: This is the most common of the hammers of RR-29, a listing that is quite well known in its own right. It is possible that these three hammers were replacements for earlier devices which became worn or lost; however, a much larger quantity of material will have to be examined before such a chronology can be established.

Hammer III - "LOCAL 3" at bottom

Proofed: June 2, 1893

Earliest: July 26, 1899

Latest: August 15, 1910 - Gray

Direction: E - common, W - very scarce; "2" on latest above

Usage: Strikes currently not known, 1902-1909 inclusive

R.F.: 210; occurrence - 32.0%

Comments: No month found in set for Days 2, 4 & 12, 1901. Set is totally inverted on August 3, 1910. For all three hammers, there is a mid-vertical dot (rather than a base-line period) between 'C.P.R.' and 'WEST'. Assuming that these three hammers were delivered near their 1893 proof date, one ponders why six to seven years elapse before they were put into use; were plans delayed for 'LOCAL' railway mail service?

That completes our hammer breakdown and analysis for all of the 'WEST OF WINNIPEG' listings. We hope that any of our railway specialists who can provide additional data on any of the previously described hammers particularly with earlier or later dates, will send us copies of such strikes for confirmation. To do this, however, it is necessary to be able to identify each individual hammer and the following provides at least one scenario (there are others) by which this can be accomplished. While complete strikes considerably facilitate the identification process, the following steps make the assumption that the bottom of the strike is not available and that our objective is to identify any given strike as one of twenty-two (22) different hammers.

IDENTIFICATION OF "WEST OF WINNIPEG" HAMMERS

In the following presentation, 'chordal distance' means the straight line measurement between the two indicated points.)

- Step 1. Measure the diameter of the strike. A diameter of approximately 27mm segregates Hammers I & II of RR-28a; all other hammers are approximately 23mm in diameter.
- Step 1a. For a large diameter strike, measure the chordal distance from the bottom of the left leg of the 'R' of 'C.P.Ry.' to the bottom of the right leg of the 'W' of 'WEST'. A chord of less than 7mm $\langle 6\frac{1}{2}\text{mm} \rangle$ is RR-28a, Hammer I, while if more than 7mm $\langle 7\frac{1}{2}\text{mm} \rangle$, the strike is RR-28a, Hammer II.
- Step 1b. In confirmation of Step 1a above, take the chordal distance from the bottom of the left leg of the 'W' to the bottom of the 'T', both of 'WEST'. RR-28a, Hammer I, measures only 8mm, or a shade less; RR-28a, Hammer II is a full $8\frac{1}{2}\text{mm}$. With these steps, we consider RR-28a, both hammers identified and eliminated from any further consideration.
- Step 2. Repeat Step 1b, the 'W-T' chordal measurement of 'WEST'. A chord of about 6mm or less segregates all three hammers of RR-29; all other remaining hammers are $6\frac{1}{2}\text{mm}$ or over for this distance. Note that all three hammers of RR-29 have 'C.P.R' at the head of the strike in contrast to the 'C.P.Ry.' of the other hammers.
- Step 2a. In Step 2 above, a chord of $5\frac{1}{2}\text{mm}$, or a shade over, identifies RR-29, Hammer III; RR-29, Hammers I & II are at least 6-6+mm.
- Step 2b. To separate RR-29, Hammers I & II, measure the chordal distance from the bottom of the 'F' of 'OF' to the bottom of the right leg of the 'W' of 'WINNIPEG'. A length of 3+mm is Hammer I, while a chord of 4-mm is Hammer II. With these steps, we consider all three hammers of RR-29 to have been segregated and eliminated from this identification process.
- Step 3. Compare the letters of the word 'OF' with the adjacent letters of the words 'WEST' and 'WINNIPEG'. If the letters of 'OF' are visibly smaller than those on either side, then the strike is RR-30, Hammers I or II; in all of the other 'WEST OF WINNIPEG' hammers, the letters of 'OF' are the same height as the adjacent letters on either side.
- Step 3a. For a strike separated by Step 3, take the chordal measurement from the bottom of the 'T' of 'WEST' to the bottom of the left leg of the 'W' of 'WINNIPEG'. A distance of $5\frac{1}{2}\text{mm}$ identifies RR-30, Hammer I; Hammer II is 6+mm. From the bottom of this same 'T' to the bottom of the right leg of this same 'W', the chord for Hammer I is only 7mm, while for Hammer II it is $7\frac{1}{2}\text{mm}$. These steps complete the identification and segregation of the two hammers of RR-30.

At this point, we have identified seven hammers and still have fifteen to go - RR-28b, thirteen hammers and RR-27, two hammers. Now, the process gets somewhat more complicated. First, a bit of explanation. Due to the limitations of our word processor, the 'y.' - as expressed herein in 'C.P.Ry.' - is in error; it should be a small capital 'Y' elevated over a dot <.>, but there is no way we can show same correctly. For guidance, if this small 'Y' is followed by a mid-vertical dot, the strike is probably RR-28b, Hammer I, 'No. 3' at bottom. On the other hand, if this small elevated 'Y' is followed by a base-line period, the strike is one of the three 'B' hammers of RR-28b. All the remaining hammers have no punctuation following the small 'Y' of 'C.P.Ry.'.

IDENTIFICATION OF HAMMERS (continued)

- Step 4. Measure the distance from the bottom of the left leg of the first 'N' to the bottom of the 'I', both of 'WINNIPEG'. A chord of 4mm, plus or minus a touch, isolates three of the fifteen remaining hammers - RR-28b, Hammer I ('No. 3' at the bottom) and Hammer X ('C' at the bottom), plus RR-27, Hammer II (period at the bottom); all remaining hammers measure $4\frac{1}{2}$ mm or more for this chord.
- Step 4a. Take the chordal distance from the bottom of the 'P' of 'C.P.Ry.' to the bottom of the right leg of the 'W' of 'WEST'. A length of $8\frac{1}{2}$ mm identifies RR-28b, Hammer I ('No. 3' at the bottom); the other two hammers from Step 4 measure 9mm or over.
- Step 4b. Measure the chord from the bottom of the 'F' of 'OF' to the bottom of the left leg of the 'W' of 'WINNIPEG'. A distance of $2\frac{1}{2}$ mm identifies RR-28b, Hammer X ('C' at the bottom) while a $2\frac{3}{4}$ mm chord isolates RR-27, Hammer II (dot at the bottom).
- Step 5. Measure the distance from the bottom of the 'T' of 'WEST' to the bottom of the right leg of the 'W' of 'WINNIPEG'. A chord of almost 9mm is RR-28b, Hammer III ('B' at the bottom); all remaining hammers have this chord at $8\frac{1}{2}$ mm or less.
- Step 6. Measure the chord from the lower left corner of the 'E' of 'WEST' to the bottom of the 'F' of 'OF'. A length of $9\frac{3}{4}$ mm identifies RR-28b, Hammer IV ('B' at the bottom); the remaining hammers all measure 9mm or less for this chord.
- Step 7. Take the distance from the bottom of the 'P' of 'C.P.Ry.' to the bottom of the lower right leg of the 'W' of 'WEST' (repeats Step 4a.). A chordal length of $9\frac{1}{2}$ mm segregates two additional hammers - RR-28b, Hammer II ('B' at the bottom) and Hammer VII ('C' at the bottom); all other hammers left have this chord at 9mm or less.
- Step 7a. For the two strikes isolated in Step 7, repeat the 'T-W' chord <right leg of the 'W'> from Step 5; a chord of only 8mm isolates RR-28b, Hammer II ('B' at the bottom), while one of $8\frac{1}{2}$ mm is RR-28b, Hammer VII ('C' at the bottom).
- Step 8. Measure the chord from the bottom of the left leg of the 'R' of 'C.P.Ry.' to the bottom of the right leg of the 'W' of 'WEST'. A length of $5\frac{3}{4}$ mm is RR-28b, Hammer V ('C' at the bottom); this chord for all remaining hammers is over 6mm.
- Step 9. From the bottom of the left leg of the 'W' measure the distance to the bottom of the 'P', both of 'WINNIPEG'. A chord of $8\frac{1}{2}$ mm identifies RR-28b, Hammer VI ('C' at the bottom); all remaining hammers have this chord at $8\frac{1}{2}$ mm or less.
- Step 10. Repeat Step 7 <right leg of 'W'>. RR-28b, Hammer IX ('C' at the bottom) has this chord at 9mm, while $8\frac{1}{2}$ mm or less will be found for the remaining hammers.
- Step 11. Repeat Step 6, the 'E-F' measurement. A chord of 9mm identifies RR-28b Hammer XI ('D' at the bottom); the remaining hammers have a length of $8\frac{1}{2}$ mm or less.
- Step 12. Repeat Step 5, the 'T-W' measurement <right leg of the 'W'>. RR-28b, Hammer XII ('D' at the bottom) has a chord of 8mm, while the remaining hammers have this distance at less than 8mm.
- Step 13. Take the chordal distance from the bottom of the left leg of the second 'N' to the lower left corner of the 'E', both of 'WINNIPEG'. RR-28b, Hammer VIII ('C' at bottom) measures $5\frac{1}{2}$ mm, while RR-27, Hammer I (dot at the bottom) is $5\frac{3}{4}$ mm.

IDENTIFICATION OF HAMMERS (continued)

Now, having gone through this whole process, if there is a strike left over, one that did not fit any of the preceding thirteens steps, it may well be RR-28b, Hammer XIII ('D' at the bottom), the unknown 'D' hammer, and we would like to see any strike that might fit this category.

This elaborate procedure is designed to identify any of the 22 'WEST OF WINNIPEG' hammers from the four specified listings, assuming only a partial top strike. Of course, if there are full, clear strikes, the identification of hammers becomes inordinately more simple. Steps 1-3 quickly identify the two hammers of RR-28a, the three hammers of RR-29 and the two hammers of RR-30.

- Step 14. For the two hammers of RR-27 <very different hammers>, repeat Step 4, the 'N-I' measurement. Hammer I has a chord of a full $4\frac{1}{2}$ mm, while that of Hammer II is slightly less than 4mm.
- Step 15. For the 13 hammers of RR-28b, a full strike of Hammer I is self-identifying; it is the only hammer with 'No. 3' at the bottom.
- Step 16. For the three 'B' hammers of RR-28b, measure the chordal distance from the bottom of the left leg of the 'W' to the bottom of the 'I', both of 'WINNIPEG'; this chord is $7\frac{1}{2}$ mm for Hammer II, $7\frac{1}{2}$ mm for Hammer III and $7\frac{3}{4}$ mm for Hammer IV (all 'B' at the bottom).
- Step 17. For the two known 'D' hammers, repeat Step 6, the 'E-F' chord. Hammer XI has a length of 9mm, while Hammer XII is only $8\frac{1}{2}$ mm. The unknown 'D' hammer, Hammer XIII, remains to be defined.
- Step 18. For the six 'C' hammers of RR-28b, Step 4 isolates Hammer X and Step 7 separates Hammer VII, the two 'C' hammers of unknown proof dates.
- Step 18a. Repeat Step 13, the 'N-E' measurement. A chord of $5\frac{3}{4}$ mm is Hammer VI, while a length of $4\frac{3}{4}$ mm is Hammer IX. Hammers V and VIII both have this chord at $5\frac{1}{2}$ mm.
- Step 18b. Repeat Step 8 <right leg of 'W'>. A distance of $5\frac{3}{4}$ mm (less than 6mm) is Hammer V, while a chord of $6\frac{1}{2}$ mm (over 6mm) isolates Hammer VIII.

We are in the process of preparing a chordal chart for all of these chords for all hammers and would welcome inquiries for same from specialists who would like to study this subject more thoroughly.

This study must be considered preliminary, based as it is on our own collection and those of a limited number of other specialists. With this publication we hope to generate much additional data; if successful, a revision - much enhanced - will be published at a later date.

Lewis M. Ludlow
5001 - 102 Lane N.E.
Kirkland, Washington 98033