An Investigation into the Nature of the Printing Plates of the "Grinnell Missionaries"

By David Shumaker

Part One: Examining the Behavior of Select Pieces of Filigree Type

Census #22, as compiled by
Robert A. Siegel Auction Gallery
for the Advertiser Collection Sale

"Grinnell" G19 as compiled by
George Linn, image © Vincent and
Carol Arrigo

Introduction

The purpose of this report is to analyze the nature of the impressions of the stamps referred to as "Grinnell Missionaries." The fact that the "Grinnell" elements differ so much from the genuine, and are so comparatively crude, requires *proving* metal type was used in any form to be the *first* step towards establishing the possibility the "Grinnells" could be a genuine but separate printing. The Royal Philatelic Society of London emphatically stated that they were printed from loose type (1), but their conclusion was made prior to the revelation that George Grinnell possessed two genuine Hawaiian Missionary stamps, one of each type (2). Students refer to these as G80 and G81, referring to the numbering of known "Grinnell" Missionaries by George Linn that ended with G71. The "card of ten," containing eight "Grinnells" and two genuine Missionaries, picks up from G72.

Students have begun to investigate the possibility that G80 and G81 were the models for the "Grinnells." Bill Longley has demonstrated that a split-and-spurred letter "s" of "Cents" on G80, the genuine Thirteen Cent Type II Hawaiian Missionary now known to have been in the possession of George Grinnell, appears on all Type II "Grinnells" of all denominations (3). He did not find this defect on the seven images of genuine Type II Thirteen Cent examples he had access to. His conclusion is that the G80 was the model for the Type II "Grinnells." However, Dick Celler has reported similar defects on at least three other genuine Thirteen Cent Hawaiian Missionaries, casting some doubt on the model conclusion (4). Further, the stamp G80 has not been examined to verify the presence of a pre-printing paper fold alleged to have caused the split in the "s." This has led to the speculation that the defective "s" (incorporated at some point in time during the known genuine printing) happened to also have been used in a speculative separate "Grinnell" printing of every denomination, in the same Type II cliché, and in the same word ("Cents"); a small chance indeed, but not an impossible scenario.

Scott Trepel has demonstrated that persistent plate flaws on the Grinnell Missionaries are "raised blemished on a fixed plate," whereas such spots on a genuine "cold-type composition" Hawaiian Missionary are impressions from transient matter wedged between type pieces (5). Though no rebuttal to this analysis has been published as of this date, Ken Lawrence has suggested that stereotype plates could have been used to print the known genuine "Missionaries," and such a possibility cannot be ruled out (6). After all, several thousand stamps of each denomination were used over several years. Printing with stereo plates cast with several Type I + Type II pairs has the advantage of printing stamps at a faster pace than re-setting type, and sending such plates to press between other jobs as needed.

This analysis will prove the assumption that individual cast metal type were used to print the Grinnell Missionaries, either directly impressing the paper or indirectly through the use of a stereo plate cast from cold-set type, is incorrect. Part One will compare one pair of filigree impressions among several "Grinnell" Missionaries to demonstrate that impressions which appear to be from single pieces of cold type are in fact composite designs that are changed in appearance as the denominations are reset. Proof will not require referencing G80 and G81. The nature of these changes completely rules out the use of solid metal type in printing these two "Grinnell" filigree. Part Two will undertake a wider analysis to demonstrate that these design manipulations are systematic and deliberate attempts to make image composites appear to be several pieces of type moving independently. Further, comparisons will be made with Grinnell's genuine Missionaries, G80 and G81, to demonstrate their use as models for the "Grinnells."

Analyzing the "Hawaiian Missionary" Filigree

"Hawaiian Postage" "H.I. + U.S. Postage"

Fig. 1 ***Fig.2***

The filigree on the Hawaiian Missionaries consist of four identical corners and pairs of type on the top, bottom and each side; one pair between each corner. The above illustrations are typical of the impressions made from the middle border filigree, **Figure 1** being found on Scott #1 through #3 (Hawaiian Postage) and **Figure 2** on Scott #4 (H.I. + U.S. Postage). It is generally accepted that Scott #4 comes from a separate printing than #1 through #3 because of the different letter fonts used. Despite the change in fonts, the middle border filigrees are remarkably similar, if not the exact same type, between these two issues. This suggests that from the moment the "Hawaiian Postage" type was returned to their cases to the setting of type for the "H.I. + U.S. Postage" printing, this filigree type was at the printer's disposal.

Since the nature of the individual impressions is in question, we begin by looking closely at a single piece of filigree type positioned within the ornamental border surrounding the central numeral. In this way these impressions can be examined unencumbered by philatelic context; they could just as well be found in a book or periodical of the period. This analysis will compare filigree from the Type II Five and Thirteen Cents stamps to identify differences in corresponding positions that may have occurred between settings. I am interested in changes that cannot be attributed to the resetting of the typeset forme. I have not included the Two Cents value because I do not want this investigation to be perceived as a rebuttal to Cordrey's analysis *per se,* having neither read that report nor used his methodology.

To discuss the filigree in depth, I will break down the design into five discreet parts as shown in **Figure 3** for reference throughout this analysis. Each piece is composed of portions of **arcs**, either one-third sections or two third sections, which are completed on adjacent pieces. Inside these arcs are two **small pearls** that have short, slightly-curved **shading lines** positioned to one side of the pearl. At the end of the arcs are **larger pearls** that display shading lines more prominently than on the smaller pearls, circumventing roughly half of the inside of the pearl.

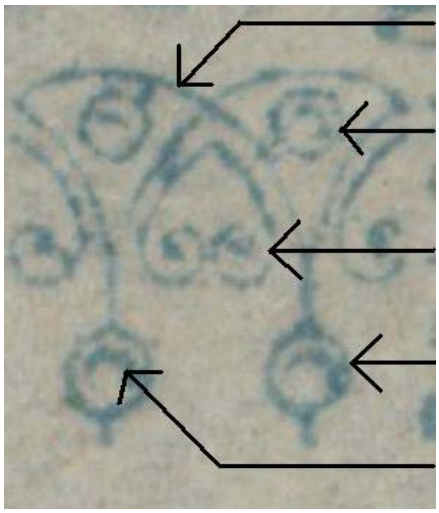


Fig.3 TYPICAL FILIGREE

Of special interest, as we will see shortly, are the curled elements that are placed parallel to the arcs. These elements, which will be referred to as **canes**, have curled handles making one full turn plus about another quarter turn. The curls are quite delicate, and often the last quarter turn bleeds into a closed ball. When paired, the curls almost but not quite touch the opposing curl.

"Grinnell" Filigree: Asymmetry on Parade

Fig.4 O-1 O-2
Photo credit: Vince and Carol Arrigo (detail)

Figure 4 is an illustration of a pair of such filigree from a Grinnell Missionary, specifically the top two from the Five Cent Type I stamp G19 (in a pair with G20). In his published analysis of the Two Cent Grinnell Missionaries, for Vince and Carol Arrigo, Kieth Cordrey came up with a convention of referencing the filigree positions (7). Starting from the upper left corner ornament and moving clockwise, the corner filigrees are labeled C-1 through C-4 and the middle filigrees O-1 through O-8. I have chosen to examine the top pair, **O-1** and **O-2,** because they are positioned farthest from the edge and less likely to be altered by repairs. The genuine Missionaries often have extensive repairs including added corners, added margins and accompanying painted-in restorations

to the design. “Grinnells”are not known to be so extensively repaired, but at some point comparison to the known genuine may be in order.

The most striking difference is in the canes. As **Figure 4** illustrates, the canes are typically much smaller than on the known genuine examples, and usually show no more than one full turn in the handle curl. There is a great variation in both the degree and the radius of these cane handles on the “Grinnells,” as **Figure 4** demonstrates. The reader is directed to the resources sponsored by Richard Frajola on his website and encouraged to become acquainted with the varying appearance of the canes on other “Grinnells.”

Other differences can be found such as in the size of the pearls within the “Grinnells,” which vary from one ornament to the next. The shading lines, which vary wildly within each pearl and from one ornament to the next, do not appear to be shading on the pearl at all in many instances. For example, on any Type II “Grinnell,” the large pearls on the bottom pair of ornament (O-5 and O-6) resemble acorns with caps (not shown).

One overarching quality of the “Grinnell” filigree is their **lack of symmetry**. Looking at **Figure 4A**, neither “Grinnell” piece has a left and right half that match in size and shape, meaning they came from more than one mould, and the tooling of the moulds was much less competent than that which cast the two symmetrical Genuine filigree. From craftsmanship point of view, it is hard to believe such bad tooling could have ever been accepted for use in making thousands of cast copies to furnish to hundreds of different print shops.

“Grinnell” Filigree

Genuine Filigree

Fig. 4A

Metal Type: Hard, Cold Facts

Clearly, the Grinnell ornament is a different type from those used to print the known genuine Missionaries, but this fact alone is not enough to condemn the "Grinnells" as fakes. For the Grinnell Missionaries to be genuine they must have been printed from moveable type, which is made of metal and cast in moulds. Look again at **Figure 4A** to see how much the "Grinnell" impression differs from the genuine, and then consider that cold type is only capable of variations inherent to metal, such as warping, bending, denting and wearing. It is not capable of changing dimension like rubber or cork unless close to its melting point.

Scott Trepel's article demonstrated that the Grinnells were printed from fixed plates, yet in that article he acknowledged that some supporters believe that stereotype plates could have been used by the printer for a separate printing of Missionary stamps (endnote 3). A stereo plate consists of metal cast into a mould that was prepared from a typeset plate. Printing with a stereo plate has the advantage of releasing the individual typeset pieces for use in other work while the plate is on the press. It can also consist of several impressions of one typeset forme (resulting in multiple Type I – Type II pairs), greatly reducing plate preparation time. Such a plate can go to press any time the supply of stamps runs low without taking the time to reset the type.

A fixed plate impression is not necessarily a stereotype impression. Consider the line-drawn illustrations that were turned into printing surfaces for newspapers and books before offset lithography. You may have come across some of these in an antique store. I have some propping up some shelving at home. Jim Baughman, a participant on Frajola's Grinnell board, referred to these as "line blocks." A photo-reproductive process is used to transfer a drawing onto a plate upon which a printing surface is etched. Tiny imperfections in the drawing, such as the spots of color found by Trepel on the "Grinnells", would become part of this plate and appear on every impression (assuming no inking anomalies and no subsequent repairs). A line block using a photo-reproductive process *could not* have been a product of the mid-Nineteenth Century; however, it was the method John Klemann believed George Grinnell employed to produced the "Grinnell" plates (8).

Grinnell Impressions: Printing in Style, or Lending a Hand?

The process of replicating metal type by the thousands lends a mechanical similarity to each piece of type, the evolution of which over centuries has resulted in many standardized font styles. It's impossible to find the touch of the human hand in the type on the pages of a book that one would find in a handwritten manuscript; the signature is the antitheses of the typewritten name.

Fig.5 O-1 O-2

Fig.6 O-1 O-2

Photo credit: Vince and Carol Arrigo (detail)

Figure 5 pictures the filigree O-1 and O-2 again. On **Figure 6**, I have drawn some lines tangent to several corresponding design features of these filigrees. With these lines it becomes apparent that the left ornament, O-1, is taller than O-2. Each ornament has a taller and a shorter half because they are asymmetrical, as noted earlier. The inner pearls do not align with each other even though the filigree' top arcs are aligned (but sloped) and they differ in size, which is enough to conclude that if these are actual pieces of type they come out of different moulds. Additionally, on O-1 the outer left pearl is larger than the right, but on O-2 it is the right pearl that is bigger. Such a feature should repeat on every casting, not switch sides as shown above.

It is impossible for O-1 and O-2 to have come from the same mould. In fact, they completely lack the mechanically-reproduced look of having ever been cast in moulds; asymmetrical beasts without consistency in either dimension or geometry as if they are but hand-drawn imitations of the genuine. **You will not find any two identical pieces of this ornament on either Type I or Type II.** There is nothing that commends the impressions to have been made from either cast metal type or from a stereo made from such type.

Different or Damaged?

To be thorough, we must consider several factors that can converge to contribute to similar pieces of type printing differently. The slave moulds may have differed slightly from the master. The type may not have been cast properly to begin with. The finished pieces have been damaged in different ways. Differences in inking and in the paper surface have played their parts, along with differences in the amount of bite into the paper.

Assuming for a moment that the "Grinnell" filigree are truly damaged and worn-out type that began something like those pictured in Figures 1 and 2, *each deviation from the ideal would be as individual as a fingerprint*; a chance impart of character from a random set of misfortunes. In **Figure 7**, I have put four O-1/O-2 pairs together from four different Type II Grinnell Missionaries to search for these "fingerprints." The top two stamps are Five Cents, numbers G19 and G63. The bottom two stamps are Thirteen Cents, numbers G30 and G58. Using these four pairs from two settings as references, we

can determine which unique characteristics are consistent among the different stamps *and* between the same denominations. I have removed the canes from the images to concentrate on the arcs and pearls, because we can see the consistent flaws easiest in those elements.

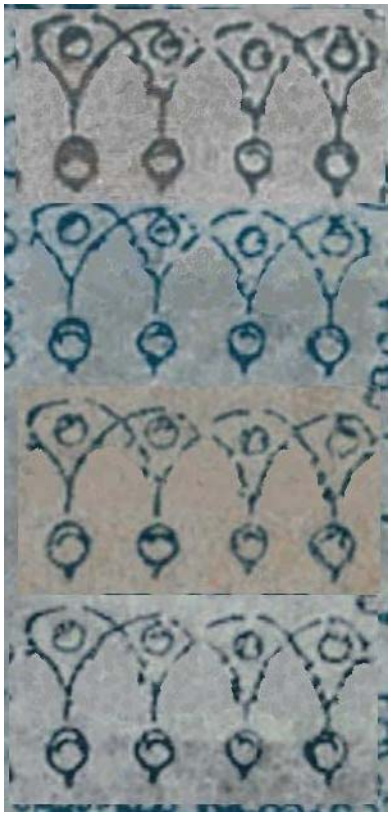


Fig.7

G19
5 Cents

G63
5 Cents

G30
13 Cents

G58
13 Cents

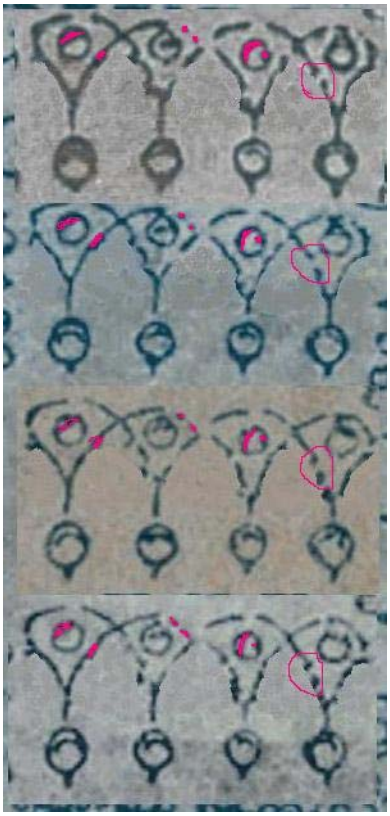


Fig.8

The common characteristics that carry through the same positions in both Five Cents and both Thirteen Cents are too numerous to describe thoroughly, but a few of the more prominent have been highlighted in **Figure 8**. The major breaks in the arcs translate vertically through all four pairs; most convincingly in arcs above the smaller pearls. The shading within the small inner pearls is also remarkably similar. Within the left hand inner pearl in the right ornament (O-2) there is a bit of shading line from about seven o'clock to twelve-thirty and a spot of color at three o'clock; together, they are very distinctive and can be easily seen in all four examples.

These four pairs of filigree will stack up perfectly when the images are scaled precisely. This means that not only are these four sets of filigree physically the same size, they are also in the same position relative to each other. No movement occurs between these pairs of filigree as the forme is reset with a new denomination.

Mark for mark, arc for arc and gap for gap these four sets of filigree are the same pair of "castings" that have many consistent post-casting defects among them. They are the same pieces of type in all four stamps, remaining in the forme for both the Five Cents

and Thirteen Cents settings. Any perceived differences among impressions from the same filigree type can be accounted for by wear and printing anomalies.

Resurrecting the Canes: Raising Cain

G19
5 Cents

G63
5 Cents

G30
13 Cents

G58
13 Cents

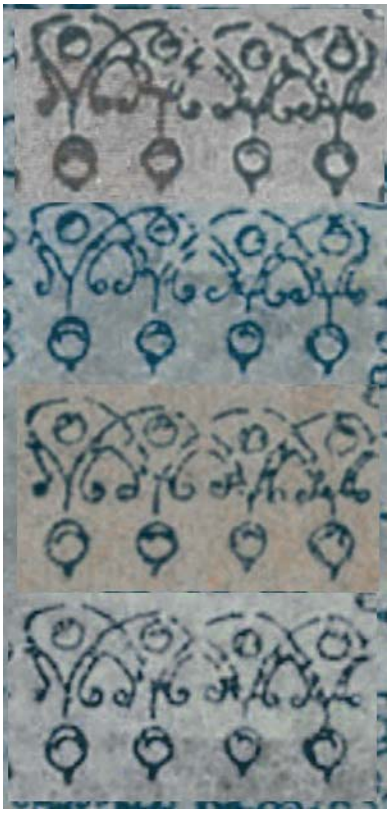
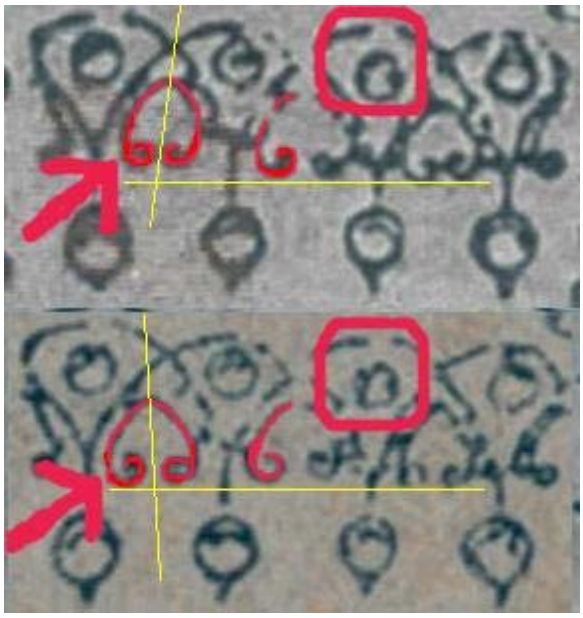


Fig.9
Photo credit: Vince and Carol Arrigo (detail)

Figure 9 includes the cane features to the same four pairs of O-1 and O-2 pictured in Figures 7 and 8 that appear to be the same pairs of type. One would expect the canes to be identical as well on each O-1 and O-2. However, between the two represented denominations ALL the cane features **change position, shape and orientation within the same chunk of metal type, mysteriously** swimming about the surface of the metal when the denomination changes!

Looking at **Figure 10**, note that the central pair of canes in O-1 hangs lower in the Thirteen Cents stamps than in the Five Cents. Also, where the canes come together they point to the intersection of arcs on the Five Cents but point to the left of that intersection on the Thirteen Cents. Additionally, the gap between the pair of canes changes in the center of O-2. In contrast and as a control, the shading line and dot in the left inner pearl of O-2 and the break above that pearl show a slight, practically insignificant difference; nothing near the changes taking place in the canes, but more in scale with printing anomaly.



FIVE CENT
FILIGREE

THIRTEEN CENT
FILIGREE

Fig.10

The fact that the cane features move independently of the remainder of the filigree is central to understanding how the "Grinnell" plates were prepared. **These plates are not stereotyped from actual cold type but instead appear to be an artistic rendering of genuine filigree that is redrawn between denominations.** I first noticed the canes changing positions when I was looking for evidence that these two pieces of ornament moved in relation to each other, as seen in the product of moveable type. Upon removing the canes, I found that the body of the filigree neither moved in relation to each other nor had been replaced with different type. Not only are the plates fixed, but the movement attributed to loose type in previous opinions is likely due to the redrawing of these cane features as well as other features that will be compared in Part Two.

Metal type cannot behave in this manner. One might expect to find a slight shift in the ornament positions from when the chase holding them was unlocked and partially disassembled, but not the degrading or replacement of either O-1 or O-2, and certainly not the partial re-arrangement of features within each. A piece of the impression surface cannot simply migrate across the surface of a chunk of metal type upon which it is cast. Especially suspicious is that the pieces that move are coherent parts of the design, not just random and formless flakes.

Are Grinnell Filigree Damaged Versions of the Genuine Filigree?

Damage has been one reason put forth to explain why Grinnell filigrees appear so crude and inconsistent. If the surface was damaged from a blow, resulting in this degree of movement in the cane features, then the canes would not print at all. Or, at best, would show significant degradation in the impression quality. As a three-dimensional object, the degree of metal relocation in the x-y plane (the printing surface) from such a blow would

have also occurred in the z-direction (depth) as well. This would have caused the surface to rotate away from the printing plane and fail to contact the paper properly if at all.

However, we can clearly see that each set of canes print as clear as the other, so the canes' surface was fully functional. This means they had to have been repaired, requiring the printer to sand the entire surface of each piece down to the surface of the damaged portion. Because the raised elements are truncated and widen from the surface down to the body, sanding would have produced a progressively wider surface resulting in a thicker overall impression and the eventual joining of line details. There is no notable thickening in these filigrees in relation to any other pieces of type within the Grinnell printing.

Having begun this analysis by determining the availability of this filigree for the "H.I. + U.S." printing, we can realistically dismiss the above repair scenario from having ever been necessary to print anything utilizing these filigree at the time of the genuine Hawaiian Missionary printings.

Conclusion: The Devil Is In These Details

The movement of discreet portions of the design within a single piece of filigree "type" proves that a composite of several design elements masquerades as a single cold type impression. These movements individualize the filigree for separate denomination "settings" without actually moving or replacing the filigree.

The reworking of the canes between printings demonstrates intent by the creator of the "Grinnells" to achieve a premeditated end. There is no reason to expend such effort in relation to the expediency, economy and efficiency that Henry Whitney would employ in printing stamps during the course of business in 1850's Hawaii. Even if Whitney chose to rework metal type, for whatever reason, he could not make modifications as drastic as those demonstrated in Figure 10. There *is* reason to go to such trouble, and without involving metalworking, if one is attempting to deceive the observer with a *single piece* of a **paste-up model** manipulated to appear as the two *separate* filigrees O-1 and O-2. Such a model would naturally require the photo-enlargement of a genuine Missionary and the photo reduction of the model down to stamp size.

As noted earlier, these two filigrees do not move in relation to each other. Trepel demonstrated that the Grinnell Missionaries were printed from a fixed plate; perhaps three fixed plates, each containing pairs of the same denomination, the left stamp Type I and the right Type II. Perhaps only one plate was made having all six varieties grouped in pairs. Most importantly, the spots of color he has found are indicative of a photo-reproductive process, as elaborated in his analysis. Such a process condemns the "Grinnell" Missionaries as being too modern to be a contemporary of the 1850's Hawaiian Missionaries.

The Trepel spots of color indicate a fixed plate printed the "Grinnells." The fluid nature of the "type" impression discovered in this analysis rules out cold-set type, and therefore must also rule out a stereotype plate cast from cold-set type. Part Two will build on the discovery of discreetly moving detail to demonstrate the following six points:

- The genuine stamps in Grinnell's possession were the models for the "Grinnell Missionaries."
- Fixed plates were prepared using a photo-reproductive process to transfer a hand-drawn model to a metal plate.
- The paste-up models consisted of no more than twelve tracings, or paste-ups, per stamp.
- Each tracing (except of the central numeral) was a conglomerate representing two to fifteen typeset impressions of the genuine stamp.
- Only the conglomerate moves independently, not the individual "typeset" impressions.
- These conglomerates were redrawn slightly between plate preparations in an attempt to *imitate* the movement of multiple independent pieces of type as would occur from loosening the forme.

Endnotes:

(1) Page 50 from "The Grinnell Hawaiian Missionary Stamps" by Patrick Pearson on behalf of the Royal Philatelic Society London, 2006 RPSL Ltd.

(2) From "Are some Grinnell Missionaries Genuine?" by Ken Lawrence in *Scott Stamp Monthly*, October 2006, pages 26 through 33.

(3) "G80 – The Mother of "Grinnell" Type 2 Hawaiian Missionary Forgeries" By Bill Longley, September 12, 2006, posted on Richard C. Frajola's *Grinnell Missionaries Reference Board* website - www.rfrajola.com/grinnells/grinnells.htm

(4) From *Frajola's Grinnell Board*, September 13, 2006 www.kbnet.com/book/html/frajola_grinnellbook.html

(5) "Tiny Marks and Other Reasons Grinnells are Fake" By Scott R. Trepel, September 8, 2006, posted on Richard C. Frajola's *Grinnell Missionaries Reference Board website* - www.rfrajola.com/grinnells/grinnells.htm

(6) From "How Were Hawaiian Missionaries Printed?" by Ken Lawrence, September 13, 2006, posted on Richard C. Frajola's *Grinnell Missionaries Reference Board* website - www.rfrajola.com/grinnells/grinnells.htm

(7) From *The Grinnell Missionary Stamps Report Number One* by Kieth Cordrey.

(8) From “Res Adjudicata” by John A Klemann, *The American Philatelist*, November 1924.

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