

Modern U.S. Varieties: Mail Service? Perforation Types And Taggant Behavior

by Rudy de Mordaigle

USPS last letter must not mean “service“.

Why I'm not so much of a fan of the USPS anymore: Saturday, two days ago I opened my mail and found a credit card statement from January. January? Wait, it's not even November. Oh, January 2024! Well, today's a Monday, October 20, and in today's mail was another credit card statement. January 2024 again. Good thing I go online to pay bills, but it shouldn't work like that.

There was also a letter in today's mail from reader Rob Loeffler, postmarked January 8, 2024! A note said “Call me when you get this.” And so I called. There was also a booklet of the Space Fantasy stamps in there, Scott BK204. These booklets were assembled of four panes with different plate numbers, Figure 1. And so I called Rob, and he couldn't even remember what he had sent. So much for speedy communications.



Figure 1. Booklet Scott BK 204. Mailed at Pequannock, NJ, January 8, 2024, it took almost two years to get to California. The Pony Express could have beaten that.



Four of these panes were glued inside, under the tab at the left end. The five stamps are Scott 2741-45, left to right. It's amusing that stamps that show speedy travel in space traveled so slowly on earth.

And that's not all. Also in today's mail was a different credit card statement from January 2024, long ago paid. What's interesting, when I asked what was going on, was that the post office had received a bunch of “loose mail.” Apparently two days in a row, and mailed from all sorts of different places, which means that the issue is local and not in the four corners of the USA. I'm pointing the finger at the USPS Processing and Distribution Center in Bakersfield, California, which, according to tracking this year, sat on a package for over a week and on mail for even longer.

Mail that we dropped in the box at Olancha would previously go to the P&DC at Santa Clarita, which is on this side of a mountain range that rises to over 14,000 feet, the same side as Olancha. From there, it was distributed around the country, mostly efficiently. Now, mail crosses the mountains to Bakersfield, then comes back across to Santa Clarita before going onward. Ask me how's that efficient. Apparently, someone at the USPS with no sense of geography, looked at a map and saw that Bakersfield was closer than Santa Clarita. About

all you can say about the workers at the Bakersfield plant is that they are a bunch of slugs.

One day later. Now I get a reminder of an appointment at the VA on June 26! At least it was this year. Timely? I think not. And an account statement from May 2025. This old mail clearly piled up somewhere. You would think the USPS would be on this, snap, particularly since the delay, in some cases, has been almost two years.

Has it always been like this? In 1968 I was postal officer at the Cubi Point Naval Air Station in the Philippines. A bunch of mail came through that had been at Saigon during the Tet Offensive by the Vietcong and North Vietnamese. The letters had been singed. Did the postal officer there just send them on with no comment? No, each letter had a slip of paper with an explanation stapled to it or in a larger outer envelope, Figure 2. Did this take time? You bet it did, but that was honoring the last letter in “USPS”. Do we get service like that now? No, just late mail with no comment at all. When this occurred, the mail was delivered by the Post Office Department which became the USPS in 1970. Even though “service” was not in the organization's name, the employees gave service. Today? Hah!

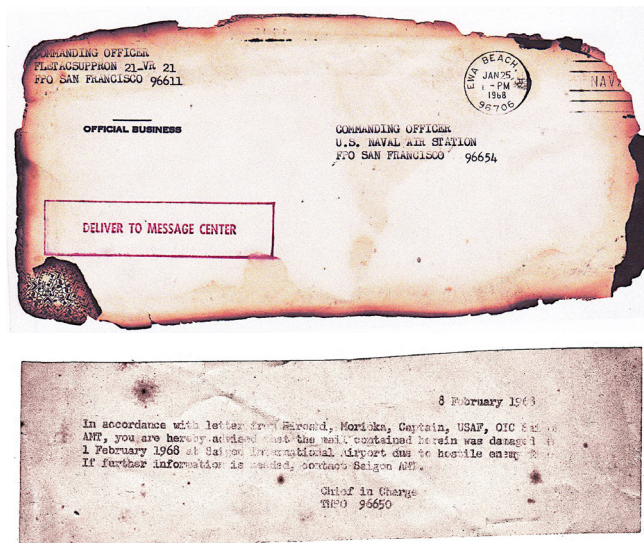


Figure 2. This letter was mailed from Ewa Beach, Hawaii January 25, 1968, and was caught up in the Vietcong attack on Saigon that started shortly after midnight on January 30. Despite being in a war zone, the postal officer attached a note to every piece of mail damaged at the postal facility at Saigon.

This one reads: "In accordance with letter received from Hiroshi Morioka, Captain, USAF, OIC Saigon AMT, you are hereby advised that the mail contained herein was damaged on 1 February 1968 at Saigon International Airport due to hostile enemy action. If further information is needed, contact Saigon AMT. Chief in Charge, TNPO [THPO?] 96650."

These notes were run off on a ditto machine. The purple ink has faded and is tricky to read.

Two years ago I would get Monday's *Wall Street Journal* on Monday. Now, if lucky, it's a day late. Tuesday last week, I got two Monday papers, one for the day before and the other a week and a day late. Have readers experienced this as well, or is it a California phenomenon? The world could come to an end before I read about it!

More than one kind of perforation

When the Postal Service started to transition to private printers instead of using the Bureau of Engraving and Printing, one of the contractors they used was Stamp Venturers, a firm started by former BEP executive Richard Sennett. Stamp Venturers, SVS, farmed out printing to various firms ranging from 3M to American Packaging in Columbus, Wisconsin. In the case of lick-stick coils, the printed web roll was then transported to Unique Binders in Fredericksburg, Virginia for perforating.

When the BEP perforated stamps, they used a perforator with pins to punch through the paper and into a receptor hole on the other side. Occasionally, the pin side and receptor hole size was changed, resulting in large and small hole varieties of stamps like the two pairs of 1-1/4¢ Palace of the Governors, Scott 1054A, shown in Figure 3. A number of other Liberty Series coils showed this variation.

small hole perforations

large hole perforations



Figure 3. Small and large hole varieties of Scott 1054A. With the BEP hole punching process, it was one or the other, with no intermediate sizes.

Unique Binders, on the other hand, perforated coil stamps with a process called skiving, which thins a substance, paper, leather or metal, by shaving off thin slices from the underside. Unique Binders used flat-topped conical pins to push up the paper at each perforation, and then shaved off the pushed-up paper.

The flat topped pins eventually became rounded. At that point, they were refurbished by being ground flat. Since they were conical, the new flat top had a larger diameter, resulting in perforations that were slightly larger.

The pins could be refurbished more than once, resulting in a range of variable hole sizes from small to large. You couldn't look for just small or large hole varieties and expect all "small" to be the same, or all "large" to be the same, as with the Liberty Series stamps. The tendency was to collect the extremes, the smallest you could find and the largest, but your large-hole or small-hole example might not be like someone else's, Figure 4.

Potentially, any coil stamp processed by Unique Binders could show this variation. The successor to Stamp Venturers was Sennett Security Products, with Unique Binders remaining as the processor, so SSP coils could show the hole-size varieties as did the SVS coils.



Figure 4. Wetlands, Scott 2207, large hole pair; top, small hole pair; bottom. The USPS contractor was Sennett Security Products who farmed out the printing to American Packaging Corporation and the coil processing to Unique Binders.

The whole width of the web was not perforated at the same time. Three sets of pins were used, one for the middle of the web and sequentially, one additional for each side. Alternatively, both sides could also be perforated at the same time. Either way, the sections of pins overlapped by one hole and the perforations overlapped by one hole. On the occasions when pins in one section had been refurbished and in the other section or sections not refurbished, the result would be two hole sizes for stamps in the coil that spanned the overlap, as in the 1¢ Tiffany Lamp example shown in Figure 5, page 16.

SSP farmed out the printing for Tiffany Lamp to American Packaging, which used their Rotomec 3000 gravure press for this issue. Unique Binders perforated the web and Southern Graphics engraved the plates. Unique refurbished the pins numerous times while processing these stamps, so there is a long spectrum of hole sizes between small and large that you can look for.

What I assumed, and so did other collectors, was that the paper was pushed up from the back and shaved off at the printed side. Actually, we didn't know. It turns out that this is exactly the opposite of what was being done. Instead, the pins pushed on the printed side and the skiving was done on the gummed side. How do we know? A strip of the 2007 non-denominated (41¢) USA First Class US Flag, Scott 4131, has been found where the perforations are not completed. The paper was pushed down from the printed side, but not far enough so that the upward bulge on the other side was high enough to produce a hole when shaved.

A seam line on the strip is preserved in the bottom of each not-pushed-far-enough perforation, Figure 6, page 16.

This was a close miss. One perforation went through, but not completely. It shows up as a tiny black spot in the detail shown in Figure 5, the black being the backing used in scanner when the image was made.

What's so interesting here is that the process was treated as a trade secret, with just little bits of information dribbling out. This a



Figure 5. 1¢ Tiffany Lamp, Scott 3758, from a 3,000-stamp roll. Large holes above small holes, with the change occurring at the arrow. With the dark design, the difference is most easily seen from the back. Three sets of pins were used to perf this web, overlapping at two points. Only coils at one or both of the overlaps would show the change in perforation diameter; so these are not common.

problem not encountered when the BEP was printing US postage. If we were interested in the process, a letter to the BEP usually resulted in a completely detailed and pages long response. Now, getting an explanation of what is being done is nearly impossible. Like this strip of coil stamps, we'll take what we can get, and it's fun to find out something new.

Taggant afterglow

Last month I mentioned that reader Richard Cole had found some tagged stamps where the phosphorescent afterglow didn't rapidly extinguish when the shortwave lamp was turned off. You never know where someone's observation will lead. Mark Stockburger responded to that column by commenting, "I guess when you don't look you don't see it." And that's for sure! Mark writes that he has found hundreds of stamps, from the early tagged 5¢ stamps through the late mid-1990s that exhibit a long-duration afterglow of up to seven seconds or more.

So, what's going on? For the USPS facer cancelers, the length or color of the afterglow doesn't matter, just so there is one. Letters going through the system enter a dark chamber with a rapidly-cycling short wave lamp. When it snaps off, any envelope with a stamp that exhibits a phosphorescent afterglow gets properly faced and canceled. No afterglow, it gets kicked out. What is causing the difference in the length of the afterglow?

The mineral willemite, or zinc orthosilicate, is used as a taggant. When the shortwave lamp is on, zinc orthosilicate absorbs energy from that source and instantly emits that energy as photons, the yellow-green glow that we see. This is ordinary fluorescence. But willemite is also phosphorescent, where the electrons that absorb energy slowly re-emit it, normally in milliseconds. Some phosphorescent compounds glow for minutes or hours until they return to

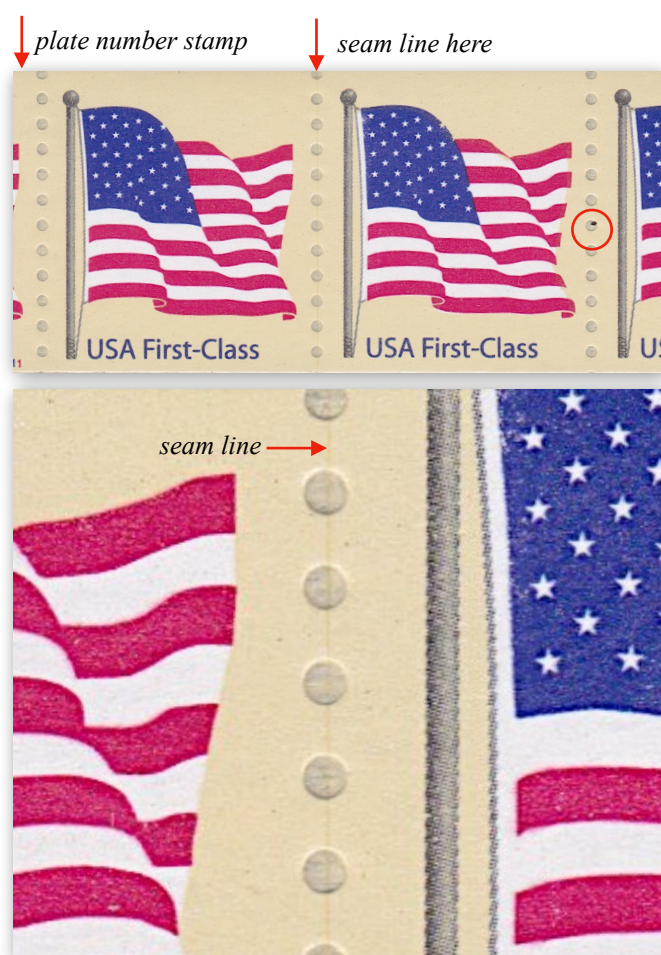


Figure 6. A Scott 4131 coil strip was found with the perforations not pushed all the way through. Pushed down from the printed side, but not shaved off at the back, each perforation at the seam line that occurs at the right edge of the stamp to the right of the plate number stamp shows that seam line in the perforation. Had perforating been accurate, there would be no paper or printing in the perforation holes. One hole was pushed down enough to get partly shaved off, circle. The black is the black backing used in the scanner.



their original energy states, though most phosphorescent compounds are fast emitters, returning to their original energy state quickly. The zinc orthosilicate taggant currently used by the USPS printers is a millisecond emitter. So why, in older stamps, do we find so many with a long duration afterglow?

If some of the excited electrons have moved out of their normal atomic position and into energy storage imperfections in the crystal lattice, they will remain stuck there until they receive a bit of heat from their surroundings, just enough to kick them out of the trap in the lattice. This may be cause of the delay that we see with some zinc orthosilicate taggant.

The mineral willemite has long been synthesized. It's possible that in the early days of this process, small imperfections occurred in the synthesized zinc orthosilicate. This would have resulted in an afterglow that was longer in duration than it would have been if the compound was pure, though it would not have affected the workings of the Postal Service canceling machines. And why aren't we seeing it with newer stamps? It's likely, in the past quarter century, that the

synthesization has been improved, removing the impurities and resulting in a more standardized millisecond afterglow.

What's also interesting is that in the 1995-1997 period, three of the four USPS printers produced stamps with a long duration afterglow. Avery Dennison, the BEP and Banknote corporation of America all used taggant with a long afterglow, suggesting that they all got it from one supplier. Even more interesting, in the printing of Scott 3112, the self-adhesive version of the 32¢ Paolo de Matteis Madonna and Child, the BEP used taggant that shows short afterglow and long duration afterglow as well. Of the 27 plate number combinations used, 14 had stamps with a short duration afterglow and the other 13 exhibited the long duration afterglow, Table 1. If any reader can supply an addition to this, my email is at the end of the column, as is my real mail address.

Table 1. Plate number and afterglow duration for BEP self-adhesive Madonna and Child.

1111-1	short duration
1211-1	short duration
2212-1	short duration
2222-1	short duration
2222-1	short duration
2323-1	short duration
2323-1	long duration
3323-1	long duration
3333-1	long duration
3334-1	long duration
4444-1	long duration
5544-1	long duration
5555-1	long duration
5556-1	long duration
5556-2	long duration
5656-2	short duration
6656-2	short duration
6666-1	long duration
6666-2	long duration
6766-1	short duration
6766-1	long duration
7887-1	short duration
7887-2	short duration
7887-2	short duration
7888-2	short duration
7988-2	short duration
6766-1	long duration



Scott 3112 is the self-stick booklet version of this stamp. The BEP clearly used two different versions of zinc orthosilicate taggant, just an example of a variation right in front of our noses and not discovered until someone looked. This data is from Mark Stockburger. The four digits are for the offset color, and the single digit is for the black intaglio inscription.



*Figure 7.
Stamps to test
your eyes on.
All of these are
found with a
long-duration
afterglow.*

*All were issued
in 1996.*

It might not pull your wagon to collect long and short duration afterglow examples in this detail, but you might consider finding a long and short duration example of a particular issue and having them on your album page. And after years of saying I couldn't see any afterglow at all, now I really can, with the right stamp in hand. You just have to know where to look. Train your eyes. Figure 7 gives you some examples that have a visible afterglow. Thanks to Richard Cole for lending the examples that I mentioned last month and to Mark Stockburger for taking this further. More happy hunting.

Questions and comments are invited. Write to me at Rudy de Mordaigle, PO Box 184, Olancho, CA 93549, email pan42ttt@gmail.com, or c/o USSN, 42 Sentry Way, Merrimack, NH 03054. I'll answer any questions and include any new information in the column.